PERFORMANCE EVALUATION OF SELECTED SIGNALIZED INTERSECTIONS IN DHAKA CITY

BY

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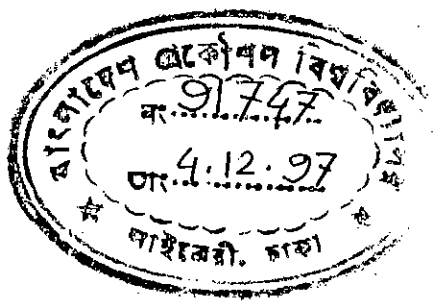
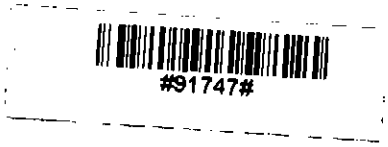


A project submitted to the Department of Civil Engineering, Bangladesh University of Engineering and Technology, Dhaka, in partial fulfillment of the requirements

for the degree of

MASTER OF ENGINEERING IN CIVIL ENGINEERING



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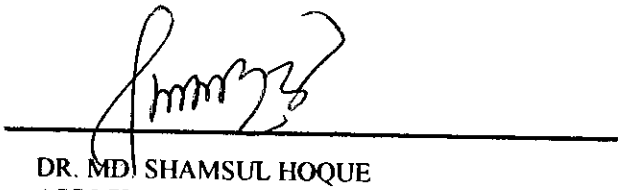

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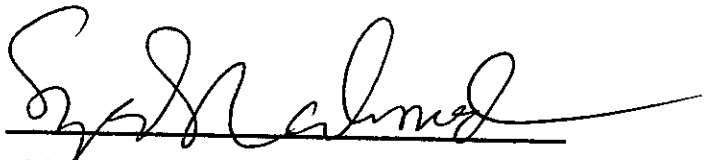

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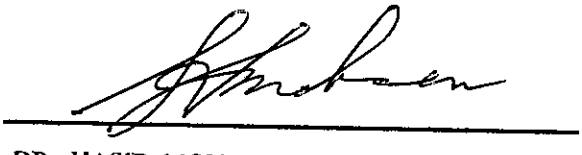

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ABSTRACT

In a road traffic system, intersections are one of the prominent bottlenecks, where smooth flow of traffic is interrupted and thereby cause delays. To avoid unnecessary delay and to ensure efficient traffic movement, intersections need be designed properly and carefully. In keeping with appropriate road geometry, traffic control devices are also needed. Even a cursory look at the operational characteristics of major signalized road intersections in Dhaka City reveals severe traffic congestion, delay and insurmountable sufferings to the road users. This is happening mainly because of faulty layout of junctions, illegal parking/ bus stoppage near approach legs of the junctions, faulty design and placement of traffic signals, poor pedestrian crossing facilities etc. This study is aimed at investigating the potentiality of enforcement of traffic regulations and placement of secondary signals on improving junction performance.

In order to achieve these objectives the "before and after" approach of data analyses has been adopted. The improvement of junction performance has been done by comparing before and after data (where "before" means junction performance at existing condition and "after" means junction performance under changed condition that is, either with the deployment of extra police or the providing of secondary signals). In order to see the effectiveness of enforcement on junction performance the 'after' data has been collected during the "Traffic Awareness Week".

Data were collected from three selected junctions in Dhaka City, Bangla Motor, Purana Paltan and Fakirapool intersections, by using video camera for 30-min. duration both at morning and evening pre-peak periods and for two consecutive working days at each site. The data gathered from the video images were analyzed statistically by using "EXCEL" software.

Analyses of the data revealed that the deployment of extra traffic police, which indicates strict enforcement, produces most significant improvement of junction performance. Overall throughputs increased by 41%, 15% and 11% at Bangla Motor, Purana Paltan and Fakirapool intersections respectively. It has been observed that strict enforcement is more effective in improving junction performance where traffic flow comprises only motorized vehicles or a mix

of motorized and non-motorized traffic with minimum or no turning movements (especially right turning). As compared to strict enforcement, placement of secondary signal was found to be less effective in improving junction performance. Overall 19% throughputs increased at Bangla Motor junction after providing secondary signal. Stopline violation was also observed at most of the approaches at the selected sites. Analyses revealed that traffic signal posts should be installed at proper locations to prevent stopline violation.

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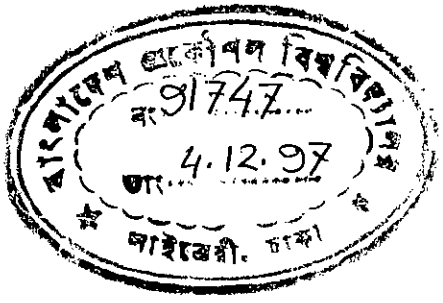


INTRODUCTION

1.1 INTRODUCTION

In a road traffic system, intersections are one of the prominent bottlenecks, which interrupt smooth flow of traffic and thereby cause delays. To avoid unnecessary delay or to get an efficient traffic flow, these intersections need to be designed properly and carefully. Along with appropriate road geometry, the necessary traffic control devices also need to be applied wisely.

Major signalized intersections within the urban areas suffer from severe traffic congestion, which produce long delay and insurmountable sufferings to the road users. General observations show that this is happening mainly because of illegal parking/ bus stoppage near exit, faulty placement of signals, arbitrary setting of signal time / phase, poor pedestrian crossing facilities, absence of secondary signals and most importantly poor policing activities and many other factors.

It is, therefore, intended in this study to explore how much improvement in performance could be achieved by providing better enforcement and secondary signals at intersections.

1.2 STATEMENT OF THE PROBLEM

The major signalized intersections in Dhaka City suffer from severe traffic congestion, which produce long delay and insurmountable sufferings to the road users. This is happening mainly because of faulty layout of junctions, illegal parking/ bus stoppage near exit, faulty placement of signals, arbitrary setting of signal time / phase, poor pedestrian crossing facilities, most importantly poor policing activities and many other factors. However, from the general observation it has been identified that most of the total problems, which cause traffic congestion in our intersections mainly because of the faulty placement of signals and as well as poor policing.

But no studies and investigations related to junction performance have been carried out in our country yet. This study thus attempts to investigate the effect of the secondary signals and to see the contribution of traffic police in particular relation to performance (flow, conflict) of junctions.

1.3 OBJECTIVES OF THE STUDY

The study is aimed at investigating intersection performance viz. flow and conflict due to (1) strict police enforcement and (2) placement of secondary signal.

1.4 ORGANIZATION OF THE THESIS

The investigation as reported in this study is organized and presented in the following order.

Chapter 1 represents introduction and objectives of the study. A brief review of the existing junctions' condition prevailing in Dhaka City is presented in this chapter with special emphasis placed on the objectives of this study.

Chapter 2 incorporates literature reviews related to junction performance with special emphasis given on enforcement.

Chapter 3 describes the methodology of data collection and analysis. Findings from critical observations of field data are also incorporated.

Chapter 4 includes the conclusions of the entire study and some recommendations for the further research.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Performance of a junction depends on many factors such as geometry of junction, whether it is only priority controlled, only police controlled or signal controlled, side friction, drivers behavior, pedestrian crossing etc. Geometry of a junction affects its performance a great extent. It includes layout of the junction, channelisation for right turning and left turning vehicles, islands, refuges for pedestrian etc. If a minor road crosses a main road and traffic is very less on minor road then the junction is controlled by priority basis. When the traffic in the minor road is moderate then traffic police is involved to control crossing of vehicles but when two important roads crosses each other, it is not possible to control vehicles movement in that junction by only police and as a result traffic signal as well as signal signs are provided. In this case performance of the junction depends mainly on these signals i.e., number of signals, their proper placement, presence of primary signal with or without secondary signal, number of police involvement etc. Besides these, drivers' characteristics are also liable for lowering performance of a signalized junction in some extent. Another important factor that affects performance of junctions is pedestrians' movements. If number of pedestrians is high and separate green phase is not provided then performance of junction might be low significantly.

Factors so far discussed are general at major signalized intersections in Dhaka City. But no comprehensive study has been performed related to these factors so far. So a brief literature review relating to performance effecting factors depending on developed countries has been outlined in the following articles.

2.2 GEOMETRIC DESIGN OF JUNCTIONS

Geometry of a junction is the prime factor that affects performance of that junction significantly. Removing other affecting factors but geometry performance of a junction must be very low than that of another properly designed junction. Although it is possible to change the existing geometry of a junction in rural areas but it may be regarded as permanent fault for a built up if it is not designed properly. So, a junction layout of three or more approaches has to be designed most wisely to get maximum performance. For these some standard factors that have been exercised in the developed countries are given below.

2.2.1 The Approach

Because signals permit traffic movement from any approach for only a proportion of the time, it is sometimes necessary for the intersection approaches, where queuing takes place, to be wider than the roads, which feed these approaches in order to pass the required flow. If the intersection already exists, the timing of the signals can be adjusted for a given flow pattern to make the best use of the existing layout. If the intersection is in its design stage, or if some changes can be made to the layout of an existing intersection, then a choice of approach width may be available, after selection of which the green times can be adjusted to give the correct capacities for those approaches.

2.2.2 Lane Widths [1]

It is normal practice all over the world for lanes to be 10-ft wide at an intersection, though occasionally 9-ft lanes have to be accepted at some existing intersections. Some countries have found that in certain cases having very narrow lanes (down to 7 ft) even though drivers of wider vehicles are unable to keep within them increases capacity. With queuing lanes wider than 10 ft it is likely that capacity would be wasted,. though this depends on traffic composition; for

example, where there a high proportion of bicycles, or of wide vehicles, it may be beneficial to have a wider nearside lane.

Some traffic engineers recommend having the same number of lanes on the exit side of the intersection as there are straight-through lanes (partly or exclusively used by straight-through traffic) on the approach side. If, however, site conditions make it necessary to have fewer lanes on the exit side of the intersection, a distance of about 300 ft on that side should be allowed for merging to take place, though this could be reduced if there are many turning vehicles at the intersection, i.e. fewer vehicles going straight ahead. It is most desirable that vehicles traveling in through-lanes should not be obstructed by either parked vehicles or waiting right-turners, and the latter should wherever possible have their own lane or lanes.

2.2.3 Layout for Right-Turning Vehicles [1]

Opposing right-turners can turn on either the offside or the nearside of each other. In the former case they have good visibility and can seen an approaching gap in the opposing stream in which to complete their turn. On the other hand, if there are too many turners from the two directions for the storage space within the intersection, the two streams may interlock causing congestion in the intersection. With the nearside method locking cannot occur but visibility is often restricted, and drivers usually have to wait until the end of the green period before turning in order to be sure that there is no opposing straight through traffic. If the nearside method of turning right is used there may be advantages in offsetting the centerline (or the central reserve) so that more space is available to traffic approaching the intersection than to traffic leaving it. In some cases, it may be desirable to place the opposing right-turners opposite each other.

2.2.4 Pedestrian Crossings [9]

A pedestrian refuge is usually placed at or near the center of a single carriageway if the widths remaining to traffic in the two directions are sufficient. Where pedestrians have to cross a very wide approach it is desirable to place the stop line well back from the crossing (about 20 ft) so that, when the vehicular phase beings, drivers can easily see if any pedestrians have not completed their crossing and can delay their start accordingly. It is desirable in some cases to restrict the crossing of pedestrians to certain approaches at an intersection and guard rails can be used to prevent pedestrians crossing at unmarked place (e.g. where filter streams may be moving at times unexpected by the pedestrian). On one way streets pedestrians can be signaled to cross without any interference form turning traffic and without reducing the green items to traffic, but on two-way streets it is sometimes necessary to allocate a special phase to pedestrians if they are very numerous.

Subways and footbridges provide a safer method of crossing the road, but pedestrians do not always use them unless the alternative suffrage-level path is such that it takes more time to cross. Guardrails are often used to make the surface path less convenient. It should be noted, however, that the effort involved in using subways and footbridges is often not inconsiderable and further that many people particularly women and old people, have a reluctance to use subways at night time.

2.3 TRAFFIC CONTROL DEVICES [38]

Performance of a signalized junction depends a great extent to traffic control devices that include all signs, markings, and signals placed at the junction to regulate, warn, or guide traffic movement. To improve performance of junction, traffic control devices should be properly designed.

But to get maximum performance of well designed traffic control devices they should be placed and operated in a uniform, consistent manner. In this way, motorists can be expected to properly

respond to the devices on the basis of previous exposure to similar traffic situations. A control device should be placed within the user's cone of vision and in reasonable proximity to the point, object, or situation to which it applies. Its location and eligibility should be such that a driver travelling at normal speed has enough time to respond appropriately.

It is important that devices be maintained to high standard to ensure that legibility and visibility are retained. When no longer needed, traffic control devices should be removed.
Following articles are brief studies about traffic control devices that have been adopted in the developed countries.

2.3.1 Traffic [Signs 1,9]

There are three functional classes of traffic signs: (1) regulatory, (2) warning, and (3) guide signs.

Regulatory signs give users notice of traffic laws or regulations. Such signs designate right-of-way (e.g. STOP, YIELD), indicate speed controls (e.g., SPEED LIMIT 50, SPEED ZONE AHEAD), control movements (e.g., NO RIGHT TURN, KEEP RIGHT, ONE WAY), regulate parking (e.g. NO PARKING), control pedestrian movements (e.g. CROSS ONLY AT CROSS-WALKS), and regulate traffic in various other ways.

Warning signs direct attention to conditions on or adjacent to a street or highway theta are potentially hazardous to traffic operations. Such signs require motorists to exercise caution, reduce, speed, or make some maneuver in the interest of their own safety or that of other motorists or pedestrians.

Examples of warning signs are curve signs (shown curved arrow), STOP AHEAD signs, PAVEMENT ENDS signs, and advisory speed plates. The latter signs supplement other types of warning signs. Warning signs has a black legend and border placed on a yellow background. With but few exceptions, warning signs have a diamond shape.

Guide signs indicate route designations, directions, distances, point of interest, and other geographic or cultural information. Examples of guide signs include JUNCTION signs, DETOUR signs, REST AREA signs, and service signs ((food, gas, lodging, etc.).

2.3.2 Traffic Markings [38]

Markings consist of paint or some other material placed on the pavement, curb, or object to convey traffic regulations and warnings to drivers. Markings may be sued alone or in combination with traffic signs or signals. Although markings are an effective and essential means of traffic control, they tend to be difficult to see in rainy weather and may be obliterated altogether by bad weather.

2.3.3 Traffic Signals [1]

Traffic control signals are primarily sued to control the movements of vehicular and pedestrian traffic at intersections. It is used to avoid vehicle conflicts and to reduce the number and severity of accidents at intersections.

2.3.3.1 Types of signals available

There are essentially two types of signals in general use; fixed-time and vehicle actuated. An intermediate type, semi-vehicle-actuated signals, with etceteras on the side roads only is discussed later.

Fixed-time signals:

With fixed-time signals the green periods, and hence the cycle times are predetermined and of fixed duration. The controllers are simple and relatively inexpensive but they are necessarily inflexible and require careful setting. They are most successfully used in linked systems. They can be equipped with time switches to alter the settings at certain periods of the day, to cover different traffic conditions.

Vehicle-actuated signals:

With vehicle-actuated signals the green periods are related to the traffic demands, using detectors which are normally installed on all approaches. In the absence of demands the signals will rest indefinitely on the phase which was last served. The controller consists of several low voltage electronic timers.

The basic technique in traffic-actuated control utilizes the following two basic timing features:

1. Initial vehicle interval and 2. Vehicle extension (passage time)

Semi-vehicle-actuated signals:

With semi-vehicle-actuated signals detectors are installed on the side-roads only and the right-of-way normally rests with the main road, being transferred immediately (or at the end of a pre-set period) to the side road when a vehicle passes over the side-road detector.

Coordinated Control systems:

When two or more junctions are in close proximity on a main traffic route, some form of linking is necessary to reduce delays and prevent continual stopping. The purpose of a linked system is to pass the maximum amount of traffic without enforced halts, while allowing for the claims of cross-street traffic. Sometimes minimum overall delay to all streams, including the side-road streams, is sought. Alternatively, or additionally, linking may be employed to prevent the queue of vehicles at one intersection from extending back and interfering with another. The several basic forms of linking are described below. Of these the simultaneous, alternate and flexible progressive systems require a master controller and may be used where several installations are linked together.

Area Traffic Control:

Consideration is now being given to the use of digital computers to provide systems of area traffic control. The purpose of such control is to reduce delays by

(a) Better methods of linking signals according to the traffic situation at any given time;
(b) Diversion of traffic away from congested routes to alternative routes where spare capacity is available; and
(c) Lane switching, or switching of peak-period one-way systems, on tidal-flow routes.

Digital computers can provide additional facilities for:

(a) Preventing forward movement from one signal installation when the queue back from the next installation reaches a critical point;
(b) Giving priority to forward movement at the next installation in order to clear the queue;
(c) Emergency arrangements for traffic control when accidents, roadwork's, special events, weather and so on interrupt normal conditions.

2.3.4 Pedestrian Signals

Normally at intersections controlled by signals the requirements of pedestrians are catered for in two ways. One method is to provide a crossing marked out in studs in front of the stop line for use by pedestrians during normal signal timings, i.e. no special phases are given for them. This arrangement is normally used at intersections where turning traffic is not heavy. In the second method pedestrians' movements are controlled by separate signals during special phase. This is a more positive method as well traffic is halted before the pedestrian phase is given, but it causes greater delay to vehicles.

Pedestrian signals have two aspects. The current Traffic Signs Regulations and General Directions in U.K provide for the introduction of one aspect showing a red Figure of a stationary man on a black background and the other showing a green Figure of a walking man on a black background. Other present signals show the word 'WAIT' in red on a black background and the word 'CROSS' in white or green on a black background. With the present signals, the 'CROSS' indication is usually displayed for a pre-set period of 6 to 10 seconds according to the pedestrian flow, and is followed by a clearance period of 2 to 8 seconds during which all vehicle signals are at red and no signal is displayed to pedestrians. The 'WAIT' signal to pedestrians is then displayed coincident with the red/amber of the next vehicular phase, and continues until the green pedestrian signal is next given. The combined length of the pedestrian phase, the clearance period, and the following red/amber period is usually based on the time taken to cross the road at 4 ft/second. Where pedestrian flows are very heavy, longer times are given if the traffic situation permits. If the transit time to the pedestrian crossing for traffic starting up on the next vehicular phase is appreciable, appropriately shorter times may be given. When, however, the transit time permits of a reduced clearance period it is essential on multi-phase installations to ensure that adequate clearance is given to each possible following phase.

In general in U.K. a short all-red period is usually inserted before the green pedestrian signal is displayed to ensure that traffic is clear of the crossing before pedestrians are signaled to cross. The pedestrian phase may be introduced either (a) by operation of a push-button-this is the normal arrangement and avoids unnecessary delay to vehicles, or (b) automatically; this may be

desirable particularly with linked signal systems to prevent signals with a pedestrian phase getting seriously out of step with adjacent signals.

2.3.5 Warrants for Signals [1]

Broadly speaking, the three primary aims of signal control are:

(a) to reduce traffic conflicts and delay;
(b) to reduce accidents;
(c) to economize in police time.

The Ministry of Transport, U.K. considers the minimum justification for signal control to be an average flow over 16 hours of the day of about 300 vehicles per hour of which at least 100 vehicles per hour are on the minor roads. This would be equivalent to a peak-hour total flow entering the intersection (taken as about 10 per cent of the 16-hour total) off about 500 vehicles per hour.

Signal control may be expected to reduce certain types of accident (e.g. collisions between vehicles moving at right angles to each other) but is likely to increase some other types of accident (e.g. nose-to-tail collisions). A knowledge of the average number of accidents per annum at a particular site, and a study of movements before impact, may help in deciding whether signal control will be beneficial, and whether or not there is a prima facie case for considering signals on safety grounds. Records show that the average number of personal injury accidents per annum at signaled junctions is about two for Great Britain and six for the greater London area.

Signals are installed, even if the above warrants are not satisfied, if they are needed to form part of a linked system.

In the U.S.A., where fixed-time signals, are common, the traffic warrants for these types of signal are given in the Manual of Union Traffic Control Devices for Streets and Highways. There are many times more signals per 100 miles of urban road in the U.S.A. than in great Britain, probably because of the grid-iron pattern of streets common to most American cities, which lends itself to linked signal systems. In the U.S.A. the minimum vehicular warrant for fixed-time signals in urban areas is a major-road flow (both directions combined) of 500 or 600 vehicles per hour for each of 8 hours of the day and a flow on the busier minor road (approach direction only) of 150 or 200 vehicles per hour for the same 8 hours of the day. Where operating conditions on major road are such that minor-road traffic suffers undue delay or hazard in crossing or entering the major road, the above warrants are adjusted to 750 to 900 vehicles per hour for the major road and 75 or 100 vehicles per hour for the busier minor road. The minimum warrant for pedestrian signals is 150 persons per hour crossing the major road on the busier crossing for each of 8 persons per hour of the day, coupled with a major-road flow of 600 vehicles per hour for the same hour (1000 vehicles per hour if there is a median island). In rural area and in isolated built-up areas the minimum warrants are 70 per cent of the requirements given above.

2.4 DESIGN OF SIGNAL SCHEMES

2.4.1 Phasing

The phasing depends mainly on the number of roads entering the junction and the amount of right-turning traffic. It is desirable to reduce the number of phases required to the least number, which will work satisfactorily. Normally 2-phase control is satisfactory for straight crossroads when there is not too much right-turning traffic. Special provision for right-turners is rarely needed for volume of 60 per hour or less. This is because a small number of vehicles can usually turn right without difficulty during the interferon period following right-of-way, and cycle times are on average 1 to 2 minutes, thus giving adequate facilities for some 60 vehicles per hour. More can be accommodated if there is room for them to wait in the intersection, and there may

also be opportunities for right-turners if the flow of opposing traffic is less than that on the approach having the right-turn traffic. If, however, there are no gaps, or insufficient gaps in the opposing traffic, and more right turners than can wait in the intersection, then special provision must be made. This will usually be by an early cut-off or late release, or a combination of the two. Each arrangement has its a advantages and disadvantages. With late release it is not possible satisfactorily to vary the duration with vehicle detectors according to the number of turning vehicles. Furthermore, traffic behavior is uncertain at the change to overlap - sometimes the turning movement, which has established itself, will continue; sometimes the opposing traffic will start immediately. It is difficult to overcome this by any special signal indications. If a green arrow signal were to be used in addition tot he usual green signal during the late-release period there is a risk that drivers would not notice when the green arrow was extinguished. These disabilities lead to inefficiency in control and possible danger. On the other than, the arrangement may be desirable where there is only a single lane on the approach with the heavy right turn (so that vehicles have a chance to turn both at the beginning and end of the green period and so lessen the risk of blocking the lane) or where the opposing arm is on a down gradient (so that vehicles turn only when opposing traffic on the down gradient is, and has been for some time, at rest).

The early cut-off period can be closely controlled with vehicle detectors and is generally preferable with a multi-lane approach. It has a particular advantage in that any complementary left-turning movement form the cross road can be cleared by filter signal at the same time and without such traffic needing to merge with any other traffic stream. The filter is automatically followed by a green signal Fig. 2.1 illustrates the phasing arrangement and includes also a short late release, so that the turning movement cannot establish itself at the expense of opposing traffic at the beginning of the 'both-way' running period. The early cut-off period can readily be indicated to turning traffic by displaying a filter arrow beside the green signal during the early cut-off period (Fig. 2.1). Thus, where one turning movement is appreciably heavier than the other, an early cut-off to facilitate the heavier turn is likely to provide the most satisfactory control; this may be combined as in Figure 2.1 with a late release to asset the lesser turning movement. Where, however, two opposing arms of an intersection both have substantial right-turning movements the situation is considerably more complicated, especially ifs ouch vehicles

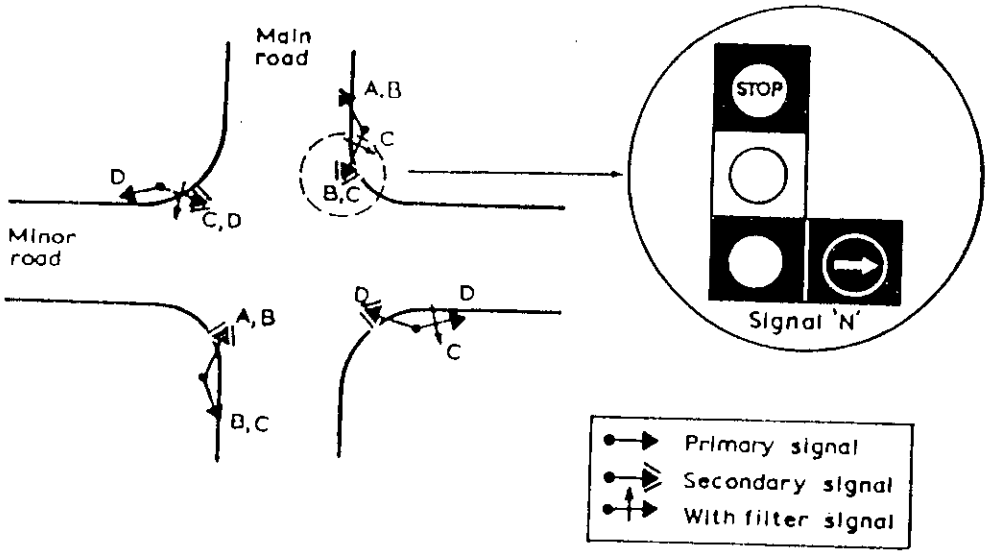
tend to turn on the office of each other (i.e. go round each other) rather than to turn on their nearsides. Although junction layout tends to determine which movement will take place, the simpler nearside movement can be encouraged and made safe where the lanes containing turning vehicles can be directly opposite each other. An adaptation of single carriageway is shown in Fig 2.2. This layout requires the use of double signal heads so that drivers are fully advised of the permitted traffic movements.

A simple, but less efficient, means of dealing with opposing turning movements is to provide a short all-red period between phases during which vehicles held within the junction may clear. With all these solutions it may be necessary to limit the cycle time either to avoid undue interference by right-turning traffic to the through-traffic movement in the junction or to avoid locking of right-turners. In extreme cases it may be necessary to provide separate phases for opposing approaches of a junction.

A 3- or r-phase controller may be necessary at more complicated junctions with fiche or more roads, and at ordinary crossroads where a pedestrian phase is required. Sometimes a staggered junction with a major road requires a 3-phase, 4-part signal installation where the major road is given two green periods in each cycle and the less important roads just one each.

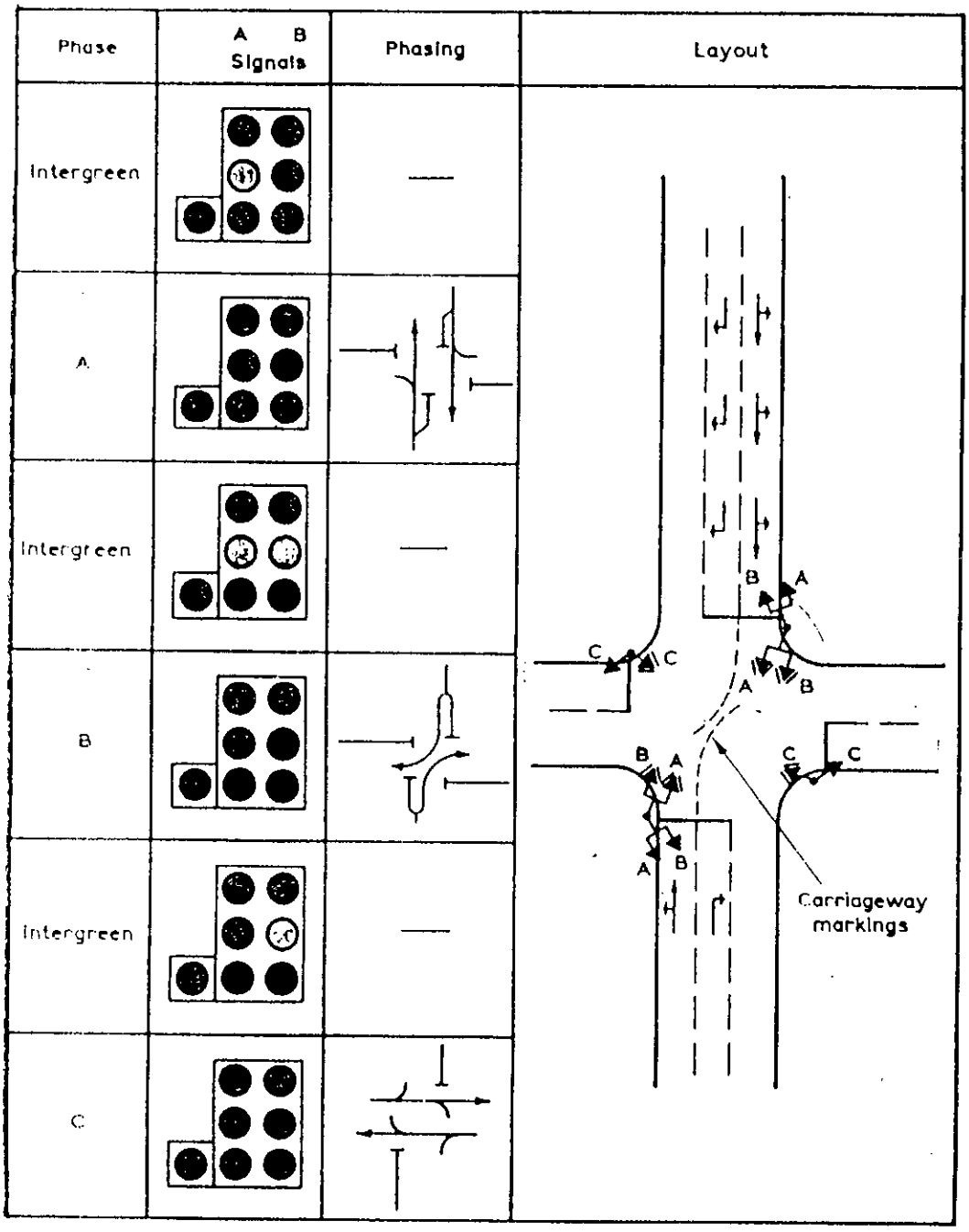
Standard controllers give up to six phases, of which not more than four can be vehicle actuated. An early cut-off or late release counts as a phase but an extra clearance doses not Phases can be switched in and out under time-switch control so that where, for example, an early cut-off is needed to deal turning traffic at peak periods, but not at other times, the controller will switch in this facility only at the required times. The possibility of prohibiting certain traffic movements to enable the number of phases to be reduced should be explored.

With vehicles actuated signals it is usually arranged that if no demand for a particular phase is received then that phase is omitted from the cycle and delay to vehicles is consequently reduced.



PHASE	PHASE DIAGRAM	SIGNAL 'N' ASPECT
A (Late release)		Red
B (Overlap)		Green
C (Early cut-off)		Green and green arrow
D (Minor road)		Red

Fig 2.1 Phasing arrangements for late release, early cut-off and filter.



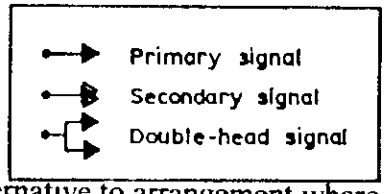


Fig 2.2 Alternative to arrangement where space is limited

2.4.2 Filter Signals

Filter signal lights mounted alongside the main signals are sometimes used to permit movement of vehicles in the direction shown by the green arrow even though the main signal is showing red. These signals can create problems for pedestrians, particularly those crossing the road from which the vehicle emerges. The vehicles in the filter stream also incur the risk of collision with vehicles in the traffic stream with which they merge. For these reasons it is desirable to restrict filtration against a red signal to sites where a substantial advantage in handling traffic is thereby achieved and pedestrian needs can satisfactorily be met despite filtration. Generally it is desirable also to limit filtration against a red signal to periods in the cycle when such traffic will not be required to merge with other traffic. Each situation should be judged on its merits to decide whether a filter light would be safe, and it may be desirable after installation to keep careful watch on the site for some time. If the filtered traffic cannot be separated from the through traffic by an island then it may be advantageous to set the stop line well back from the pedestrian studs (say 20 ft), so that drivers and pedestrians crossing the road get a better view of each other, and so avoid the risk that a pedestrian may cross a line of waiting vehicles and walk right into the path of vehicles moving in accordance with the filter signal. A better solution is to provide guard rails where possible so that pedestrian cannot cross the approach with the filter signal.

Because of a tendency for vehicles to continue filtering after a filter signal is extinguished and no other change in signal indications occurs, it is a requirement in Great Britain that filter signals shall always be followed either by a green signal (when the tendency to continue running is of no consequence) or by an amber signal. Usually control can be so arranged that filtration precedes a green signal, but where this is not possible double signal heads are provided so that the filter signal has its own amber and red. The full sequence with double signal heads is in Table 2.1.

An alternative sometimes preferred to a left filter is a slip road, which allows traffic to turn, left continuously without coming under the control of the signals. A dotted white line across the exit

of the slip road (where it joins the crossroad) is normally required to indicate that drivers using the slip road require caution.

As mentioned earlier, filter signals are also used to indicate an early cut-off period. A right-hand filter signal lights up alongside the full green at the beginning of the early cut-off. This reduces delays by indicating when the right-of-way to the opposing traffic stream ceases.

Left-hand signal	Right-hand signal
Red	Red
Red/Amber	Red/Amber
Green arrow	Green
Green arrow	Amber
Green arrow	Red
Amber	Red
Red	Red

Table 2.1 Full sequence with double signal heads

2.4.3 Clearance Periods

The inter-green period is arranged on the latest controllers to have a minimum of 4 seconds (on the older-type controllers concurrent amber gave a minimum intergreen of 3 seconds). Inter green periods may need to be extended from the minimum of 4 seconds to some suitable value in the following circumstances:

(a) to allow vehicles to clear the intersection when the distance across the junction is greater than normal.

(b) to improve safety when the road carries fast traffic (where the special equipment is installed the extra clearance is needed only on a maximum change);
(c) on roads where there are appreciable numbers of right-turning vehicles (although an early cut-off or late release will usually be more satisfactory);
(d) to improve safety for pedestrians and to assist them in crossing the road at intersections where there is a high pedestrian flow but where provision of a separate pedestrian phase is not practicable.

2.5 SUMMARY

To broaden the view in investigating improvement of junction, most of the common traffic control measures related to junction performance are reviewed. It has been revealed that many factors affect junction performance. In the developed countries various traffic control measures to optimize junction capacity have been developed. Though few of them have been adopted for junction control but they were not applied properly such as faulty placement, only use of primary signal etc. Therefore investigation in this area is essential to know how much improvement of junction performance can be achieved by placing secondary signal.

Moreover, as our road users behave differently from that of developed countries- besides application of traffic control devices- strict police enforcement appears to be essential for enforcement purpose. From the literature reviews it has been revealed that traffic signal type control measure is adopted to minimize junction delay and as well as make operational cost minimum by replacing manual involvement. But in our country this picture is different, as whatever restrictive measures are taken- to make them effective enforcement is essential. So far no study has been carried out to quantify the improvement of junction performance due to strict police enforcement. This is an important information for making junction in good operational condition.

CHAPTER 3

COLLECTION AND ANALYSES OF DATA

3.1 INTRODUCTION

The aim of the research study is to quantify the performance (flow and conflict) of the three selected signalized intersections in Dhaka City for two different situations (i.e. with strict police enforcement and after providing secondary signals). It is, therefore, necessary that the results are carefully assessed using information from actual traffic situations. In order to do that, data (flow and conflict) from the study sites will be measured and analyzed. Flow for each phase (during green time) at the approaches of the selected junctions i.e. Bangla Motor, Purana Paltan and Fakirapool junctions have been counted from video record player. A total of twelve phases' flows for each approach have been selected to analyze for determining percent of performance improvement for the approaches. Then taking the flows of the four approaches and including left and right turning vehicles overall flow for each intersection has been determined.

Conflicts were counted within Bangla Motor junction for one hour (30 minutes for morning and 30 minutes for afternoon) from the video.

Thus this chapter deals with the data collection and analyses processes of the study.

3.2 DATA TYPE

In order to achieve objectives of the data collection field observations were conducted in the following ways:

Video recording - for measuring-

- Classified vehicles counts
- Discharge rate
- Vehicular conflicts at intersection
- Number of vehicles crossed stop line

3.3 SITE SELECTION

The main criteria for selecting the sites were -

(1) Availability of vintage point for video recording.
2) Consideration of the importance of the intersection in the overall traffic network (where the possibility of deploying extra police during "Traffic Awareness Week").
3) To include wide varieties of vehicles types and traffic situations such as with/without non-motorized vehicles.

A large number of sites were observed based on the above mentioned criteria and three isolated intersections among them were selected for the final study. The three selected intersections that is, Bangla Motor, Purana Paltan and Fakirapool are described below:

3.3.1 Bangla Motor Intersection

The West approach (towards Eastern Plaza) is involved with very low traffic (specially motorized vehicles) compared to other three approaches (North, South and East). As a result flow never reaches maximum at this approach. On the other hand the East approach (towards Mogbazar) always governs the green phase containing a large amount of traffic with mixed vehicles.

The only approach (South approach-towards Hotel Seraton) where right turn is allowed and a separate right turning phase (late release) is provided faces a problem of another sort. The right turners that cannot pass during the right turning phase or arrive latter on form a queue that loads to the reduction of effective road width for the through traffic which becomes a major problem for the traffic police during the peak period for that particular approach. Secondary signal had not provided when this observation carried out.

During existing operation time total number of police was found only four whereas during "Traffic Awareness Week" it was above twelve. Green phase for South approach was found as 90 sec., for North approach it was 75 sec. and for West & East approaches it was 45 seconds.

Pedestrians' movements have been found at all the approaches but among them interruption in traffic flow at East and West approaches was found more compared to north & south approaches.

3.3.2 Purana Paltan Intersection

At this intersection, all of the four approaches have both motorized and non-motorized vehicles. Among them Noor Hossain Square approach has been found containing a high proportion of left turning mixed vehicles. On the other hand, Secretariat approach contains a high proportion of right turning mixed vehicles and this approach has a separate right turning phase. A high proportion of left turners in total flow from the Bijoy Nagar approach has been found. Only Dainik Bangla approach shows a high proportion of through flow compared to other three approaches.

All of the four approaches have been found divided with medians. A petrol pump station has been observed at the corner of Bijoy Nagar and Dainik Bangla approaches. Besides this, there is a illegal bus stoppage at the corner of the Dainik Bangla approach where buses of left turning movements from the Dainik Bangla approach take stoppage. At the Dainik Bangla approach it was also found that many shops frequently attracted the pedestrians, which reduces the effective width of approach. Similar situation of the Dainik Bangla approach for pedestrians was found. For this, no signal phase has been properly followed by the traffic and traffic police controls the signal phases and cycle time by waving their hands taking immediate decision seeing the approach traffic condition. Secondary was not yet provided.

Total number of police personnel present during existing condition was only four whereas during "Traffic Awareness Week" it was found more than fourteen. Phases were found as 30 seconds as green time for Noor Hossain Square & Bijoy Nagar approaches and 50 seconds for Secretariat and Dainik Bangla approaches.

3.3.3 Fakirapool Intersection

At the Fakirapool intersection it was found that all the approaches contained mixed vehicles. Among the approaches right turning flow is allowed only from the Kakrail approach providing a separate phase for them. At the other three approaches although right turning phases have not provided but small amount of traffic take right turn when they get chances. Improper placements of the existing signal posts have also been found and there were no secondary signals at the approaches of the intersection.

Intersection Name	Approach	Type of road	Turning Movements	Vehicle mix	Phase Duration(Sec)		
					R	Y	G
Bangla Motor	North	Two way; DC	A,L	Without NVM	60	5	75
Bangla Motor	South	Two way; DC	A,L,RO	Without NVM	45	5	90
Bangla Motor	East	Two way; DC	A,L	With NVM	90	5	45
Bangla Motor	West	Two way; DC	A,L,RO	With NVM	90	5	45
Purana Paltan	Dainik Bangla	Two way; DC	A,L,RO	With NVM	55	5	50
Purana Paltan	Secretariat	Two way; DC	A,L,RO	With NVM	55	5	50
Purana Paltan	Bijoy Nagar	Two way; DC	A,L	With NVM	75	5	30
Purana Paltan	Noor Hossain Square	Two way; DC	A,L	With NVM	75	5	30
Fakirapool	Kakrail	Two way; DC	A,L,RO	With NVM	20	5	80
Fakirapool	Bangladesh Bank	Two way; DC	A,L	With NVM	45	5	55
Fakirapool	RAJUK	Two way; DC	A,L	With NVM	80	5	20
Fakirapool	Rajarbag	Two way; DC	A,L	With NVM	80	5	20

DC = Dual Carriageway

NMV = Non-Motorized Vehicle

A = Ahead; L = Left; RO = Right Opposed

R= Red Time; Y= Yellow (Amber) Time; G= Green Time

Table 3.1 Traffic characteristics of sites surveyed.

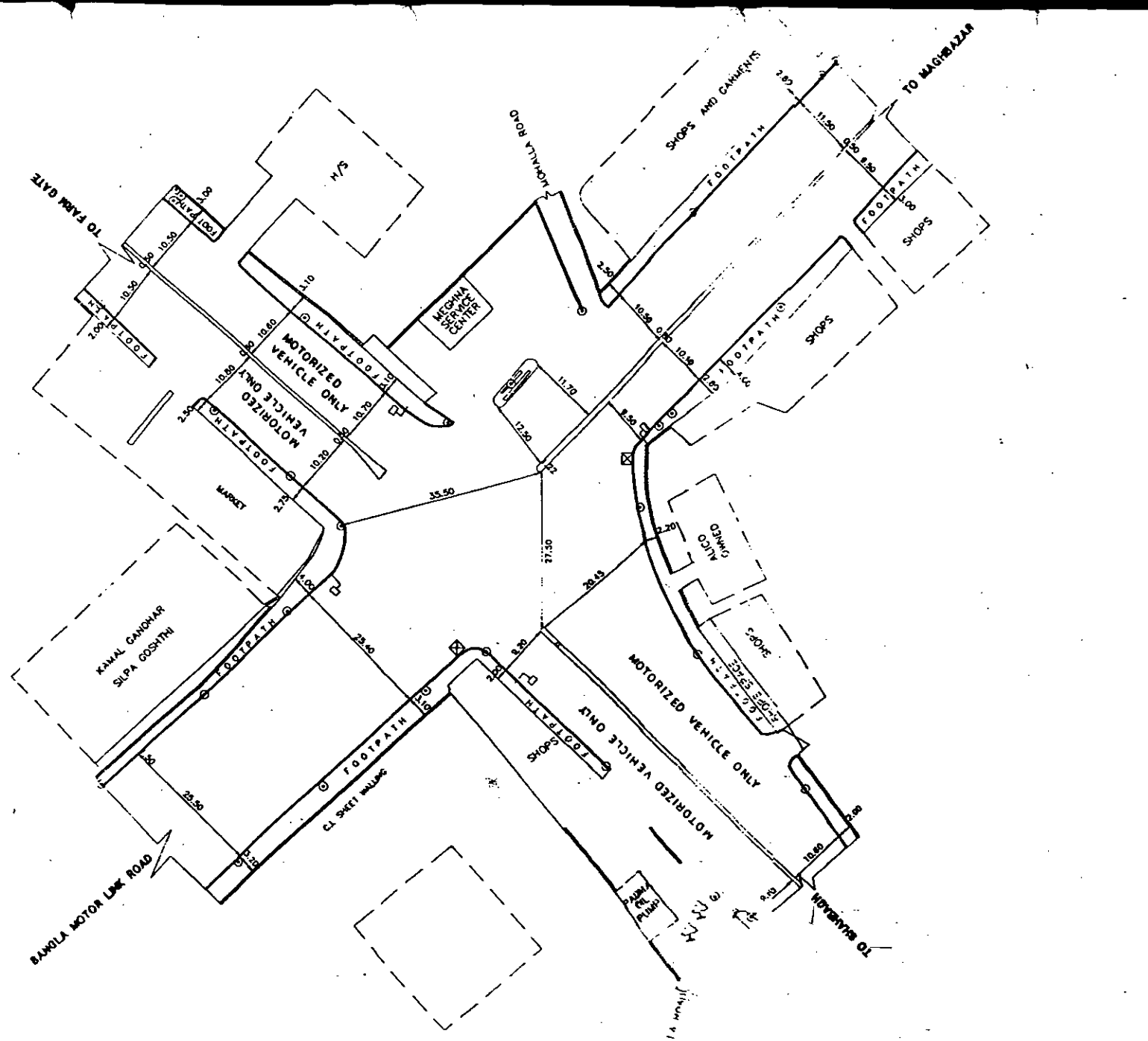
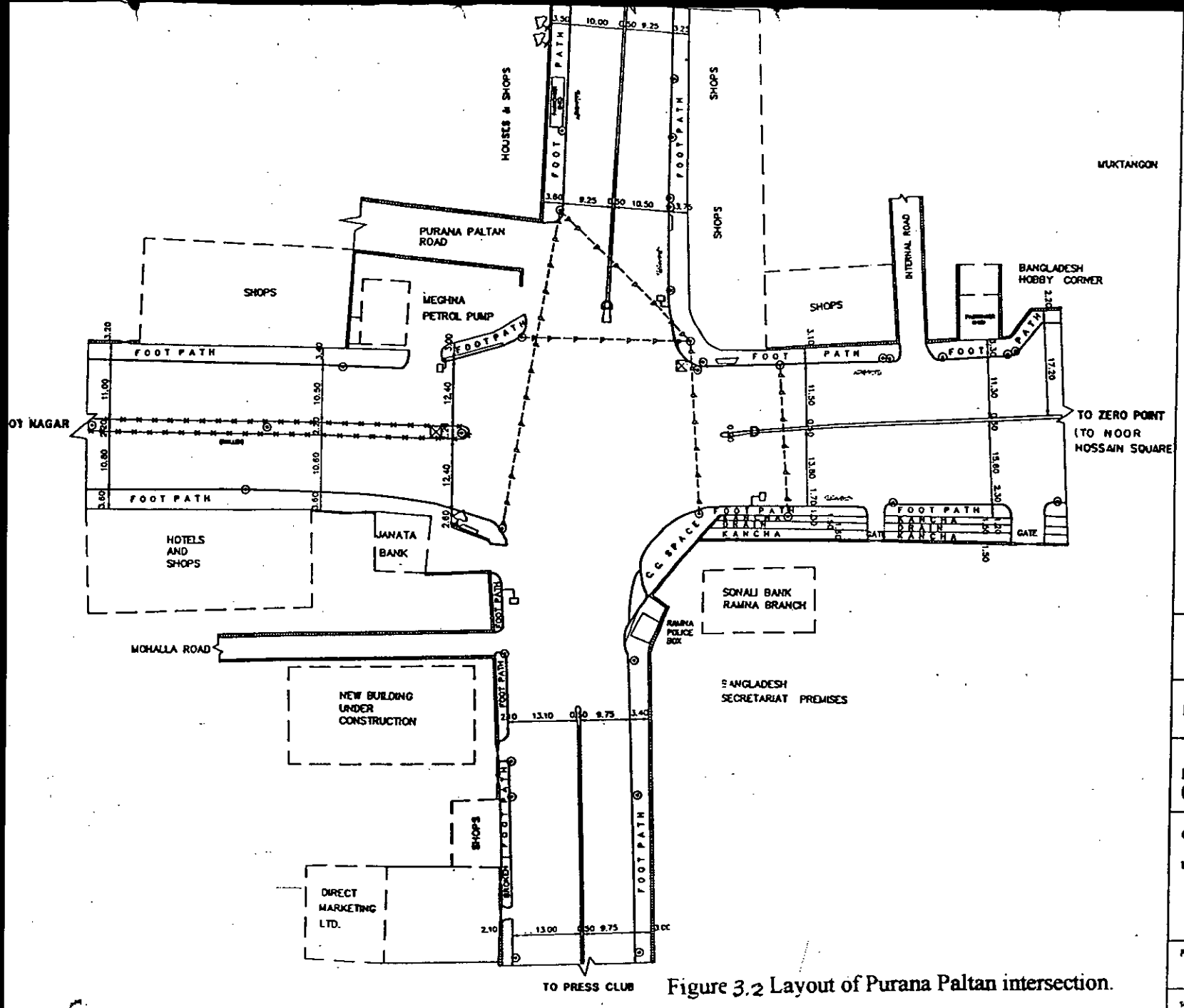


Figure 3.1 Layout of Bangla Motor intersection.



LEGEND:

TRAFFIC SIGNAL
DESIGN I
DESIGN II
FOOTPATH(Occupied)
ROAD(Occupied)
ELEC./TEL. POST
FENCE
POWER LINE
TRAFFIC ISLAND
BOUNDARY WALL
TREES
BUS STAND (Shorthorted)
FT. SURVEY POINT

GREATER DHAKA METROPOLITAN AREA INTEGRATED TRANSPORT STUDY

PLAN OF EXISTING ROAD INTERSECTION

SL.NO. 28 NODE NO. 1202

PURANA PALTAN & TOPKHANA ROAD (NEAR HOTEL METROPOLITAN) INT.

CONSULTANT:
PPK, Australia
In association with
Delcan, Canada
and
ddc Ltd., Bangladesh

PREPARED BY:
CAD Group of ddc Ltd.

SCALE: 1:500 DATE: Feb. '93

Figure 3.2 Layout of Purana Paltan intersection.

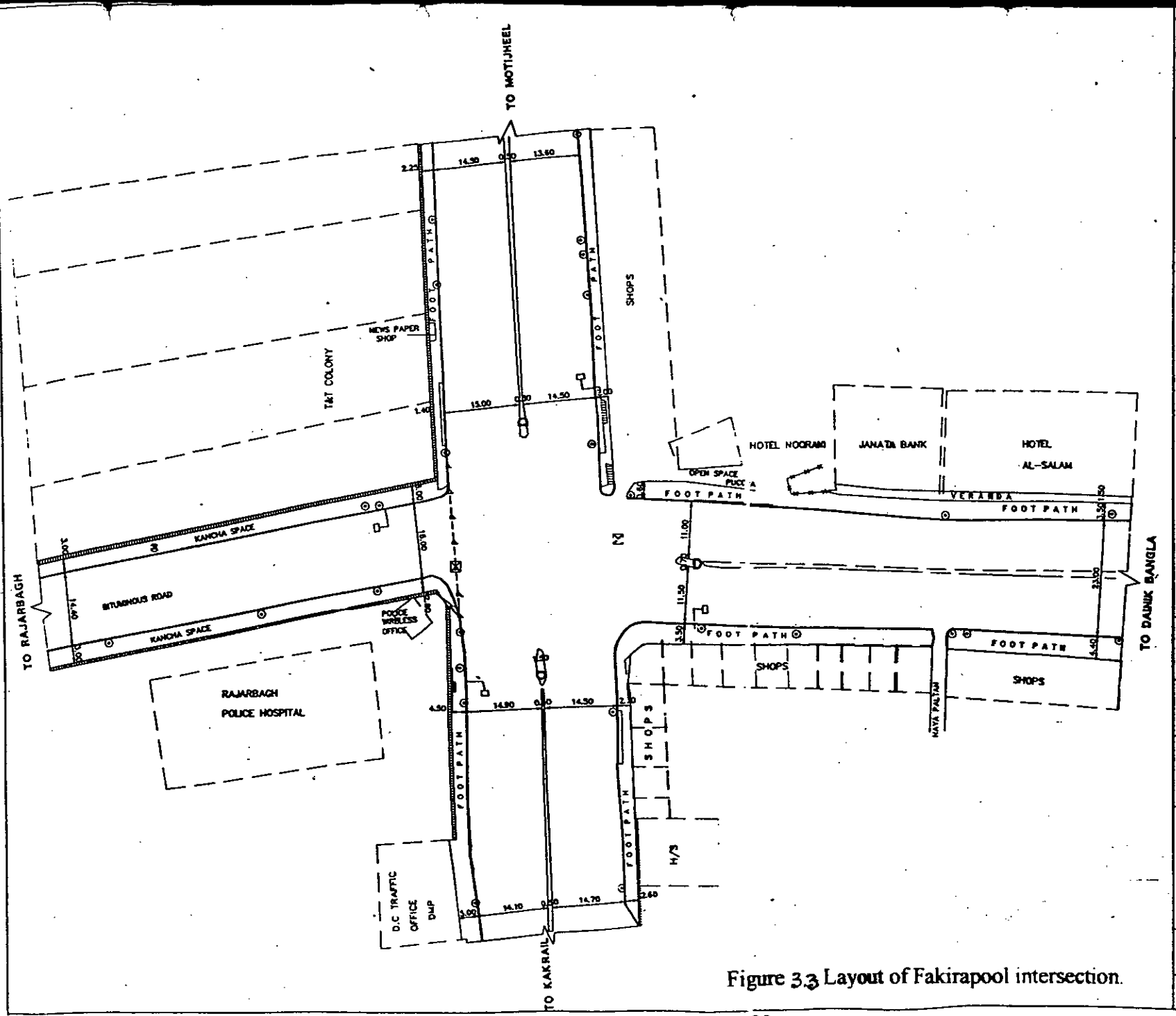


Figure 3.3 Layout of Fakirapool intersection.

LEGEND:

TRAFFIC SIGNAL
DESIGN I
DESIGN II
FOOTPATH(Occupied)
ROAD(Occupied)
ELEC./TEL. POST
FENCE
POWER LINE
TRAFFIC ISLAND
BOUNDARY WALL
TREES
BUS STAND (Unauthorised)
PT. SURVEY POINT

GREATER DHAKA METROPOLITAN AREA INTEGRATED TRANSPORT STUDY

PLAN OF EXISTING ROAD INTERSECTION

FAKIRAPUL INTERSECTION

CONSULTANT:
PPK, Australia
In association with
Delcan, Canada
and
dde Ltd., Bangladesh

PREPARED BY:
CAD Group of dde Ltd.

3.4 VEHICLE CLASSIFICATIONS

Traffic stream in Dhaka City comprises various types of vehicles and no single vehicle dominant in the stream. As such for calculation of intersection capacity, vehicle classification is needed to represent all types of vehicles available in the study area adequately. Each vehicle in the study area is considered to be under one of the following headings so that the composition of the traffic could be accurately determined. Traffic has been classified into two major groups i.e. (a) motorized and (b) non-motorized. These two major groups have also been sub-divided into thirteen classes by the Roads and Highways Department [2]. The classification as follows:

(a) Motorized:

(1) Motorcycle (2) Auto Rickshaw; (3) Car; (4) Utility; (5) Micro-Bus; (6) Mini Bus; (7) Large Bus; (8) Small Truck; (9) Medium truck; (10) Heavy Truck.

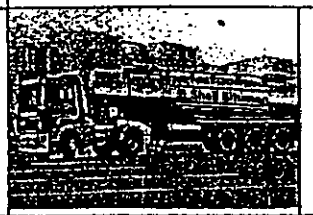
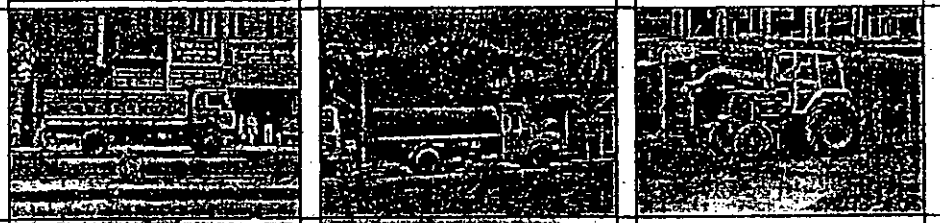
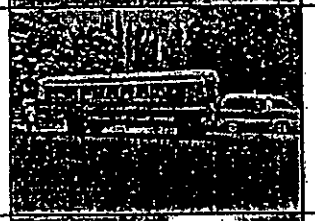
(b) Non-Motorized:

(11) Bicycle: (12) Cycle Rickshaw and Rickshaw Van; (13) Carts.

Vehicle Identification Sheets by Roads & Highways Department are presented in the following pages (page 31 to page 33).

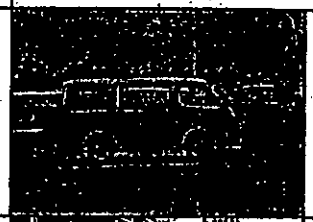
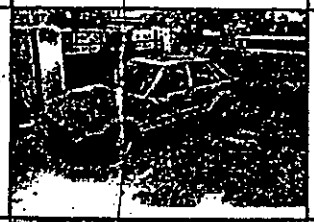
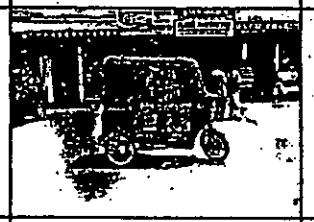
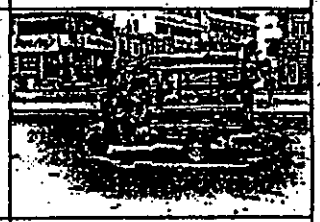
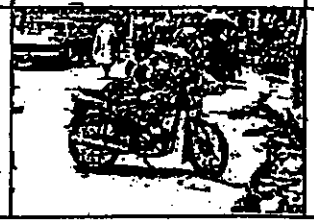
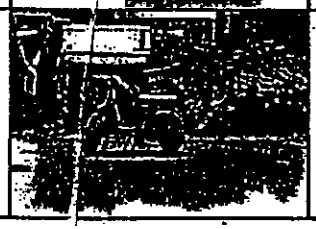
ROADS AND HIGHWAYS DEPARTMENT

VEHICLE IDENTIFICATION SHEET (PAGE 1)
TRUCKS AND BUSES

No.	CATEGORY	CHARACTERISTICS	TYPICAL VEHICLES
1	HEAVY TRUCK	3 OR MORE AXLES	
2	MEDIUM TRUCK	2 AXLES OVER THREE TONNES UNLOADED WEIGHT	
3	SMALL TRUCK	2 AXLES UNDER THREE TONNES UNLOADED WEIGHT	
4	LARGE BUS	OVER 39 SEATS	
5	MINI BUS	16-39 SEATS	

Source: Roads and Highways Department, "Manual Classified Traffic Counts Instruction Guide", Planning and Development Wing, Traffic Engineering Division, Govt. of Bangladesh, June 1995.

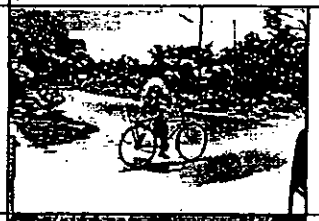
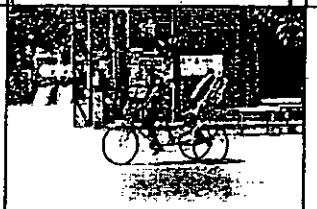
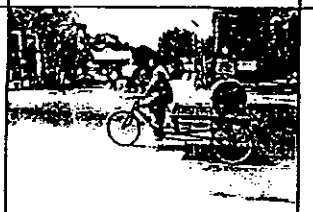
VEHICLE IDENTIFICATION SHEET (PAGE 2)
LIGHT MOTORISED VEHICLES

No.	CATEGORY	CHARACTERISTICS	TYPICAL VEHICLES
6	MICROBUS	LESS THAN 16 SEATS	
7	UTILITY	PICK UPS AND FOUR WHEEL DRIVE VEHICLES	  
8	CAR	ALL CARS AND TAXIS	 
9	AUTO RICKSHAW	ALL THREE WHEELED MOTORISED VEHICLES	   
10	MOTOR CYCLE	ALL TWO WHEELED MOTORISED VEHICLES	 

Source: Roads and Highways Department, "Manual Classified Traffic Counts Instruction Guide", Planning and Development Wing, Traffic Engineering Division, Govt. of Bangladesh, June 1995.

ROADS AND HIGHWAYS DEPARTMENT

VEHICLE IDENTIFICATION SHEET (PAGE 3)
NON MOTORISED VEHICLES

No.	CATEGORY	CHARACTERISTICS	TYPICAL VEHICLES
11	BICYCLE	PUSH BICYCLE	
12	CYCLE RICKSHAW	ALL THREE WHEELED NON MOTORISED VEHICLES	 
13	CART	ALL ANIMAL AND PERSON DRAWN/PUSHED CARTS	 

Source: Roads and Highways Department, "Manual Classified Traffic Counts Instruction Guide", Planning and Development Wing, Traffic Engineering Division, Govt. of Bangladesh, June 1995.

3.5 DATA COLLECTION PROCEDURE

To quantify performance of the junctions for adaptation of proposed two control measures i.e. extra police involvement and providing secondary signals, necessary data were collected from three selected intersections in Dhaka Metropolitan City. The procedure adopted for collecting these data are given below:

3.5.1 Junction Performance Due to Strict Police Enforcement

To quantify this type of traffic controls measure, flows and number of vehicular conflicts within the three selected junction areas were selected as a measure of performance index. These parameters were collected from the intersections using video camera before and during " *Traffic Awareness Week*".

3.5.2 Junction Performance with Secondary Signals

Effectiveness of this control measure is also evaluated by measuring flow and number of vehicular conflicts within Bangla Motor junction only. Video technique was used to measure these parameters after providing secondary signal.

3.6 QUALITATIVE ANALYSIS

This was done observing the record film critically. To summarize the findings, the following is a list of points describing the behavior of traffic, which would be considered in improving capacity of the intersections.

(i) At upstream a clear segregation of motorized vehicles is observed. In general motorized vehicles occupy the right part of the road whereas non-motorized vehicles take the left part.
(ii) Queue is built up based on the optimum road space utilization criterion i.e. when a vehicle join with the queue, main stimulus is the front gap irrespective of the lane in which it is available. As a result it has been observed that straight-ahead vehicles, regardless of the type whether motorized or not, occupy any position across the road based on the available space. Consequently, the maximum interactions between motorized and non-motorized vehicles are observed during the subsequent discharge process. Note also that due to the arbitrary position of the vehicles across the road width, not all the space can be filled up during the queue formation. Another feature of the queue formation is that the smaller sized vehicles such as pedal cycles and motorcycles use outer-vehicular space to come in front of the queue.

iii) At most of the approaches traffic signals have been placed too far away from the edge of the cross road and thereby leaving a large road space between the signal or stop line and the edge of the cross road. In reality, this acts as a big stimulus for the drivers and indulges to cross the stop line during queue formation at red signal. Because of this, during the subsequent discharge operation the following problem arise-

- the leader of the stopped vehicles could not see the signal and as such discharge operation start with confusion.
- usually drivers start to move off sometimes by intuition, hearing horn from its trailing vehicles and seeing slowing discharge process from the cross road.
- the delayed and confused starting operation from the current phase encourage drivers from the previous phase to violate red at change of signal that causes unnecessary vehicular conflicts within the intersections and increase accident potential substantially. Sometimes the red jumper from the previous phase become trapped by the on coming vehicles from the current phase and reduces junction performance greatly.
- causes disorderly movement of vehicles through junctions and no clear pattern could be seen during the start off and stopping operation at the change of signal.

(iv) From the observations it is learnt that when the proportion of right turners and as well as opposing flow is low, the right turning maneuvers follow the gap acceptance criteria. But when the proportion of right turning vehicles is high and at the same time opposing flow is also high, right turning maneuvers follow a very complex negotiation process with the opposite straight-ahead vehicles instead of gap acceptance criteria.

(v) Another striking observation is the performance of the non-motorized vehicles at the end of green period. As our intersections are quite wide in nature and the non-motorized vehicles take more time than the motorized vehicles to clear the junctions the slow moving NMVs that violets the red signal become trapped at the end of green. A special all red period should be provided for such vehicles to clear the intersections.

3.7 QUANTITATIVE ANALYSIS

This involved comparison of the 'before and after' observational data, collected from the three selected intersections in Dhaka City. As data were recorded indirectly by using video technique – transcription of video data were required for analysis purposes.

Flow: Flow is the number of vehicles expressed in passenger cars passing a specified point on the road (or an approach at an intersection) in unit time usually in an hour.

Conflict: Conflict is undue interference between vehicles that usually occur at the beginning or at the end of a signal phase. The various type of conflicts at an intersection are crossing conflicts, merging conflicts and diverging conflicts on right angle.

Flow data collected from each study site are presented in Table A-1 to Table A-56. These Tables show discharge flow values for each approach of the three selected intersections for twelve cycles and two consecutive days. Classified vehicles counts data are converted to passenger car equivalent for comparison purpose. Passenger Car Equivalent Factors for different types of vehicles are taken from the Roads & Highways Department [2] and R.H. Purcell [3].

Type of Vehicle	PCU Value
Car, Jeep, Station Wagon, 10-seater Microbus	1.0
Motor-cycle	1.0
Rickshaw	0.5
Bicycle	0.5
Baby Taxi	0.8
Large Bus	3
Truck	3
Push Cart, Bullock Cart	3

Table 3.2 PCU values for different types of vehicles

Source: Roads & Highways Division, Annual Traffic Survey Report, 1981-1983, Traffic Division 1, Govt. of Bangladesh, 1984.

Type of Vehicle	PCU Value
Motor-cycle	0.3
Cycle Rickshaw	1.2
Mini-bus	1.5
Truck	3.5
Push Cart, Bullock Cart	2.5

Table 3.3 PCU values for different types of vehicles

Source: R.H. Purcell, Calcutta Traffic Engineering Project: 3. Supporting Studies, Traffic Engineering & Control, Vol. 22, No. 1, (Page 21) January 1981.

Flow data for each approach is finally shown in Table 3.4, Table 3.7, Table 3.10 and Table 3.13 after averaging two days data. Flow-fluctuation for twelve approaches of three intersections is illustrated in Figure 3.4 to Figure 3.19. Considering four approaches together total improvement of throughput values (in percent) for each junction during deployment of extra police is shown in Table 3.16 and that of after providing secondary signal at Bangla Motor only is shown in Table 3.17. Vehicles crossed stopline at the selected junctions are presented in Table 3.18 and in Figure 3.20, Figure 3.21 and Figure 3.22 for Bangla Motor, Purana Paltan and Fakirapool respectively. Number of conflicts within the Bangla Motor junction only is shown in Table 3.19 and graphically in Figure 3.23.

3.7.1 Strict Police Enforcement

3.7.1.1 Bangla Motor site

(a) The effectiveness of extra enforcement on performance (flows) at all the four approaches of this junction is shown in Table 3.4 and graphically in Figure 3.4, Figure 3.5, Figure 3.6 and Figure 3.7 for North, South, East and West approaches respectively. It can be seen from the table and the figures that flow for each phase of all the approaches has increased. From Table 3.6 it is seen that percent of improvements of flows due to strict police enforcement are 60%, 33%, 56% and 30% for North, South, East and West approaches respectively. Table 3.16 shows that overall improvement of flow for the whole intersection is 41%.

(b) From Figure 3.23 it is found that during observing period (60 minutes) total number of vehicular conflicts within the junction area due to the deployment of traffic enforcement was negligible.

(c) From statistical " t- Test: Paired Two Sample for Means", improvement of traffic flows with extra traffic police involvement for all the approaches have been shown in Table 3.5. This table justifies that the improvements in flow of all the approaches are significant. From this table it is seen that at all the approaches throughputs are significantly increased due to this traffic control

measure. Among the approaches, East approach leads with t-statistic value equal to 18.49 and North, South and West approaches have t-statistic values equal to 9.51, 5.28 and 5.56 respectively whereas t-critical value is equal to 1.796.

(d). Comparing uniformity in flows between before and during the involvement of strict enforcement it is seen from Table 3.5 that during the involvement of strict enforcement, only at South approach flow was more uniform with variance equal to 316 w.r.t variance 326 at existing flow condition. . Other approaches i.e. North, East and West approaches have variances equal to 206, 87 and 54 respectively during data collection period in "Traffic Awareness Week" whereas at existing condition they have variances equal to 179, 34 and 25 respectively.

3.7.1.2 Purana Paltan site

(a) From Table 3.7 and Figure 3.8 to Figure 3.11 it can be seen that except few phases, for all other phases throughput (flow) is higher than that of obtained at existing operation condition. Figure 3.8 shows three phases for Dainik Bangla approach, Figure 3.9 shows two phases for Secretariat approach, Figure 3.10 shows one phase for Bijoy Nagar approach and Figure 3.11 shows six phases for Noor Hossain Square approach have lower flows during the data collection time at "Traffic Awareness Week" than that of during existing traffic situation. Observation of Table 3.9 reveals that improvement in flow of Dainik Bangla & Bijoy Nagar approaches is much higher than that of Secretariat and Noor Hossain Square approaches. For Bijoy Nagar and Dainik Bangla approaches the amounts of improvement are 27% & 25% respectively whereas for Secretariat and Noor Hossain Square approaches it is only 14% & 12% respectively.

Overall improvement in flow for the intersection is 15% (Table 3.16).

(b) The statistical analysis of data (Table 3.8) reveals that except Noor Hossain Square approach other three approaches i.e. Dainik Bangla, Secretariat and Bijoy Nagar approaches show significant statistical 't' values. For Dainik Bangla, Secretariat and Bijoy Nagar Approaches

these values are higher than t-critical (1.796) whereas this value for Noor Hossain Square approach is only 1.41, which is quite below t-critical and shows statistically insignificant improvement in flow.

(c) To compare uniformity in flow it can be seen from Table 3.8 that flows at Bijoy Nagar and Dainik Bangla approaches during the deployment of traffic enforcement were more uniform (variances 10, 42 respectively) than during existing condition (variances 35, 51 respectively). Other two approaches that is, Secretariat and Noor Hossain Square approaches have non-uniform (more scattered) flows during data collection time at "Traffic Awareness Week" than that of at existing condition. The variances are 96 and 81 at strict police enforcement measure and 80 and 39 at existing condition respectively.

3.7.1.3 Fakirapool site

(a) Observing Table 3.10 and Figure 3.12 to Figure 3.15 it is found that all the flow values (except one phase for Kakrail approach and one for Rajarbag approach) are higher than that of at existing condition. Table 3.12 shows that flow for each approach is 18%, 23%, 23% and 24% for Kakrail, Bangladesh Bank, RAJUK and Rajarbag approaches respectively. Overall throughputs (total flow for the intersection) of this intersection is seen 11% from Table 3.16.

(b) Table 3.11, in which " t- Test: Paired Two Sample for Means" has been performed for the flows at Fakirapool intersection to justify whether the improvement of flows at all the four approaches due to strict police enforcement are significant or not, shows that t-statistic values of all the approaches are greater than that of t-critical, which indicate statistically significant increase of the flows. For Kakrail, Bangladesh Bank, RAJUK and Rajarbag approaches t-statistic values are 3.91, 5.50, 5.77 and 5.34 respectively.

(c) From Figure 3.12 to Figure 3.15, which has been drawn based on the data of Table 3.10 to show phase-wise improvement as well as uniformity in flow, indicate that flows of all the four approaches are more scattered due to the strict enforcement than that of at existing condition.

During the strict police enforcement deployment, the variances are 60, 83, 76 and 43 for Kakrail, Bangladesh Bank, RAJUK and Rajarbag approaches respectively whereas at existing condition the variances for the approaches are 48, 50, 34 and 35 respectively

3.7.2 Effect of Secondary Signal

The study was conducted only for Bangla Motor intersection where City Corporation installed a secondary signal according to Dhaka Integrated Traffic Study recommendation. At other study sites i. e. Purana Paltan and Fakirapool, DCC authority did not installed secondary signals and as such observation had to confined at Bangla Motor intersection only.

It is expected that the installation of secondary signal, which can be seen by the drivers even after crossed the primary signal placed at stop line, will bring discipline in vehicle stopping and discharging operation at junctions. In this study attempt had been made to quantify the effect of secondary signal on junction performance. Data taken at existing condition (before) and after installing of the secondary signal is presented in Table 3.13.

Flow values in Table 3.13 and Figures 3.16 to 3.19 show that flows for each phase (except two phases of East approach and five phases of South approach) have increased. From Table 3.15 it is seen that improvements of throughputs (flows) for North, South, East and West approaches are 38%, 9%, 8% and 24% respectively. From Table 3.17 it is seen that overall performance improvement (total flow) of this junction after providing secondary signal is 19%.

Number of conflicts within the junction area during observation period (60 minutes) after providing secondary signals is only 8 (Table 3.19 and Figure 3.23).

After conducting statistical " t- Test: Paired Two Sample for Means", (Table 3.14) taking data from Table 3.13 it is found that all the four approaches that is, North, South, East and West approaches had significant t-statistic values (8.18, 1.83, 2.79 and 6.05 respectively) which indicate that improvements have been occurred due to installation of secondary signals.

Comparing uniformity in flows between before and after providing secondary signals it is seen from Table 3.14 that after providing secondary signal flows at South approach were more uniform with variance equal to 316 w.r.t variance 326 at existing flow condition. Other approaches i.e. North, East and West approaches have variances equal to 328, 57 and 53 respectively during data collection period after providing secondary signal whereas at existing condition they have variances equal to 179, 34 and 25 respectively.

3.8 SUMMARY

In this chapter data has been analyzed both qualitatively and quantitatively to see the effectiveness of involving extra traffic police and providing secondary signals on junction performance. Moreover, the faulty placement of primary signals at the selected junctions has also been observed. From this analysis several important findings are obtained which are presented briefly in the following chapter.

Data collection time at existing condition:

9.30 to 10.00 a.m. 2.30 to 3.00 p.m.
Day: Sunday Day: Monday
Date: 21 - 04 - 96 Date: 22 - 04 - 96

Data collection time with police enforcement:

9.30 to 10.00 a.m. 2.30 to 3.00 p.m.
Day: Tuesday Day: Wednesday
Date: 23 - 04 - 96 Date: 24 - 04 - 96

		Average of two days data pcu/phase											
Approach	Data collection	P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8	P-9	P-10	P-11	P-12
North	Before Improvement	127	97	80	106	114	127	108	124	105	110	109	116
	After Improvement	175	201	205	164	179	173	168	177	167	154	177	182
South	Before Improvement	155	118	104	143	156	169	156	143	133	131	136	146
	After Improvement	185	220	220	182	187	185	182	186	170	157	192	192
East	Before Improvement	43	30	44	45	43	45	37	36	47	51	48	40
	After Improvement	62	49	69	71	64	67	62	55	77	78	80	62
West	Before Improvement	26	34	22	17	33	23	23	26	27	24	23	31
	After Improvement	45	42	33	19	38	30	35	31	29	31	29	43

Table 3.4 Effect of deployment of extra police for enforcement of traffic regulation on Bangla Motor Junction

t-Test: Paired Two Sample for Means

Approach	Data collection	Observation	Mean	Variance	t-Statistic	t-Critical one tail	Remark
North	Before Improvement	12	110	179	9.51	1.796 (at 5% Level of Significance)	Significant
	After Improvement	12	177	206			
South	Before Improvement	12	141	326	5.28		Significant
	After Improvement	12	188	316			
East	Before Improvement	12	42	34	18.49		Significant
	After Improvement	12	66	87			
West	Before Improvement	12	26	25	5.56		Significant
	After Improvement	12	34	54			

Table 3.5 Statistical test for quantifying significance of improvements in traffic flow with extra police at Bangla Motor junction.

Approach	Improvement Percent
North	60
South	33
East	56
West	30

Table 3.6 Improvement of through traffic flow with extra police at Bangla Motor junction.

Data collection time at existing condition:		**Data collection time with police enforcement:**	
9.30 to 10.00 a.m.	2.30 to 3.00 p.m.	9.30 to 10.00 a.m.	2.30 to 3.00 p.m.
Day: Sunday	Day: Monday	Day: Tuesday	Day: Wednesday
Date: 21 - 04 - 96	Date: 22 - 04 - 96	Date: 23 - 04 - 96	Date: 24 - 04 - 96

		Average of two days data pcu/phase											
Approach	Data collection	P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8	P-9	P-10	P-11	P-12
Dainik Bangla	Before Improvement	29	26	21	31	17	22	15	37	33	24	35	19.5
	After Improvement	24	26	24	38	39	26	41	39	36	28	33	32.2
Secretariat	Before Improvement	24	30	45	47	43	30	20	25	30	41	38	30.5
	After Improvement	42	33	53	43	53	35	24	24	32	44	44	34.2
Bijoy Nagar	Before Improvement	28	33	24	21	36	28	23	23	32	15	30	29
	After Improvement	38	33	33	34	33	40	29	37	34	32	31	32.8
Noor Hossain Square	Before Improvement	30	23	26	27	33	28	23	18	27	43	27	31.1
	After Improvement	44	19	38	28	31	27	28	15	44	37	38	27.5

Table 3.7 Effect of deployment of extra police for enforcement of traffic regulation on Purana Paltan junction performance

t-Test: Paired Two Sample for Means

Approach	Data collection	Observations	Mean	Variance	t-Statistic	t-Critical one tail	Remark
Dainik Bangla	Before Improvement	12	26	51	2.45	1.796 (at 5% Level of Significance)	Significant
	After Improvement	12	32	42			
Secretariat	Before Improvement	12	34	80	2.74		Significant
	After Improvement	12	38	96			
Bijoy Nagar	Before Improvement	12	27	35	3.81		Significant
	After Improvement	12	34	10			
Noor Hossain Square	Before Improvement	12	28	39	1.41		Not Significant
	After Improvement	12	31	81			

Table 3.8 Statistical test for quantifying significance of improvements in traffic flow with extra police at Purana Paltan junction.

Approach	Improvement Percent
Dainik Bangla	25
Secretariat	14
Bijoy Nagar	27
Noor Hossain Square	12

Table 3.9 Improvement of through traffic flow with extra police at Purana Paltan junction.

Data collection time at existing condition:

9.30 to 10.00 a.m. 2.30 to 3.00 p.m.
Day: Sunday Day: Monday
Date: 21 - 04 - 96 Date: 22 - 04 - 96

Data collection time with police enforcement:

9.30 to 10.00 a.m. 2.30 to 3.00 p.m.
Day: Tuesday Day: Wednesday
Date: 23 - 04 - 96 Date: 24 - 04 - 96

		Average of two days data pcu/phase											
Approach	Data collection	P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8	P-9	P-10	P-11	P-12
Kakrail	Before Improvement	31	26	41	30	38	49	43	30	40	34	41	43.2
	After Improvement	50	29	51	38	48	46	55	32	45	44	41	49
Bangladesh	Before Improvement	25	39	32	22	29	31	46	34	40	43	35	32
Bank	After Improvement	32	44	32	30	38	36	57	36	42	54	52	46
RAJUK	Before Improvement	40	26	37	35	47	46	41	45	41	42	42	45.1
	After Improvement	59	29	42	48	57	54	42	48	53	55	59	55.1
Rajarbag	Before Improvement	25	28	26	31	21	26	27	31	29	34	37	43.3
	After Improvement	38	32	35	37	31	35	40	33	34	37	36	56.4

Table 3.10 Effect of deployment of extra police for enforcement of trafic regulation on Fakirapool junction performance

t-Test: Paired Two Sample for Means

Approach	Data collection	Observations	Mean	Variance	t-Statistic	t-Critical one tail	Remark
Kakrail	Before Improvement	12	37	48	3.91	1.796 (at 5% Level of Significance)	Significant
	After Improvement	12	44	60			
Bangladesh	Before Improvement	12	34	50	5.50		Significant
Bank	After Improvement	12	42	83			
RAJUK	Before Improvement	12	41	34	5.77		Significant
	After Improvement	12	50	76			
Rajarbag	Before Improvement	12	30	35	5.34		Significant
	After Improvement	12	37	43			

Table 3.11 Statistical test for quantifying significance of improvements in traffic flow with extra police at Fakirapool junction.

Approach	Improvement Percent
Kakrail	18
Bangladesh Bank	23
RAJUK	23
Rajarbag	24

Table 3.12 Improvement of through traffic flow with extra police at Fakirapool junction.

Data collection time at existing condition:

9.30 to 10.00 a.m. 2.30 to 3.00 p.m.
Day: Sunday Day: Monday
Date: 21 - 04 - 96 Date: 22 - 04 - 96

Data collection time with secondary Signals:

9.30 to 10.00 a.m. 2.30 to 3.00 p.m.
Day: Saturday Day: Sunday
Date: 27 - 07 - 96 Date: 28 - 07 - 96

		Average of two days data pcu/phase											
Approach	Data collection	P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8	P-9	P-10	P-11	P-12
North	Before Improvement	127	97	80	106	114	127	108	124	105	110	109	116
	After Improvement	184	116	155	144	142	146	164	165	134	171	160	146
South	Before Improvement	155	118	104	143	156	169	156	143	133	131	136	146
	After Improvement	183	116	161	140	137	147	153	166	159	169	166	149
East	Before Improvement	43	30	44	45	43	45	37	36	47	51	48	40
	After Improvement	48	36	46	47	43	42	34	39	53	61	51	48
West	Before Improvement	26	34	22	17	33	23	23	26	27	24	23	31
	After Improvement	31	48	29	20	42	30	32	32	35	31	25	32

Table 3.13 Effect of Secondary Signal on Bangala Motor junction performance

t-Test: Paired Two Sample for Means

Approach	Data collection	Observations	Mean	Variance	t-Statistic	t-Critical one tail	Remark
North	Before Improvement	12	110	179	8.18	1.796 (at 5% Level of Significance)	Significant
	After Improvement	12	152	328			
South	Before Improvement	12	141	326	1.83		Significant
	After Improvement	12	154	316			
East	Before Improvement	12	42	34	2.79		Significant
	After Improvement	12	46	57			
West	Before Improvement	12	26	25	6.05		Significant
	After Improvement	12	32	53			

Table 3.14 Statistical test for quantifying significance of improvements in traffic flow with secondary signal at Bangla Motor junction

Approach	Improvement Percent
North	38
South	9
East	8
West	24

Table 3.15 Improvement of through traffic flow with secondary signal at Bangla Motor junction.

Junction	Improvement percent
Bangla Motor	41
Purana Paltan	15
Fakirapool	11

Table 3.16 Improvement of overall traffic flow with strict police enforcement at the selected junctions.

Junction	Improvement percent
Bangla Motor	19

Table 3.17 Improvement of overall traffic flow with secondary signal at Bangla Motor junction

Data collection time: 9.30 a.m. to 10.00 a.m.
Day: Tuesday
Date: 23 - 04 - 96
Weather: Sunny, Hot
and
2.30 p.m to 3.00 p.m
Day: Wednesday
Date: 24 - 04 - 96
Weather: Sunny, Hot
Location: Bangla Motor, Purana Paltan
and Fakirapool intersections.

Junction	Approach	Vehicles (pcu) crossing stopline for one hour
Bangla Motor	North	0
	South	56
	East	244
	West	42
Purana Paltan	Dainik Bangla	65
	Bijoy Nagar	32
	Secretariat	46
	Noor Hossain Square	72
Fakirapool	Kakrail	83
	Bangladesh Bank	49
	RAJUK	41
	Rajarbag	33

Table 3.18 Number of vehicles crossing stoplines at the approaches of the three selected junctions.

At existing condition:
Data collection time:
9.30 a.m. to 10.00 a.m.
Day: Sunday
Date: 21 - 04 - 96
Weather: Sunny, Hot
and
2.30 p.m. to 3.00 p.m.
Day: Monday
Date: 22 - 04 - 96
Weather: Sunny, Hot
Location: Bangla Motor Junction

With Secondary Signals
Data collection time:
9.30 a.m. to 10.00 a.m.
Day: Saturday
Date: 27 - 07 - 96
Weather: Sunny, Hot
and
2.30 p.m. to 3.00 p.m.
Day: Sunday
Date: 28 - 07 - 96
Weather: Sunny, Hot
Location: Bangla Motor Junction

With strict police enforcement:
Data collection time:
9.30 a.m. to 10.00 a.m.
Day: Tuesday
Date: 23 - 04 - 96
Weather: Sunny, Hot
and
2.30 p.m. to 3.00 p.m.
Day: Wednesday
Date: 24 - 04 - 96
Weather: Sunny, Hot
Location: Bangla Motor Junction

Study period	Number of Vehicular Confliicts
Existing Condition	28
Wtih Strict Police Enforcement	0
With Secondary Signals	8

Table 3.19 Number of Vehicular Conflicts

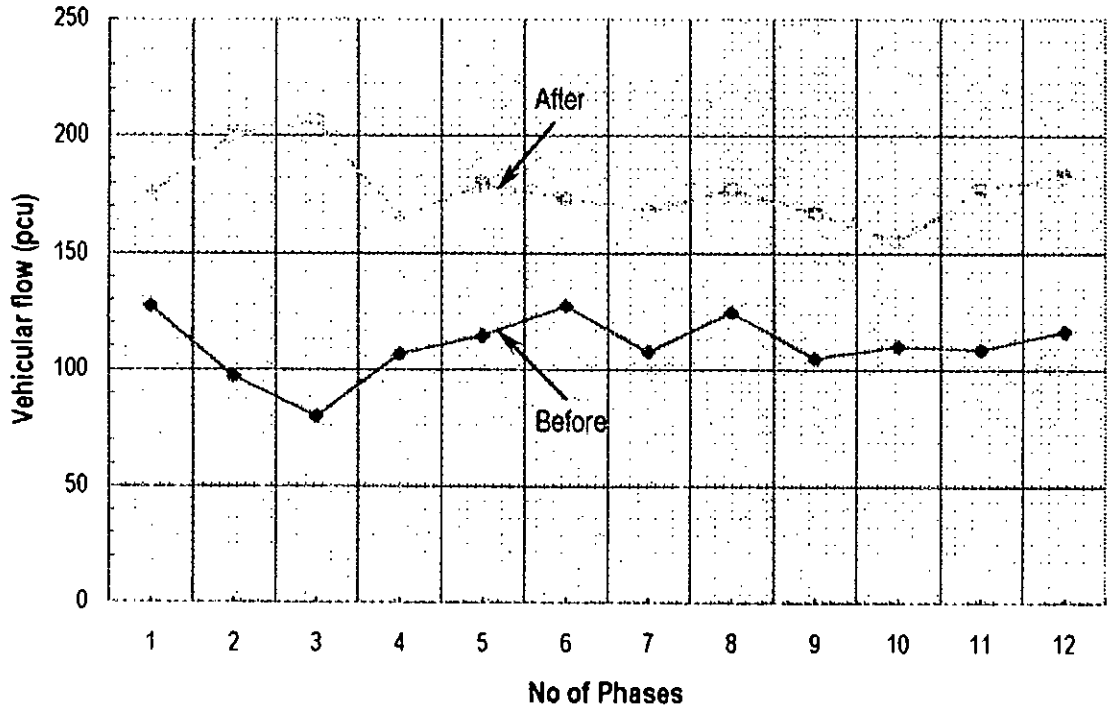


Fig 3.4 Before-After flow with extra police at North approach of Bangla Motor intersection

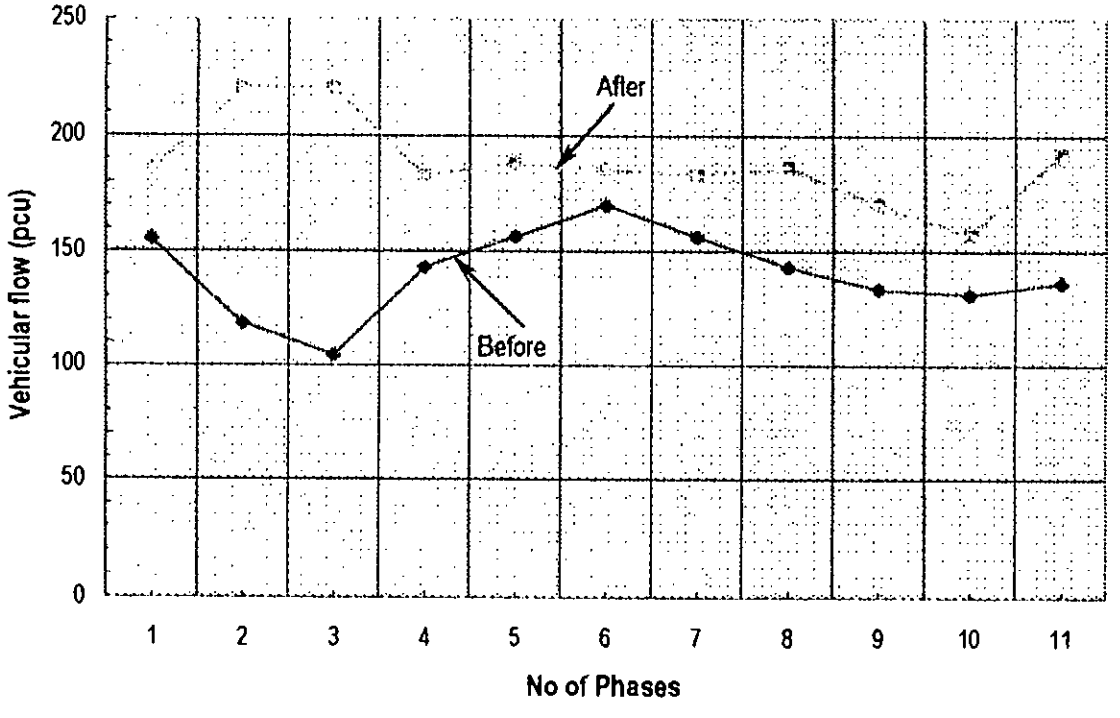


Fig 3.5 Before-After flow with extra police at South approach of Bangla Motor intersection

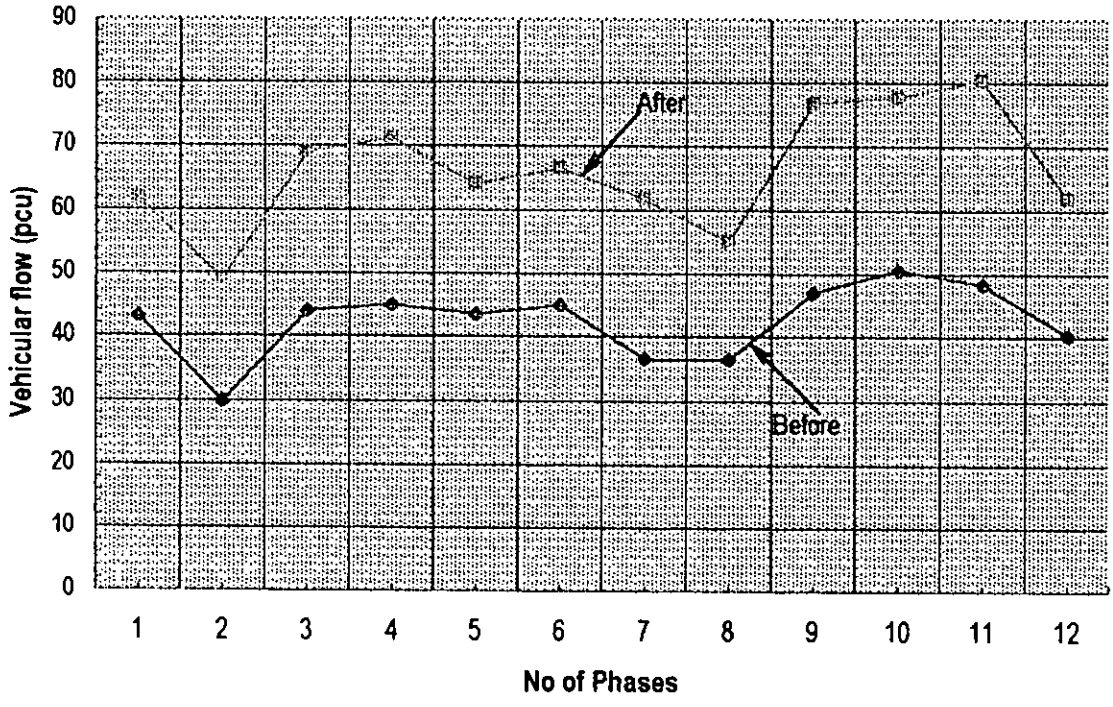


Fig 3.6 Before-After flow with extra police at East approach of Bangla Motor intersection

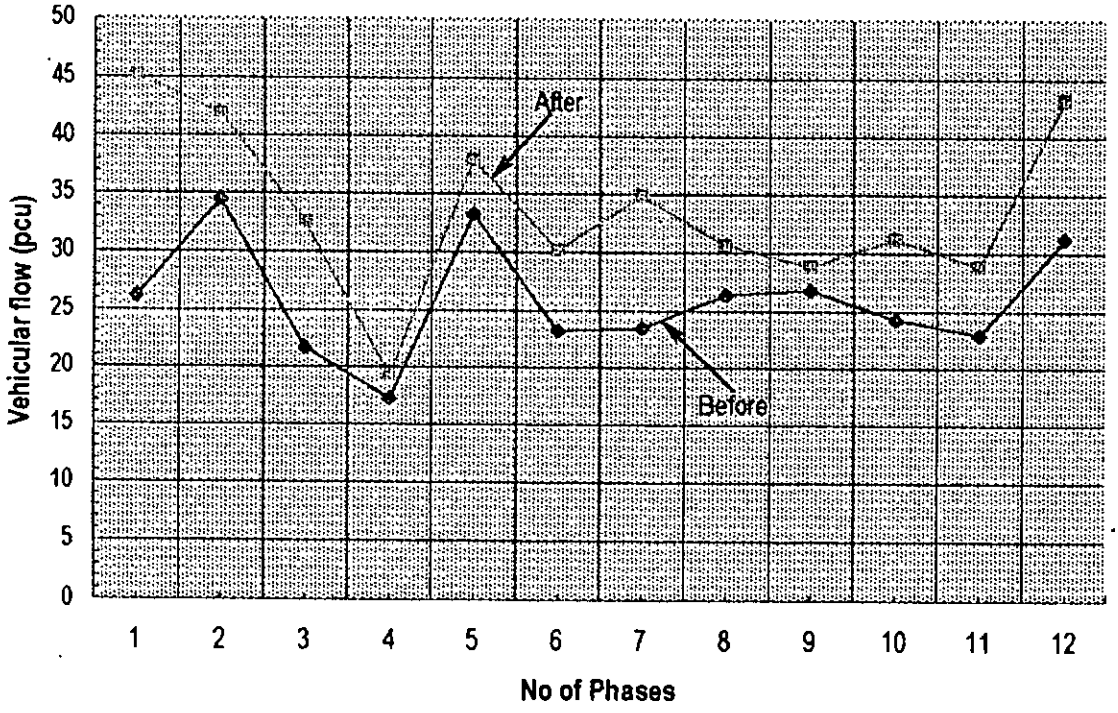


Fig 3.7 Before-After flow with extra police at West approach of Bangla Motor intersection

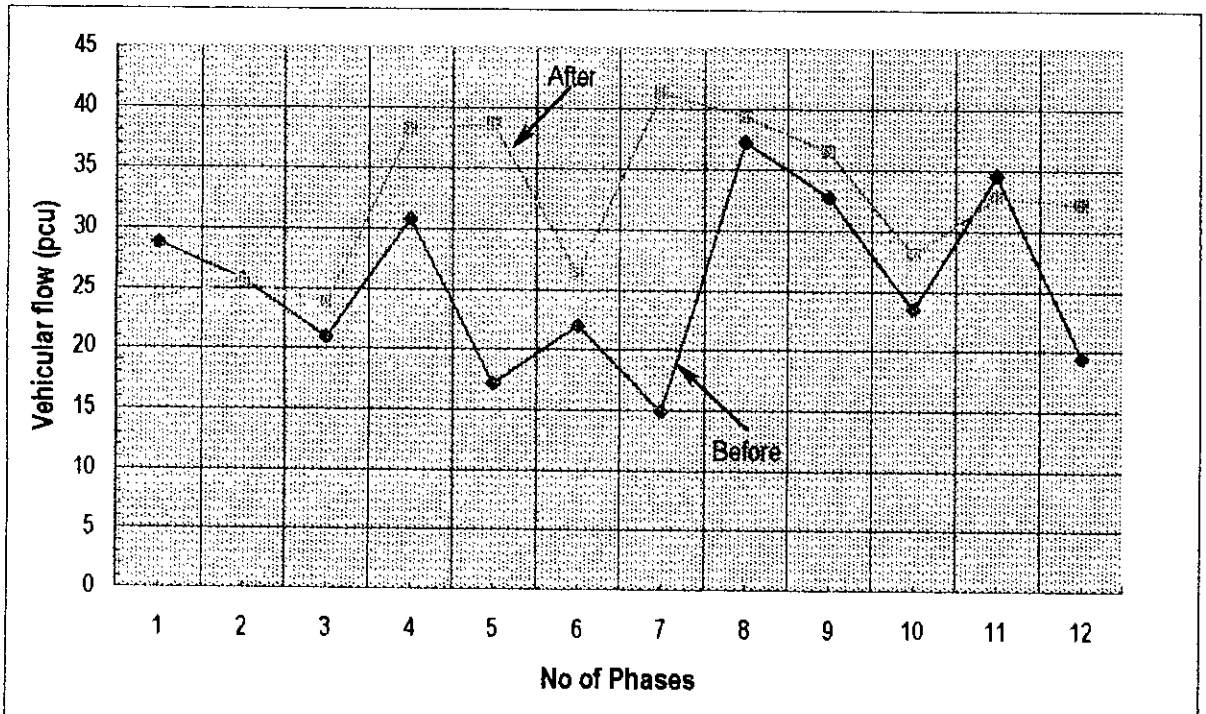


Fig 3.8 Before-After flow with extra police at Dainik Bangla approach of Purana Paltan intersection

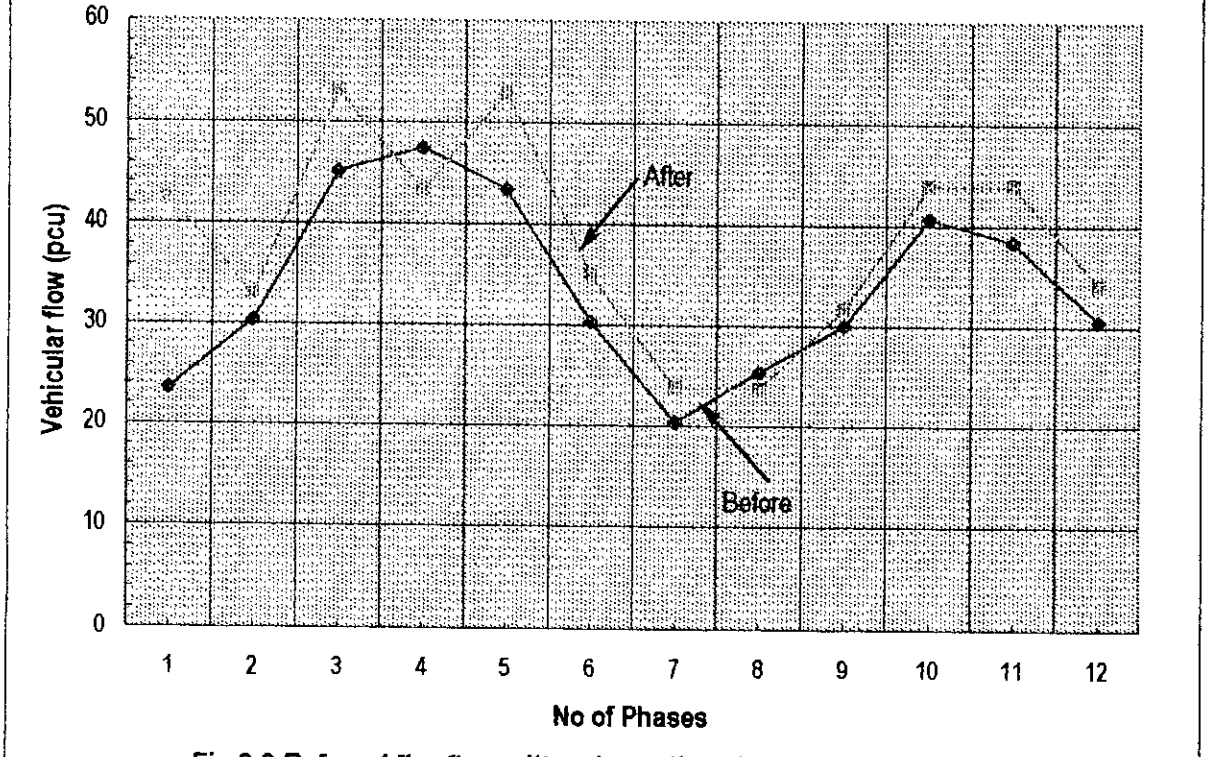


Fig 3.9 Before-After flow with extra police at Secretariat approach of Purana Paltan intersection

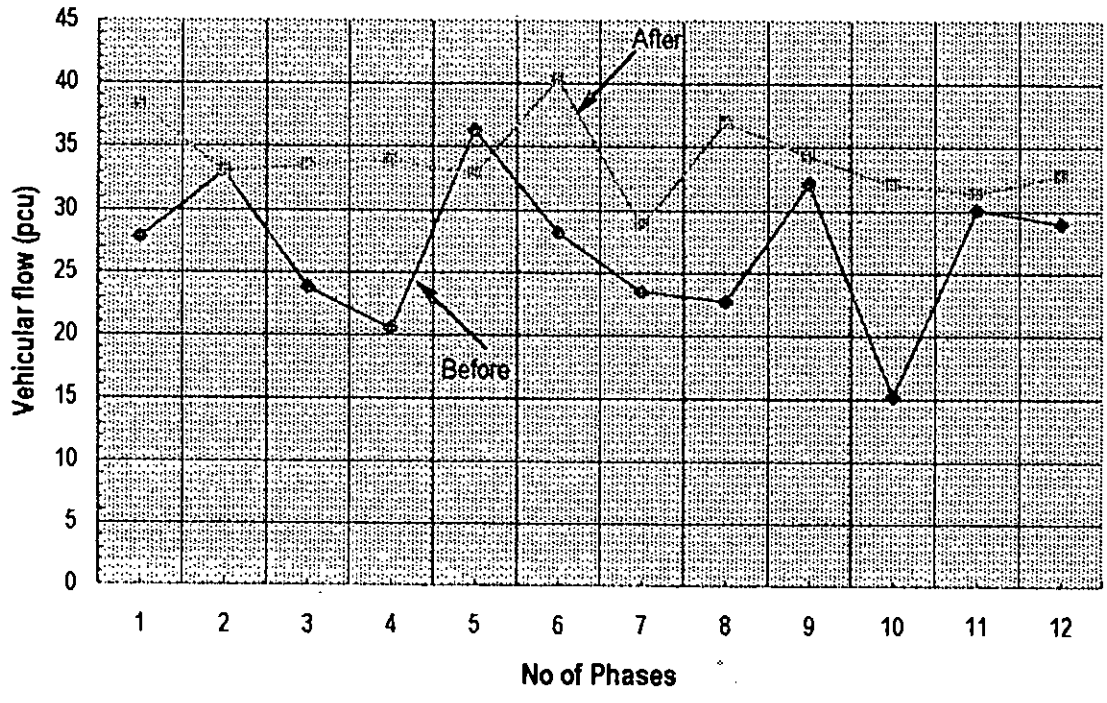


Fig 3.10 Before-After flow with extra police at Bijoy Nagar approach of Purana Paltan intersection

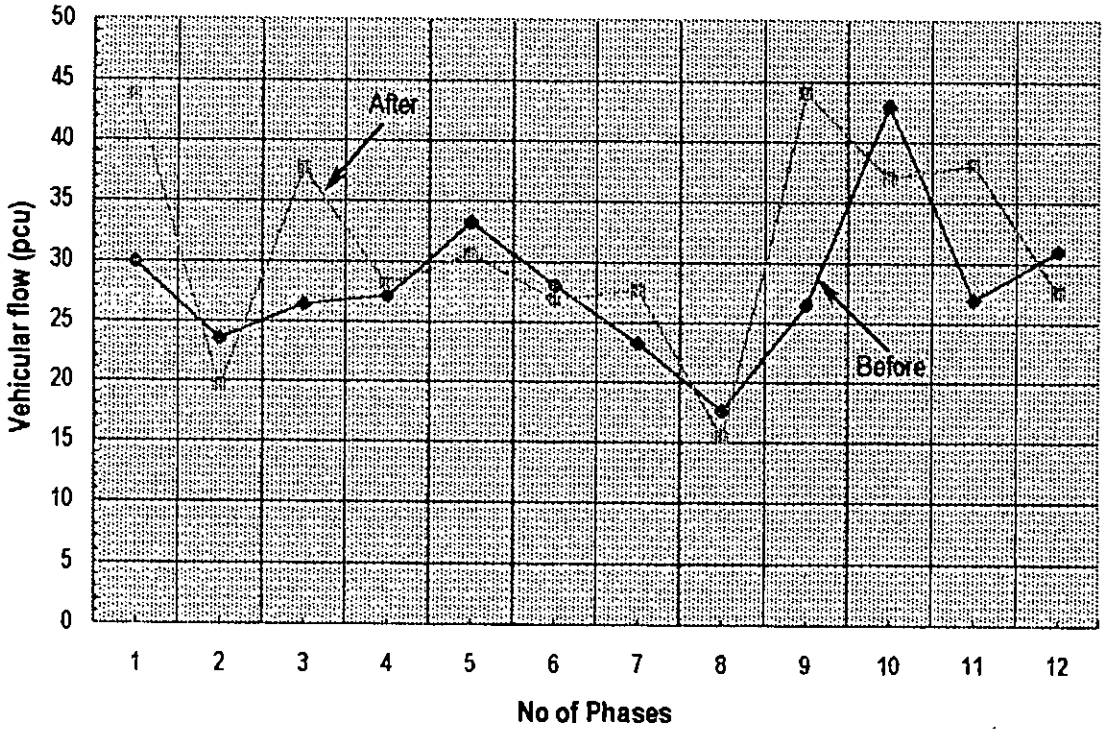


Fig 3.11 Before-After flow with extra police at Noor Hossain Square approach of Purana Paltan intersection

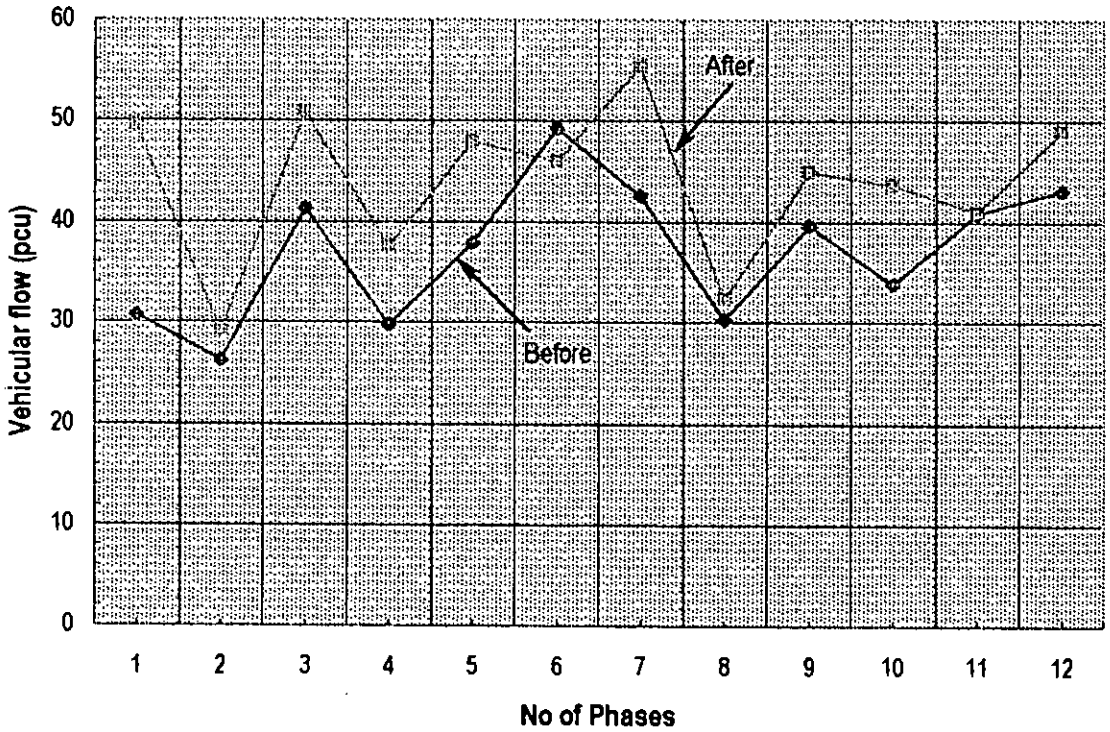


Fig 3.12 Before-After flow with extra police at Kakrail approach of Fakirapool intersection

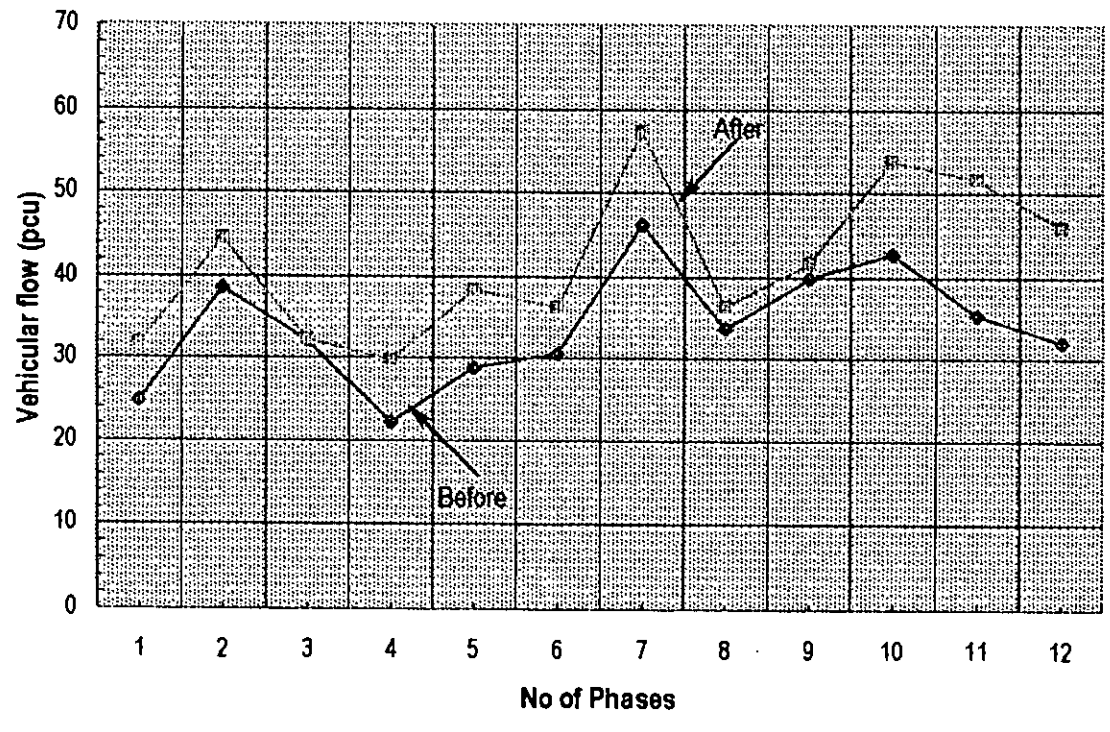


Fig 3.13 Before-After flow with extra police at Bangladesh Bank approach of Fakirapool intersection

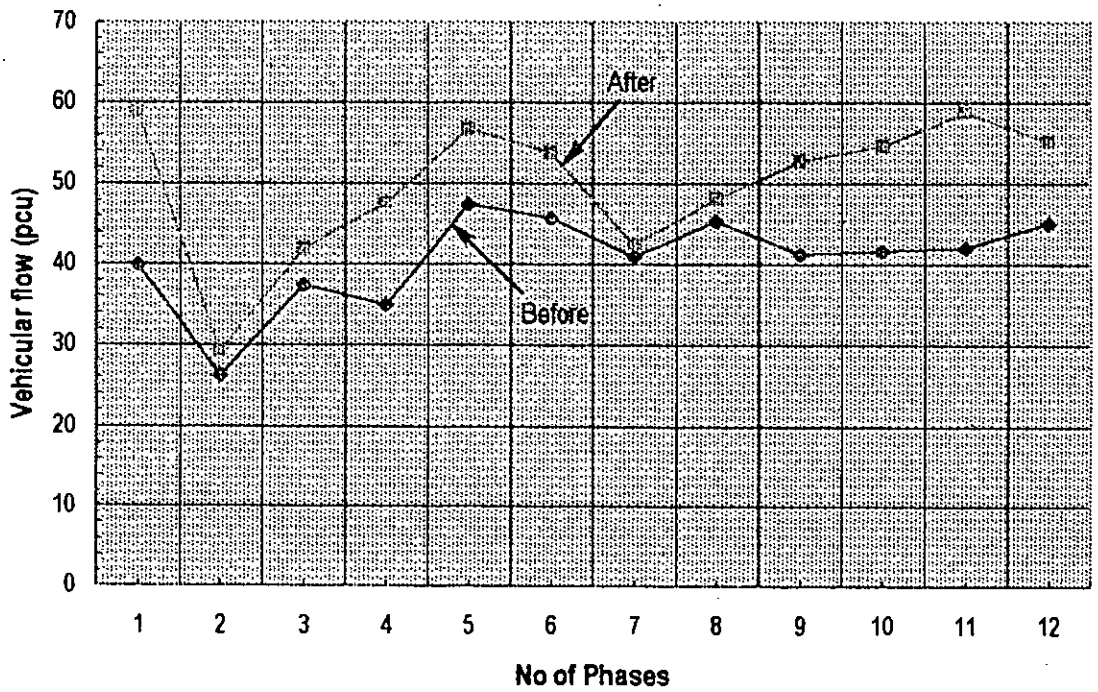


Fig 3.14 Before-After flow with extra police at RAJUK approach of Fakirapool intersection

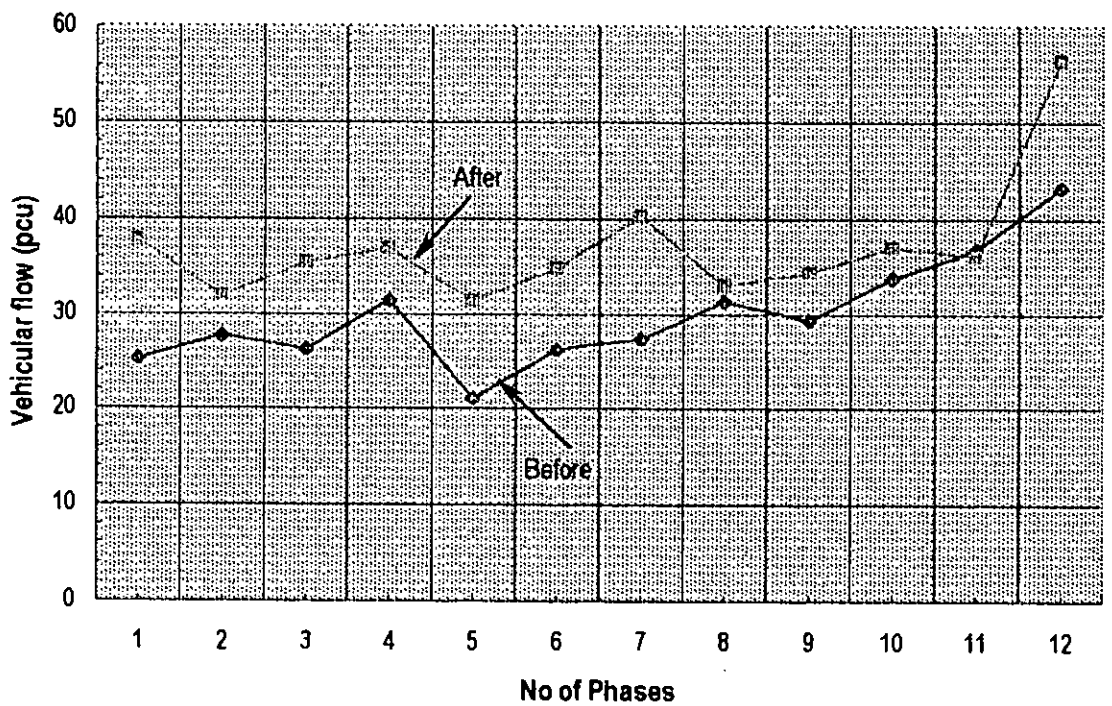


Fig 3.15 Before-After flow with extra police at Rajarbag approach of Fakirapool intersection

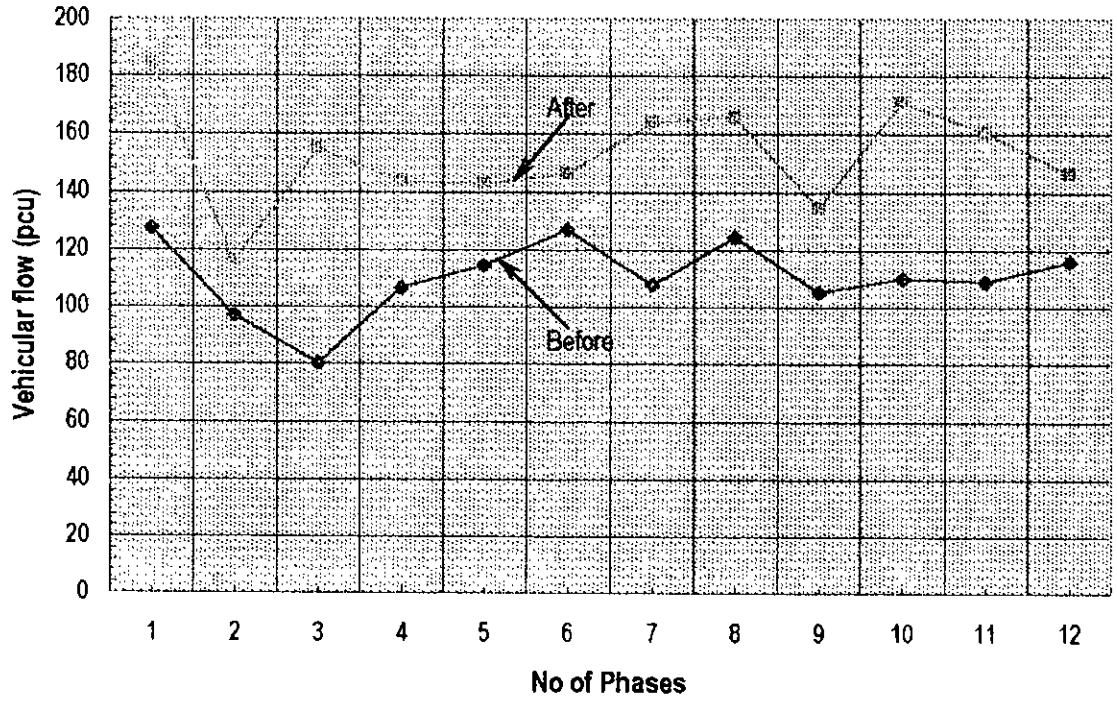


Fig 3.16 Before-After flow with secondary signal at North approach of Bangla Motor intersection

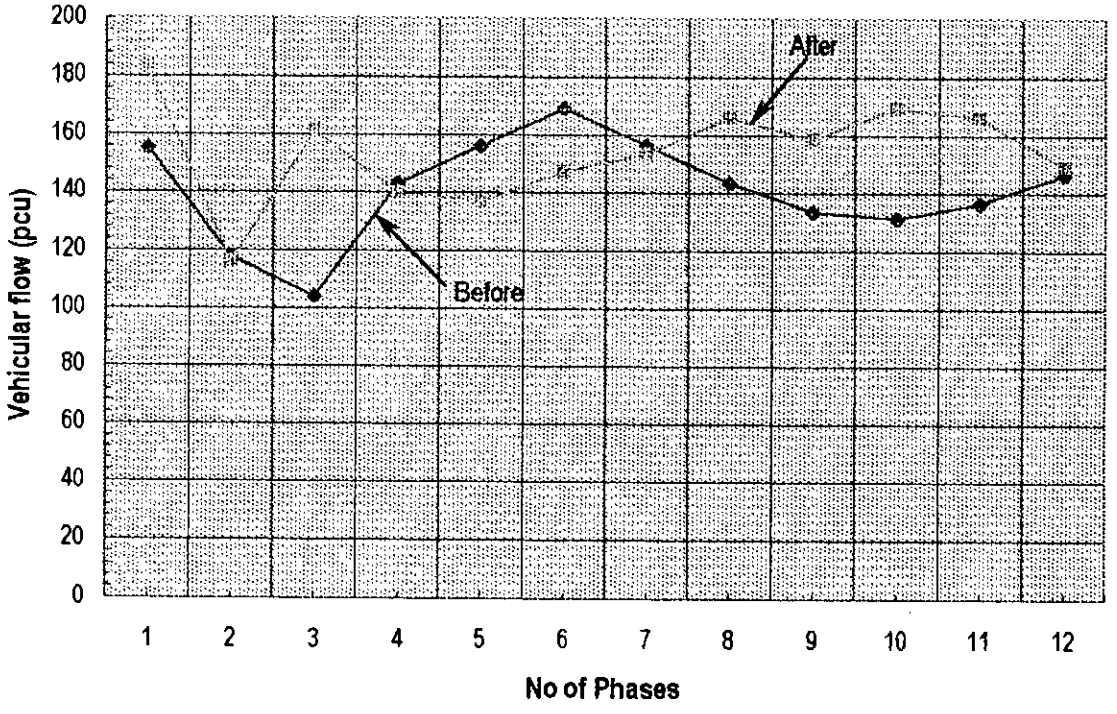


Fig 3.17 Before-After flow with secondary signal at South approach of Bangla Motor intersection

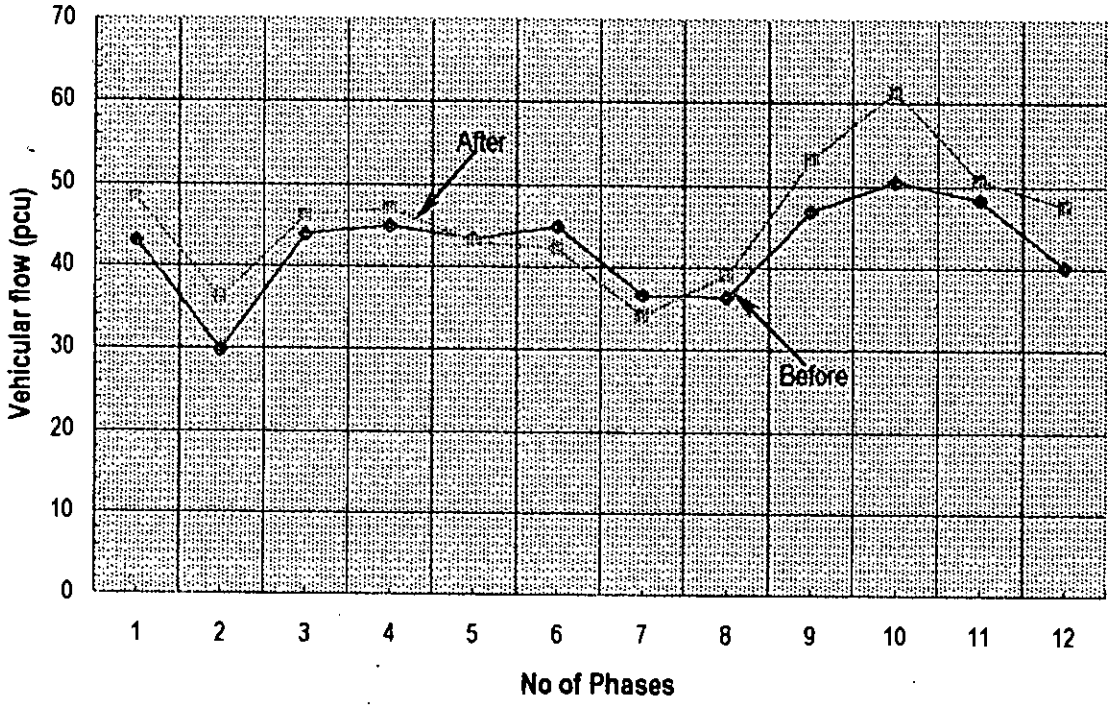


Fig 3.18 Before-After flow with secondary signal at East approach of Bangla Motor intersection

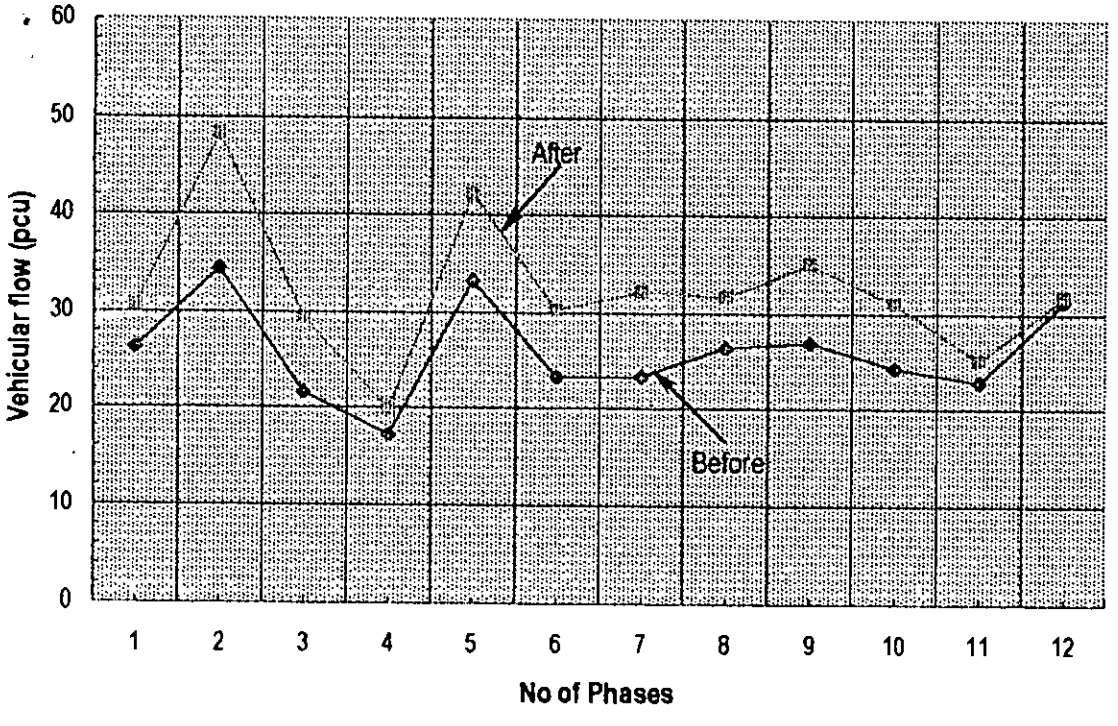


Fig 3.19 Before-After flow with secondary signnal at West approach of Bangla Motor intersection

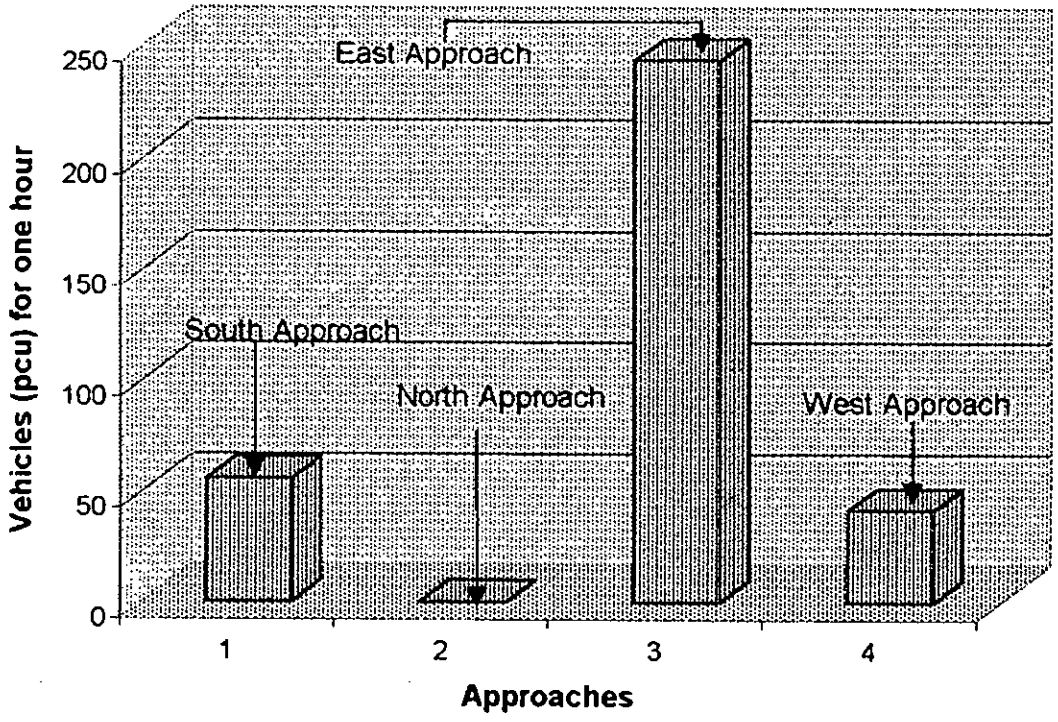


Fig. 3.20 Vehicles crossing stopline at Bangla Motor Intersection

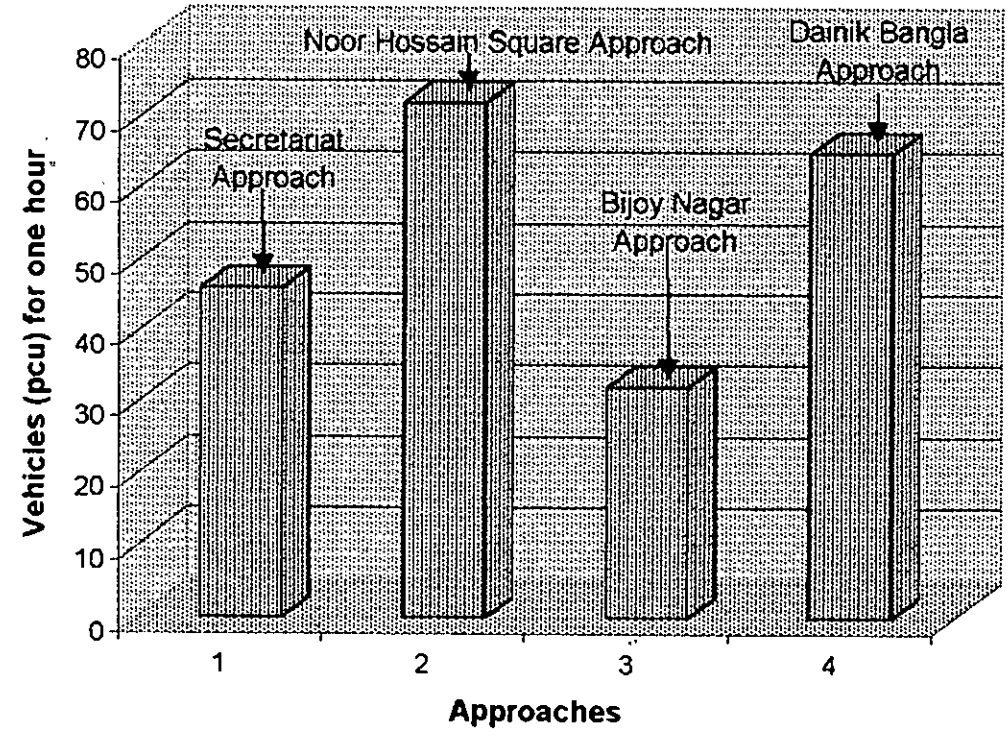


Fig. 3.21 Vehicles crossing stopline at Purana Paltan intersection

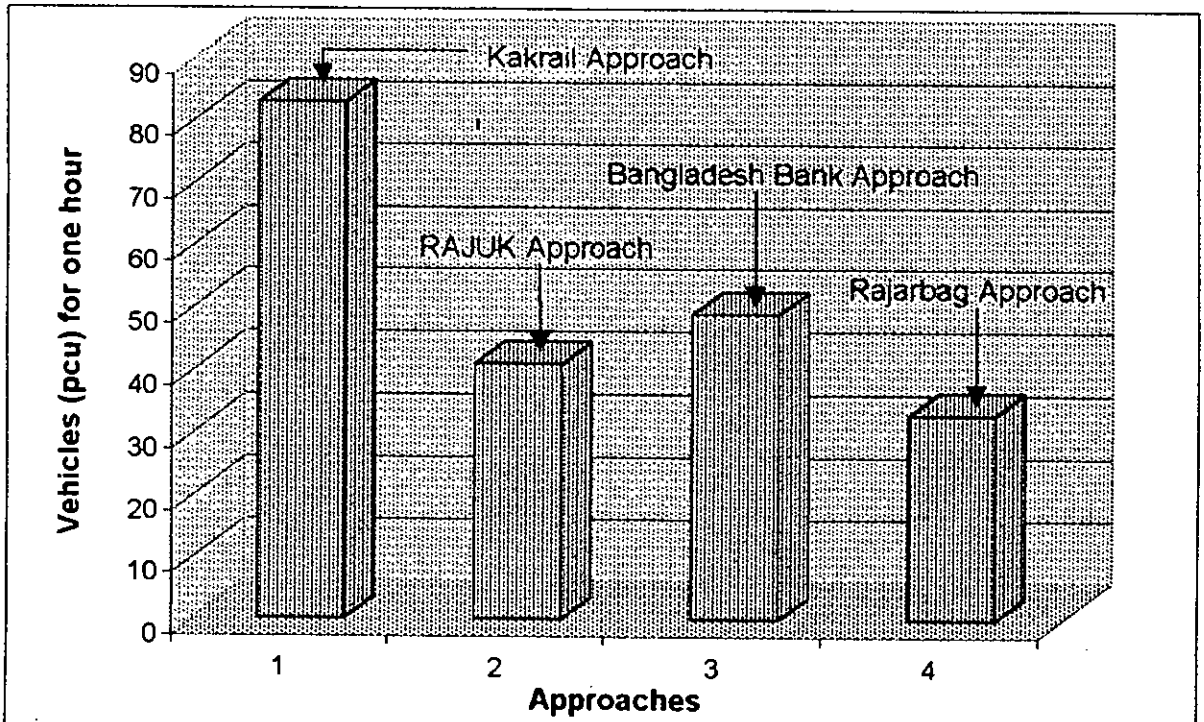


Fig. 3.22 Vehicles crossing stopline at Fakirapool Intersection

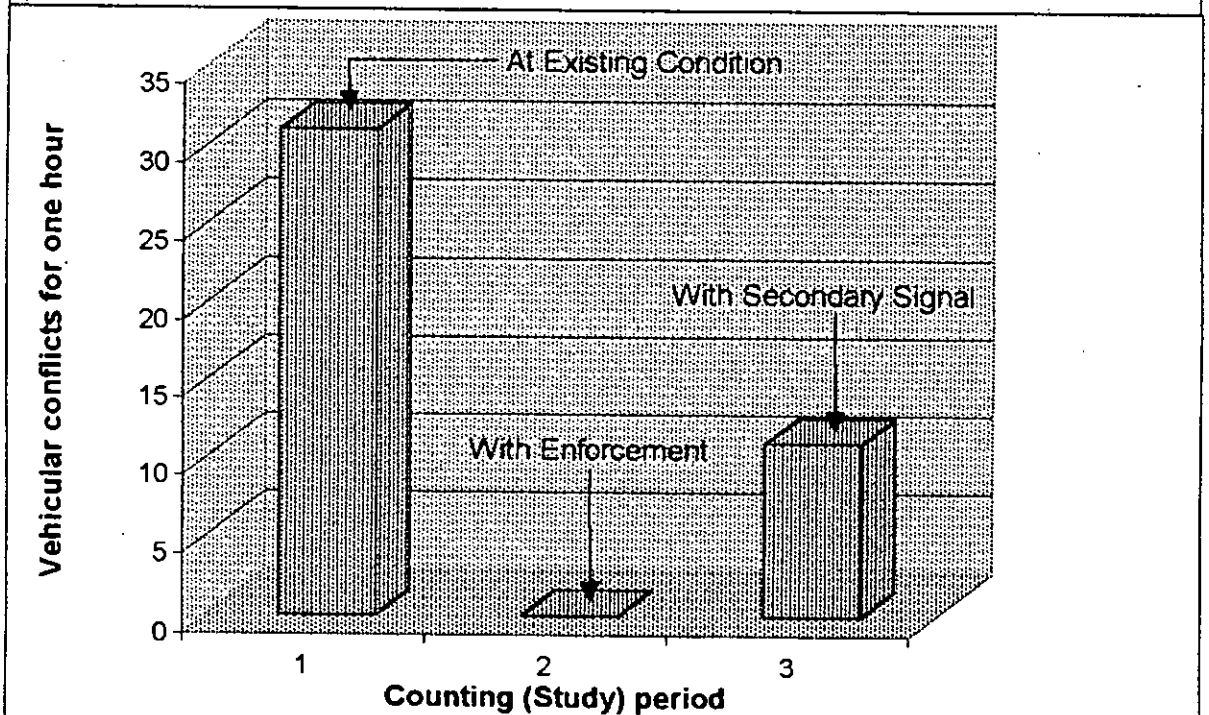


Fig. 3.23 Conflicts before-after study at Bangla Motor Intersection

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

The main objectives of this study were to quantify the effect of extra traffic police involvement and secondary signal on performance of signalized intersections in Dhaka City. It was also tried to observe the placement pattern of primary signals. After conducting a preliminary survey three signalized intersections i. e. Bangla motor, Purana Paltan and Fakirapool were selected. Flows of these selected intersections were collected with a video camera before and after situation (where 'before' means existing condition and 'after' means any changed condition i.e. with extra police and after providing secondary signal). These data were then analyzed with the help of computer software 'EXCEL'. The findings of this study, general conclusions and some recommendations are given in the following articles.

4.1 STRICT POLICE ENFORCEMENT

Findings from 'before and after' study analysis with extra police involvement for the selected intersections are given below.

4.1.1 Bangla Motor Site

From Table 3.4 (and Figure 3.4 to Figure 3.7) it was seen that flow for each phase of all the four approaches had increased. From Table 3.6 it had been found that percent of improvements of flows due to strict police enforcement were 60%, 33%, 56% and 30% for North, South, East and West approaches respectively. From Table 3.16 it was also seen that overall improvement of flow for the whole intersection was 41%.

From Table 3.19 it was observed that during the deployment of traffic enforcement total number of vehicular conflicts within the junction area was negligible.

To justify whether the increased flow was random or statically significant, from Table 3.5 it could be seen that all the approaches had statistically significant value that is, their t-statistic values were greater than t-critical value (1.796).

4.1.2 Purana Paltan Site

Considering flow values we it was seen from Table 3.7 and from Figure 3.8 to Figure 3.11 that all flow values due to strict police enforcement were not higher than that of existing traffic flow condition. But from Table 3.9 it was seen that throughputs due to this traffic control measurement for Dainik Bangla, Secretariat, Bijoy Nagar and Noor Hossain Square approaches were 25%, 14%, 27% and 12% respectively. From Table 3.16 it is seen that total throughputs of this intersection is 15%.

To justify whether these flow values were statistically significant, From Table 3.8 we could see that except Noor Hossain Square (t-statistic value equal to 1.41) approach other three approaches had significant t-statistic values.

4.1.3 Fakirapool Site

Observing Table 3.10 and Figure 3.12 to Figure 3.15 it was found that all the flow values (except one phase for Kakrail approach and one for Rajarbag approach) are higher than that of at existing condition. Table 3.12 showed that approach-wise flows were 18%, 23%, 23% and 24% for Kakrail, Bangladesh Bank, RAJUK and Rajarbag approaches respectively. Overall throughputs of this intersection was found as 11% from Table 3.16.

From Table 3.11 in which " t- Test: Paired Two Sample for Means" had been performed for Fakirapool intersection to justify the flows it was found that all the four approaches had t-statistic greater than that of t-critical which indicated statistically significant increase of the approaches.

4.2 EFFECT OF SECONDARY SIGNAL

As one of the objectives of this research was to quantify junction performance due to secondary signal, study was also conducted for this objective but only for Bangla Motor junction where Dhaka City Coporation (DCC) installed a secondary signal according to Dhaka Integrated Traffic Study (DITS) recommendation. From the observations following conclusions can be made.

Observing flow values in Table 3.13 and Figures 3.16 to 3.19 it was seen that flows for each phase (except two for East approach and five for South approach) had increased. From Table 3.15 it was seen that improvements of throughputs in percent for North, South, East and West approaches were 38%, 9%, 8% and 24% respectively. From Table 3.17 it was seen that overall improvement of throughput is 19%.

Number of conflicts within the junction during observing period (60 minutes) after providing secondary signals was only 8 (Figure 3.23).

After conducting statistical " t- Test: Paired Two Sample for Means", (Table 3.14) taking data from Table 3.13 it was found that all the four approaches that is, North, South, East and West approaches had significant t-statistic values which indicated that improvements were occurred due to installation of secondary signals.

4.3 GENERAL CONCLUSIONS

The findings from this study based on analyses of data have been discussed in detail in the preceding articles. Based on these findings, some general conclusions are made, which can be used as the guides while fixing priority between engineering and enforcement measures to improve the performance of signalized intersections in Dhaka City. The general conclusions obtained from this study are summarized as follows:

1. It has been found in the study that the involvement of extra traffic police and road users awareness produced most significant improvement of the overall performance of signalized road junctions.

2.It has also been observed that strict enforcement of traffic regulations is more effective in improving junction performance where traffic flow comprises only motor vehicles or mixed traffic with minimum or no turning movements (especially right turning) exist, that is, at junctions where the scope for segregating non-motorized vehicles (NMVs) from the motorized vehicles by encouraging the NMV's to stay at the left part of the road.

3. As compared to strict enforcement of traffic regulations, the placement of secondary signal appears to be less effective in improving performance of signalized junctions.

4. Though improvement due to secondary signal was not impressive but it has potential to bring more orderly stopping and discharge pattern at junctions. It is expected that its effectiveness will be more in the presence of strict enforcement of regulations.

5. Stopline violation at most of the approaches of the study sites revealed that to bring discipline in stopping at stopline – signal posts should be placed at appropriate locations.

6. Finally, from the general observations during the site selection and data collecting period, it can be stated that in order to improve overall capacity of our existing road network system and as well as to bring roadway discipline, honest, dedicated and trained traffic police in adequate

number are needed. Therefore, policymakers should take immediate action program in devoloping a competent traffic police force who will be honest and dedicated to their assignments.

4.4 RECOMMENDATIONS FOR FURTHER RESEARCH

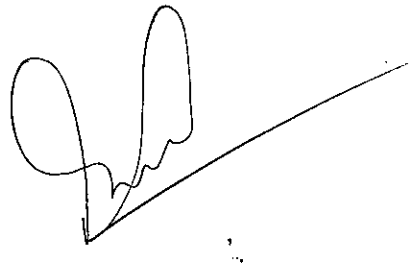
Some potential areas for research are suggested below:

1. Research should be done to simulate the effect of secondary signals on traffic operation at road junctions with high proportion of non-motorized vehicles (NMVs).

2. The effect of secondary signal in conjunction with traffic enforcement on the performance of signalized road junctions should further be evaluated through research.

3. Research can be carried out to find out the proper locations of primary signals for mixed traffic operation.

4. The optimum number of traffic personnel required for the effective enforcement and the financial involvement vis-à-vis anticipated benefits should be determined for different types of road junctions.



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APPENDIX A

(DATA TABLES)

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	3	0	2	1	2	0	1	0	2	0	1	2
Mini-Bus	1.5	5	1	0	3	1	5	2	4	3	5	0	3
Micro-Bus	1	12	4	3	7	9	5	8	7	4	9	3	11
Utility	1	20	7	8	9	40	8	11	13	7	14	9	16
Heavy-Truck	3.5	0	0	1	0	0	0	2	0	0	0	0	1
Medium-Truck	3	1	0	0	2	0	3	0	1	0	0	2	0
Small-Truck	1.5	0	0	0	0	1	0	0	0	1	0	0	0
Car	1	48	39	27	33	31	41	37	44	29	36	49	41
Auto-Rickshaw	0.8	64	80	58	88	66	106	81	96	93	84	61	71
Motor-Cycle	1	2	1	2	0	3	2	0	4	3	1	7	5
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total pcu		153	117	96	133	145	157	134	154	129	135	126	144
Left-Turn													
Bus	3	2											
Mini-Bus	1.5	4											
Micro-Bus	1	25											
Utility	1	22											
Heavy-Truck	3.5	4											
Medium-Truck	3	1											
Small-Truck	1.5	2											
Car	1	85											
Auto-Rickshaw	0.8	144											
Motor-Cycle	1	6											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total pcu		285	0	0	0	0	0	0	0	0	0	0	0

Note: Time of data collection 2:30 - 3:00 p.m. Day: Monday Date: 22 - 04 - 96

Table A-1 Classified vehicle counts for North approach of Bangla Motor intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	2	1	2	2	2	0	1	0	2	0	1	1
Mini-Bus	1.5	4	1	2	2	1	7	3	4	3	5	2	2
Micro-Bus	1	14	4	4	6	10	5	9	7	6	9	3	9
Utility	1	19	6	8	9	38	8	10	14	7	16	10	21
Heavy-Truck	3.5	0	0	1	0	0	0	2	0	0	0	0	1
Medium-Truck	3	1	0	0	2	0	3	0	1	0	0	2	0
Small-Truck	1.5	0	0	0	0	1	0	0	0	1	0	0	0
Car	1	52	41	29	35	34	39	35	41	31	36	51	39
Auto-Rickshaw	0.8	66	78	56	81	63	102	79	99	93	86	63	74
Motor-Cycle	1	2	1	2	0	3	2	0	4	3	1	7	5
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		102	77	64	80	84	97	81	95	80	85	91	88
Left-Turn													
Bus	3	3											
Mini-Bus	1.5	5											
Micro-Bus	1	27											
Utility	1	21											
Heavy-Truck	3.5	5											
Medium-Truck	3	2											
Small-Truck	1.5	2											
Car	1	79											
Auto-Rickshaw	0.8	161											
Motor-Cycle	1	9											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		308	0	0	0	0	0	0	0	0	0	0	0

Note: Time of data collection 9:30 - 10:00 a.m. Day: Sunday Date: 21 - 04 - 96

Table A-2 Classified vehicle counts for North approach of Bangla Motor intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	4	2	8	2	2	1	1	3	2	2	3	4
Mini-Bus	1.5	5	10	11	3	4	6	7	5	9	11	6	8
Micro-Bus	1	11	15	9	10	9	11	8	13	10	9	7	11
Utility	1	18	13	12	11	18	8	23	17	11	8	9	12
Heavy-Truck	3.5	0	1	1	0	2	0	0	1	0	0	1	1
Medium-Truck	3	3	2	0	4	2	1	0	0	2	0	3	1
Small-Truck	1.5	0	0	0	2	0	0	0	1	0	0	1	0
Car	1	45	23	42	38	34	32	37	41	47	29	31	36
Auto-Rickshaw	0.8	78	121	106	82	86	110	83	79	89	95	109	93
Motor-Cycle	1	2	1	2	0	3	3	4	7	2	3	4	6
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		167	179	194	150	158	157	152	163	167	148	170	170
Left-Turn													
Bus	3	4											
Mini-Bus	1.5	7											
Micro-Bus	1	19											
Utility	1	23											
Heavy-Truck	3.5	5											
Medium-Truck	3	1											
Small-Truck	1.5	2											
Car	1	84											
Auto-Rickshaw	0.8	155											
Motor-Cycle	1	6											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		302	0	0	0	0	0	0	0	0	0	0	0

Note: Time of data collection 2:30 - 3:00 p.m. Day: Wednesday Date: 24 - 04 - 96

Table A-3 Classified vehicle counts for North approach of Bangla Motor intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	5	4	8	3	3	2	2	3	2	3	2	4
Mini-Bus	1.5	6	14	13	4	6	6	7	6	9	8	6	9
Micro-Bus	1	10	17	13	12	13	11	11	15	10	12	8	11
Utility	1	20	16	16	13	23	15	29	19	11	9	10	13
Heavy-Truck	3.5	0	3	1	1	4	0	0	3	0	0	2	3
Medium-Truck	3	3	4	0	5	3	3	2	1	2	1	4	2
Small-Truck	1.5	0	0	0	4	1	1	1	2	0	0	2	1
Car	1	51	27	47	45	38	38	47	47	47	33	37	41
Auto-Rickshaw	0.8	81	129	112	81	96	117	87	83	89	98	107	96
Motor-Cycle	1	4	3	4	4	7	5	3	9	2	5	6	9
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		183	222	217	178	200	188	184	191	167	161	184	194
Left-Turn													
Bus	3	6											
Mini-Bus	1.5	9											
Micro-Bus	1	23											
Utility	1	21											
Heavy-Truck	3.5	3											
Medium-Truck	3	1											
Small-Truck	1.5	1											
Car	1	79											
Auto-Rickshaw	0.8	141											
Motor-Cycle	1	4											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		286	0	0	0	0	0	0	0	0	0	0	0

Note: Time of data collection 9:30 - 10:00 a.m. Day: Tuesday Date: 23 - 04 - 96

Table A-4 Classified vehicle counts for North approach of Bangla Motor intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	1	3	4	6	8	4	5	7	8	9	2	5
Mini-Bus	1.5	12	2	3	4	3	3	7	5	6	2	3	3
Micro-Bus	1	5	12	13	10	8	7	6	7	9	11	7	11
Utility	1	15	14	19	12	11	10	11	16	9	14	12	13
Heavy-Truck	3.5	1	0	0	1	0	0	2	0	0	0	1	1
Medium-Truck	3	1	0	2	2	0	3	0	1	1	0	0	1
Small-Truck	1.5	0	0	0	0	1	0	0	1	0	0	1	0
Car	1	35	26	39	21	22	31	35	27	29	31	24	28
Auto-Rickshaw	0.8	103	47	65	68	70	76	76	81	69	93	106	65
Motor-Cycle	1	2	1	1	0	3	2	2	4	3	4	6	5
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		167	103	147	131	130	136	147	152	141	164	149	135
Left-Turn													
Bus	3	5											
Mini-Bus	1.5	8											
Micro-Bus	1	22											
Utility	1	24											
Heavy-Truck	3.5	5											
Medium-Truck	3	2											
Small-Truck	1.5	1											
Car	1	91											
Auto-Rickshaw	0.8	161											
Motor-Cycle	1	11											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		329	0	0	0	0	0	0	0	0	0	0	0

Note: Time of data collection 2:30 - 3:00 p.m. Day: Sunday Date: 28 - 07 - 96

Table A-5 Classified vehicle counts for North approach of Bangla Motor intersection with secondary signal

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	3	4	3	6	8	4	5	8	8	9	3	6
Mini-Bus	1.5	14	2	4	7	3	5	9	7	6	4	5	4
Micro-Bus	1	7	15	16	12	11	9	8	9	11	12	8	12
Utility	1	17	17	23	15	15	12	13	19	14	16	12	17
Heavy-Truck	3.5	2	1	0	2	0	0	2	0	0	0	2	1
Medium-Truck	3	3	0	2	4	1	3	1	2	1	0	0	1
Small-Truck	1.5	0	0	0	0	2	0	2	2	1	0	2	0
Car	1	42	32	46	23	28	33	45	34	3	35	29	36
Auto-Rickshaw	0.8	108	56	67	72	78	86	84	87	74	96	112	71
Motor-Cycle	1	3	2	3	1	4	5	5	4	3	4	6	5
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		201	129	163	156	155	156	180	179	128	177	171	157
Left-Turn													
Bus	3	4											
Mini-Bus	1.5	3											
Micro-Bus	1	17											
Utility	1	21											
Heavy-Truck	3.5	3											
Medium-Truck	3	1											
Small-Truck	1.5	2											
Car	1	91											
Auto-Rickshaw	0.8	161											
Motor-Cycle	1	9											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		300	0	0	0	0	0	0	0	0	0	0	0

Note: Time of data collection 9:30 - 10:00 a.m. Day: Saturday Date: 27 - 07 - 96

Table A-6 Classified vehicle counts for North approach of Bangla Motor intersection with secondary signal

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	3	0	2	1	2	0	1	0	2	0	2	2
Mini-Bus	1.5	6	1	0	3	1	5	2	2	3	5	0	3
Micro-Bus	1	11	4	3	6	9	5	7	5	4	9	3	13
Utility	1	21	8	9	7	39	12	11	13	7	14	8	14
Heavy-Truck	3.5	0	0	1	0	0	0	2	0	0	0	0	1
Medium-Truck	3	2	0	0	2	0	3	0	1	0	0	2	0
Small-Truck	1.5	0	0	0	0	1	0	0	0	1	0	0	0
Car	1	50	37	29	35	33	39	41	39	29	36	44	39
Auto-Rickshaw	0.8	62	78	60	88	64	98	78	88	93	84	65	73
Motor-Cycle	1	2	1	2	0	3	2	0	4	3	1	7	5
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		164	114	101	138	144	162	134	140	129	135	132	143
Left-Turn													
Bus	3	5											
Mini-Bus	1.5	4											
Micro-Bus	1	5											
Utility	1	9											
Heavy-Truck	3.5	1											
Medium-Truck	3	2											
Small-Truck	1.5	0											
Car	1	79											
Auto-Rickshaw	0.8	101											
Motor-Cycle	1	5											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		209	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	0	1	0	1	0	0	1	0	1	0	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	3	1	3	2	2	3	2	3	3	2	2	3
Auto-Rickshaw	0.8	3	2	3	4	1	4	0	2	1	3	3	4
Motor-Cycle	1	1	0	0	0	0	0	0	0	0	0	0	0
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		6	3	6	5	4	6	2	6	4	5	4	6

Note: Time of data collection 2:30 - 3:00 p.m. Day: Monday Date: 22 - 04 - 96

Table A-7 Classified vehicle counts for South approach of Bangla Motor intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	2	0	2	2	3	0	2	0	2	0	1	2
Mini-Bus	1.5	6	3	0	3	1	5	2	3	3	4	2	4
Micro-Bus	1	12	8	4	9	12	7	8	7	4	7	4	12
Utility	1	22	9	7	14	45	12	14	16	8	14	10	16
Heavy-Truck	3.5	0	0	2	0	0	0	12	0	0	0	0	1
Medium-Truck	3	1	0	0	2	0	4	0	1	0	0	3	0
Small-Truck	1.5	0	0	0	0	1	0	0	0	2	0	0	0
Car	1	44	37	30	36	39	44	37	39	31	29	51	47
Auto-Rickshaw	0.8	61	78	62	91	70	113	85	91	97	88	67	67
Motor-Cycle	1	2	1	4	0	4	4	0	4	3	1	7	5
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		147	122	108	148	168	177	178	146	137	127	141	149
Left-Turn													
Bus	3	3											
Mini-Bus	1.5	2											
Micro-Bus	1	6											
Utility	1	13											
Heavy-Truck	3.5	1											
Medium-Truck	3	1											
Small-Truck	1.5	0											
Car	1	68											
Auto-Rickshaw	0.8	95											
Motor-Cycle	1	4											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		186	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	0	1	0	1	0	0	1	0	1	0	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	4	2	1	3	2	1	4	2	3	2	1	2
Auto-Rickshaw	0.8	3	2	3	5	1	3	0	3	1	3	3	4
Motor-Cycle	1	2	0	0	0	0	0	0	0	0	0	0	0
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		8	4	4	7	4	3	4	5	4	5	3	5

Note. Time of data collection 9:30 - 10:00 a.m. Day: Sunday Date: 21 - 04 - 96

Table A-8 Classified vehicle counts for South approach of Bangla Motor intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	5	3	8	2	2	2	1	3	2	1	3	4
Mini-Bus	1.5	6	12	13	3	5	6	7	5	9	10	6	8
Micro-Bus	1	12	17	10	12	9	14	8	16	11	9	7	11
Utility	1	19	16	14	13	21	9	29	19	13	8	9	12
Heavy-Truck	3.5	0	1	1	0	2	0	0	1	0	0	2	2
Medium-Truck	3	4	3	0	4	2	1	0	0	2	0	3	1
Small-Truck	1.5	0	0	0	3	0	0	0	1	0	0	2	0
Car	1	46	26	44	42	34	34	37	43	47	32	31	41
Auto-Rickshaw	0.8	80	123	112	84	88	109	88	81	84	89	109	99
Motor-Cycle	1	2	1	2	0	3	3	4	7	2	3	4	6
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		179	198	207	161	164	165	162	171	166	141	175	183
Left-Turn													
Bus	3	4											
Mini-Bus	1.5	2											
Micro-Bus	1	7											
Utility	1	17											
Heavy-Truck	3.5	1											
Medium-Truck	3	0											
Small-Truck	1.5	1											
Car	1	74											
Auto-Rickshaw	0.8	109											
Motor-Cycle	1	11											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		216	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	0	1	0	1	0	0	1	0	1	0	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	3	2	1	4	2	2	4	3	3	4	2	2
Auto-Rickshaw	0.8	4	3	3	4	1	4	1	3	2	1	2	4
Motor-Cycle	1	3	0	1	0	1	0	0	0	1	0	0	1
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		9	4	5	7	5	5	5	6	6	6	4	6

Note: Time of data collection 2:30 - 3:00 p.m. Day. Wednesday Date: 24 - 04 - 96

Table A-9 Classified vehicle counts for South approach of Bangla Motor intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	4	5	8	3	4	4	3	3	2	3	4	4
Mini-Bus	1.5	6	15	13	5	6	6	8	6	9	8	7	9
Micro-Bus	1	10	19	15	14	11	13	13	17	12	16	9	12
Utility	1	23	18	17	16	24	16	31	21	13	12	12	15
Heavy-Truck	3.5	0	4	2	3	5	0	0	3	0	0	3	3
Medium-Truck	3	4	6	0	5	3	4	3	1	2	1	4	2
Small-Truck	1.5	0	0	0	7	2	1	1	2	0	0	4	1
Car	1	56	28	54	49	41	39	51	49	47	37	41	43
Auto-Rickshaw	0.8	81	131	116	84	96	121	91	88	93	98	111	98
Motor-Cycle	1	4	3	4	4	7	5	3	9	2	5	6	9
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		191	242	233	203	210	204	202	201	174	172	208	201
Left-Turn													
Bus	3	5											
Mini-Bus	1.5	3											
Micro-Bus	1	6											
Utility	1	21											
Heavy-Truck	3.5	3											
Medium-Truck	3	2											
Small-Truck	1.5	1											
Car	1	81											
Auto-Rickshaw	0.8	107											
Motor-Cycle	1	9											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		240	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	0	1	0	1	0	0	1	0	1	0	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	5	2	2	1	4	0	4	3	2	4	1	3
Auto-Rickshaw	0.8	3	4	3	4	3	2	0	2	4	1	2	3
Motor-Cycle	1	1	0	1	0	0	0	2	0	0	0	1	0
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		8	5	6	4	7	2	6	6	5	6	4	5

Note: Time of data collection 9.30 - 10:00 a.m. Day: Tuesday Date: 23 - 04 - 96

Table A-10 Classified vehicle counts for South approach of Bangla Motor intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	2	3	4	6	8	4	5	7	8	9	2	5
Mini-Bus	1.5	12	3	3	4	4	1	6	5	7	2	4	3
Micro-Bus	1	6	11	14	11	8	7	5	7	9	13	8	13
Utility	1	16	15	21	14	12	12	12	18	11	16	14	15
Heavy-Truck	3.5	1	1	0	1	0	0	2	0	0	0	2	1
Medium-Truck	3	1	0	3	2	0	3	0	1	2	0	0	1
Small-Truck	1.5	0	0	0	0	1	0	0	2	0	0	1	0
Car	1	36	25	41	23	24	33	37	31	31	33	26	31
Auto-Rickshaw	0.8	105	49	67	69	71	78	79	84	71	95	110	69
Motor-Cycle	1	2	1	1	0	3	2	3	4	3	4	6	5
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		175	108	156	137	135	139	151	162	151	172	163	145
Left-Turn													
Bus	3	4											
Mini-Bus	1.5	2											
Micro-Bus	1	5											
Utility	1	11											
Heavy-Truck	3.5	0											
Medium-Truck	3	2											
Small-Truck	1.5	1											
Car	1	78											
Auto-Rickshaw	0.8	83											
Motor-Cycle	1	7											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		190	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	0	1	0	1	0	0	1	0	1	0	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	5	2	3	2	1	2	3	2	2	2	3	1
Auto-Rickshaw	0.8	4	2	3	3	1	4	0	3	2	4	2	4
Motor-Cycle	1	1	0	1	0	0	0	0	1	0	2	0	0
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		9	4	7	4	3	5	3	6	4	8	5	4

Note: Time of data collection 2:30 - 3:00 p.m. Day: Sunday Date: 28 - 07 - 96

Table A-11 Classified vehicle counts for South approach of Bangla Motor intersection with secondary signal

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	2	3	4	6	8	4	5	7	8	6	2	5
Mini-Bus	1.5	14	4	3	4	4	2	6	6	7	2	4	3
Micro-Bus	1	7	13	16	11	8	7	7	7	9	11	8	14
Utility	1	16	17	23	17	13	14	12	19	13	12	13	17
Heavy-Truck	3.5	1	1	0	1	0	0	2	0	0	0	2	1
Medium-Truck	3	1	0	3	2	0	3	0	1	2	0	0	1
Small-Truck	1.5	0	0	0	0	1	0	0	2	0	0	1	0
Car	1	37	26	43	24	26	37	41	33	33	40	27	33
Auto-Rickshaw	0.8	104	51	71	71	71	78	77	86	73	98	109	71
Motor-Cycle	1	2	1	1	0	3	2	3	4	5	4	7	6
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		179	116	165	142	138	146	156	168	159	166	163	153
Left-Turn													
Bus	3	5											
Mini-Bus	1.5	2											
Micro-Bus	1	4											
Utility	1	11											
Heavy-Truck	3.5	1											
Medium-Truck	3	2											
Small-Truck	1.5	1											
Car	1	76											
Auto-Rickshaw	0.8	108											
Motor-Cycle	1	7											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		213	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	0	1	0	1	0	0	1	0	1	0	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	3	2	0	4	2	1	3	2	2	2	3	2
Auto-Rickshaw	0.8	4	2	4	3	2	3	0	2	1	3	3	4
Motor-Cycle	1	1	0	1	0	0	0	0	0	2	0	0	1
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		7	4	5	6	5	3	3	5	5	5	5	6

Note: Time of data collection 9:30 - 10:00 a.m. Day: Saturday Date: 27 - 07 - 96

Table A-12 Classified vehicle counts for South approach of Bangla Motor intersection with secondary signal

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	1	0	0	1	0	1	1	0
Mini-Bus	1.5	0	0	1	0	1	1	0	0	1	0	0	1
Micro-Bus	1	2	1	2	3	2	2	0	2	3	1	4	2
Utility	1	5	2	7	3	4	7	5	3	4	6	7	1
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	1	0	1	0	1	0	0	1	1	0	1	2
Small-Truck	1.5	0	0	0	0	1	0	0	0	0	2	0	0
Car	1	4	4	7	4	5	7	5	4	6	8	3	5
Auto-Rickshaw	0.8	18	5	12	14	17	16	11	13	18	14	9	12
Motor-Cycle	1	0	0	1	2	0	1	2	0	2	0	1	0
Bi-cycle	0.5	0	1	0	2	0	1	2	0	1	0	1	0
Cycle-Rickshaw	0.5	28	29	17	30	15	21	19	22	18	27	22	26
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		42	26	40	39	41	42	31	36	43	46	40	38
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	12											
Utility	1	13											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	44											
Auto-Rickshaw	0.8	65											
Motor-Cycle	1	2											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		123	0	0	0	0	0	0	0	0	0	0	0

Note: Time of data collection 2:30 - 3:00 p.m. Day: Monday Date: 22 - 04 - 96

Table A-13 Classified vehicle counts for East approach of Bangla Motor intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	1	0	0	1	0	1	1	0
Mini-Bus	1.5	1	0	1	0	1	1	0	0	2	0	0	1
Micro-Bus	1	2	1	2	3	3	2	1	2	3	2	4	3
Utility	1	6	4	8	7	6	9	6	3	5	7	8	1
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	1	0	1	0	1	0	0	1	1	0	3	2
Small-Truck	1.5	0	0	0	0	1	0	0	0	0	4	2	0
Car	1	4	4	9	6	9	7	8	4	7	9	5	5
Auto-Rickshaw	0.8	16	10	14	16	14	19	13	13	21	16	11	14
Motor-Cycle	1	0	0	3	4	0	2	5	0	3	0	1	0
Bi-cycle	0.5	0	2	0	3	0	1	2	0	1	0	2	1
Cycle-Rickshaw	0.5	29	31	21	33	15	21	21	22	18	31	28	28
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		44	34	48	51	46	48	42	36	50	55	57	42
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	9											
Utility	1	11											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	49											
Auto-Rickshaw	0.8	71											
Motor-Cycle	1	4											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		130	0	0	0	0	0	0	0	0	0	0	0

Note: Time of data collection 9:30 - 10:00 a.m. Day: Sunnday Date: 21 - 04 - 96

Table A-14 Classified vehicle counts for East approach of Bangla Motor intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	1	0	0	1	0	1	1	0
Mini-Bus	1.5	2	0	1	0	1	1	0	0	2	0	0	1
Micro-Bus	1	3	2	2	3	3	2	1	3	3	4	6	3
Utility	1	8	7	15	9	10	13	9	5	8	8	9	1
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	1	0	1	0	1	0	0	2	2	0	5	4
Small-Truck	1.5	0	0	0	0	1	0	0	0	0	8	3	0
Car	1	6	4	15	9	15	9	8	8	9	11	5	9
Auto-Rickshaw	0.8	22	14	19	23	17	27	19	17	31	21	19	18
Motor-Cycle	1	0	0	3	5	0	4	9	0	3	0	1	0
Bi-cycle	0.5	0	4	0	6	0	3	3	0	1	0	2	1
Cycle-Rickshaw	0.5	32	39	27	41	21	27	29	27	32	37	36	34
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		57	46	68	68	61	66	58	52	73	73	78	58
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	15											
Utility	1	18											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	41											
Auto-Rickshaw	0.8	69											
Motor-Cycle	1	6											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		135	0	0	0	0	0	0	0	0	0	0	0

Note: Time of data collection 2:30 - 3:00 p.m. Day: Wednesday Date: 24 - 04 - 96

Table A-15 Classified vehicle counts for East approach of Bangla Motor intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	1	0	0	1	0	1	1	0
Mini-Bus	1.5	2	0	1	0	1	1	0	0	2	0	0	1
Micro-Bus	1	3	2	2	3	3	2	1	3	3	4	6	3
Utility	1	9	8	15	10	12	15	11	7	8	8	9	1
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	1	0	1	0	1	0	0	2	2	0	5	5
Small-Truck	1.5	0	0	0	0	1	0	0	0	0	9	3	0
Car	1	9	6	15	11	17	8	9	8	12	14	5	9
Auto-Rickshaw	0.8	26	16	18	26	16	27	21	19	31	25	23	21
Motor-Cycle	1	0	0	3	5	0	4	9	0	3	0	1	0
Bi-cycle	0.5	0	4	0	6	0	3	4	0	1	0	3	1
Cycle-Rickshaw	0.5	38	43	31	43	26	27	33	31	39	39	39	37
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		67	52	69	74	67	67	65	58	80	82	83	65
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	16											
Utility	1	21											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	1											
Car	1	51											
Auto-Rickshaw	0.8	76											
Motor-Cycle	1	9											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		159	0	0	0	0	0	0	0	0	0	0	0

Note: Time of data collection 9:30 - 10:00 a.m. Day: Tuesday Date: 23 - 04 - 96

Table A-16 Classified vehicle counts for East approach of Bangla Motor intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	1	0	1	1	0
Mini-Bus	1.5	0	0	1	0	1	1	0	0	1	0	0	1
Micro-Bus	1	2	1	2	3	2	2	0	2	3	1	4	2
Utility	1	6	4	9	6	7	6	4	2	6	8	7	1
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	1	0	1	0	1	0	0	1	1	0	1	2
Small-Truck	1.5	0	0	0	0	1	0	0	0	0	4	0	0
Car	1	5	5	9	4	8	7	6	5	8	11	3	5
Auto-Rickshaw	0.8	19	8	16	15	19	16	12	14	23	17	11	16
Motor-Cycle	1	0	0	1	4	0	1	2	0	2	0	1	0
Bi-cycle	0.5	0	2	0	2	0	1	2	0	1	0	1	0
Cycle-Rickshaw	0.5	31	31	19	32	15	19	17	21	26	27	32	29
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		47	33	48	46	46	40	31	37	55	56	46	43
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	9											
Utility	1	14											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	49											
Auto-Rickshaw	0.8	73											
Motor-Cycle	1	6											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		136	0	0	0	0	0	0	0	0	0	0	0

Note: Time of data collection 2:30 - 3:00 p.m. Day: Sunday Date: 28 - 07 - 96

Table A-17 Classified vehicle counts for East approach of Bangla Motor intersection with secondary signal

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	1	0	1	1	0
Mini-Bus	1.5	0	0	1	0	1	1	0	0	1	0	0	1
Micro-Bus	1	2	1	2	3	2	2	0	2	3	1	4	2
Utility	1	8	5	9	6	7	8	6	3	6	9	8	1
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	1	0	1	0	1	0	0	1	1	0	1	4
Small-Truck	1.5	0	0	0	0	1	0	0	0	0	4	0	0
Car	1	7	7	7	5	8	7	7	6	7	15	5	5
Auto-Rickshaw	0.8	19	11	15	17	11	17	15	16	21	21	15	19
Motor-Cycle	1	0	0	1	4	0	1	2	0	2	0	1	0
Bi-cycle	0.5	0	2	0	2	0	1	2	0	1	0	1	0
Cycle-Rickshaw	0.5	29	33	18	31	17	21	18	23	22	31	37	31
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		50	39	45	48	40	44	37	41	51	66	55	52
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	15											
Utility	1	14											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	51											
Auto-Rickshaw	0.8	66											
Motor-Cycle	1	4											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		137	0	0	0	0	0	0	0	0	0	0	0

Note: Time of data collection 9:30 - 10:00 a.m. Day: Saturday Date: 27 - 07 - 96

Table A-18 Classified vehicle counts for East approach of Bangla Motor intersection with secondary signal

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	1	0	1	0	0	1	0	1	1
Utility	1	0	2	0	0	1	0	2	0	3	0	0	2
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	1	0	0	1	0	0	0	1	0	0	0
Car	1	3	2	2	1	3	2	1	4	2	3	2	3
Auto-Rickshaw	0.8	8	4	4	3	5	2	7	4	6	1	3	5
Motor-Cycle	1	0	2	0	0	1	0	0	3	0	2	0	1
Bi-cycle	0.5	0	1	0	0	0	2	0	0	0	2	0	1
Cycle-Rickshaw	0.5	30	32	29	24	34	31	27	32	27	24	33	38
Cart	3	0	1	0	0	2	0	0	0	0	1	0	0
Total-Pcu		24	30	20	16	34	21	22	26	26	22	22	31
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	0											
Utility	1	0											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	5											
Auto-Rickshaw	0.8	14											
Motor-Cycle	1	1											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		17	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	1	0	2	0	0	1	2	0	0	3	2
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	3	2	3	1	2	0	3	0	4	1	3	2
Auto-Rickshaw	0.8	5	2	4	4	6	3	2	6	5	4	7	4
Motor-Cycle	1	1	0	2	0	0	0	0	1	0	0	2	0
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		8	5	8	6	7	2	6	8	8	4	14	7

Note: Time of data collection 2:30 - 3:00 p.m. Day: Monday Date: 22 - 04 - 96

Table A-19 Classified vehicle counts for West approach of Bangla Motor intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	1	0	0	1	0	1	0	0	2	0	1	1
Utility	1	0	3	1	0	2	1	2	0	3	1	0	3
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	1	0	0	1	0	0	0	1	0	1	0
Car	1	4	3	2	2	3	2	2	4	3	4	2	3
Auto-Rickshaw	0.8	8	4	5	3	5	4	7	5	6	2	4	5
Motor-Cycle	1	0	4	0	1	1	0	0	3	0	3	0	1
Bi-cycle	0.5	0	2	1	0	0	2	1	0	0	2	0	1
Cycle-Rickshaw	0.5	33	34	32	23	31	34	29	31	27	26	32	39
Cart	3	0	2	0	0	2	0	0	0	0	1	0	0
Total-Pcu		28	39	24	18	33	25	25	27	28	27	24	32
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	0											
Utility	1	0											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	7											
Auto-Rickshaw	0.8	18											
Motor-Cycle	1	3											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		24	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	1	0	1	0	0	2	1	0	0	2	1
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	2	2	3	1	2	0	3	0	3	1	3	2
Auto-Rickshaw	0.8	4	2	4	3	5	3	2	6	3	4	6	4
Motor-Cycle	1	1	0	2	0	0	0	0	1	0	0	2	0
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		6	5	8	4	6	2	7	7	5	4	12	6

Note: Time of data collection 9:30 - 10:00 a.m. Day: Sunday Date: 21 - 04 - 96

Table A-20 Classified vehicle counts for West approach of Bangla Motor intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	2	0	0	1	0	1	0	0	2	0	1	2
Utility	1	0	5	2	0	4	1	4	1	3	2	0	3
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	1	0	0	1	0	0	0	2	0	1	0
Car	1	6	3	2	2	5	2	2	3	3	6	3	5
Auto-Rickshaw	0.8	11	4	5	3	7	7	11	5	7	2	5	7
Motor-Cycle	1	0	3	0	1	1	0	0	3	1	4	0	2
Bi-cycle	0.5	0	1	1	0	0	2	1	0	0	2	0	3
Cycle-Rickshaw	0 5	35	34	38	21	36	29	36	32	29	31	34	44
Cart	3	2	2	0	0	2	0	0	0	0	1	0	0
Total-Pcu		40	39	28	17	41	25	33	27	32	33	27	41
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	0											
Utility	1	0											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	8											
Auto-Rickshaw	0.8	21											
Motor-Cycle	1	4											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		29	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	3	0	2	2	0	1	3	0	0	3	1
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	3	2	5	1	2	0	5	0	4	1	4	2
Auto-Rickshaw	0.8	5	3	4	3	6	3	4	6	5	4	8	4
Motor-Cycle	1	1	0	2	0	2	0	0	1	0	1	2	0
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		8	7	10	5	11	2	9	9	8	5	15	6

Note: Time of data collection 2:30 - 3:00 p.m. Day: Wednesday Date: 24 - 04 - 96

Table A-21 Classified vehicle counts for West approach of Bangla Motor intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	3	0	0	1	0	1	0	0	2	0	2	3
Utility	1	4	5	4	2	3	5	4	2	1	3	0	2
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	1	0	0	1	0	0	0	2	0	1	0
Car	1	8	5	6	2	4	4	4	3	3	6	4	6
Auto-Rickshaw	0.8	13	7	5	5	7	9	13	7	5	2	7	9
Motor-Cycle	1	0	3	2	1	1	0	0	4	1	1	0	4
Bi-cycle	0.5	0	1	1	0	0	2	1	0	0	2	0	5
Cycle-Rickshaw	0.5	37	36	42	23	33	34	35	39	23	27	36	41
Cart	3	2	2	0	0	1	0	0	0	0	1	0	0
Total-Pcu		50	45	38	22	35	35	36	34	26	29	31	45
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	0											
Utility	1	0											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	9											
Auto-Rickshaw	0.8	15											
Motor-Cycle	1	3											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		24	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	1	0	2	0	0	1	2	0	0	3	2
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	4	3	2	3	2	0	4	0	5	2	5	2
Auto-Rickshaw	0.8	5	2	3	5	6	3	3	6	3	4	6	4
Motor-Cycle	1	2	1	2	1	0	0	0	1	0	0	2	0
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		10	7	6	10	7	2	7	8	7	5	15	7

Note: Time of data collection 9:30 - 10:00 a.m. Day: Tuesday Date: 23 - 04 - 96

Table A-22 Classified vehicle counts for West approach of Bangla Motor intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	1	1	0	1	0	1	0	0	4	0	1	1
Utility	1	0	5	2	0	2	2	3	0	6	2	0	4
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	1	0	0	1	0	0	0	2	0	1	0
Car	1	6	4	4	3	5	2	5	4	3	5	2	3
Auto-Rickshaw	0.8	7	9	5	2	7	6	7	6	6	2	4	6
Motor-Cycle	1	0	4	0	1	1	0	0	3	0	3	0	1
Bi-cycle	0.5	0	2	1	0	0	2	1	0	0	2	1	1
Cycle-Rickshaw	0.5	31	34	36	23	37	36	34	33	28	26	31	33
Cart	3	0	2	0	0	2	0	0	0	0	1	0	0
Total-Pcu		28	47	29	18	40	29	31	28	35	29	24	31
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	0											
Utility	1	0											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	4											
Auto-Rickshaw	0.8	13											
Motor-Cycle	1	3											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		17	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	1	0	2	0	0	1	2	0	0	3	2
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	2	1	3	2	2	0	3	1	3	1	1	2
Auto-Rickshaw	0.8	5	2	5	4	7	3	2	5	7	3	4	3
Motor-Cycle	1	1	0	2	0	2	0	0	2	0	0	2	0
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		7	4	9	7	10	2	6	9	9	3	9	6

Note: Time of data collection 2:30 - 3:00 p.m. Day: Sunday Date: 28 - 07 - 96

Table A-23 Classified vehicle counts for West approach of Bangla Motor intersection with secondary signal

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	2	1	0	2	0	1	0	0	4	0	1	1
Utility	1	0	5	1	0	3	3	4	2	6	3	0	4
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	1	0	0	1	0	0	0	2	0	2	0
Car	1	7	5	5	4	7	2	5	6	5	7	3	4
Auto-Rickshaw	0.8	7	9	5	3	7	7	9	6	6	4	4	7
Motor-Cycle	1	0	4	0	1	3	0	0	3	0	3	0	2
Bi-cycle	0.5	0	2	1	0	0	3	1	0	0	2	1	1
Cycle-Rickshaw	0.5	37	38	39	24	37	37	33	38	25	26	31	31
Cart	3	0	2	0	0	2	0	0	0	0	1	0	0
Total-Pcu		33	50	30	21	45	32	33	35	35	33	26	33
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	0											
Utility	1	0											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	6											
Auto-Rickshaw	0.8	17											
Motor-Cycle	1	3											
Bi-cycle	0.5	0											
Cycle-Rickshaw	0.5	0											
Cart	3	0											
Total-Pcu		23	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	2	0	3	0	0	2	3	0	0	3	1
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	2	2	3	4	2	0	3	0	5	1	3	1
Auto-Rickshaw	0.8	5	3	6	4	5	3	2	7	4	3	7	4
Motor-Cycle	1	1	0	1	0	0	0	0	3	0	0	2	0
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		7	6	9	10	6	2	7	12	8	3	14	5

Note: Time of data collection 9:30 - 10:00 a.m. Day: Saturday Date: 27 - 07 - 96

Table A-24 Classified vehicle counts for West approach of Bangla Motor intersection with secondary signal

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	3	2	1	0	0	1	0	2	0	0	1	0
Mini-Bus	1.5	3	0	0	2	0	1	0	2	0	0	1	0
Micro-Bus	1	0	2	1	2	0	0	0	0	1	0	0	0
Utility	1	0	1	0	1	2	0	0	1	0	1	1	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	1	0	0	0	0
Medium-Truck	3	0	2	0	0	1	0	0	1	0	1	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	0	3	0	5	0	3	0	7	4	2	0	0
Auto-Rickshaw	0.8	3	5	8	6	8	7	9	8	15	8	2	4
Motor-Cycle	1	0	2	0	0	1	0	1	2	0	3	0	0
Bi-cycle	0.5	2	0	0	3	0	0	0	1	0	0	0	2
Cycle-Rickshaw	0.5	24	13	16	19	17	23	11	24	27	22	16	22
Cart	3	0	0	1	0	0	0	0	2	0	0	0	1
Total-Pcu		29	31	21	27	21	25	14	50	31	26	15	18
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	2											
Micro-Bus	1	4											
Utility	1	5											
Heavy-Truck	3.5	0											
Medium-Truck	3	3											
Small-Truck	1.5	2											
Car	1	9											
Auto-Rickshaw	0.8	21											
Motor-Cycle	1	8											
Bi-cycle	0.5	9											
Cycle-Rickshaw	0.5	72											
Cart	3	8											
Total-Pcu		122	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	1	0	0	0	0	1	0
Utility	1	2	1	0	2	4	1	3	0	3	4	2	3
Heavy-Truck	3.5	0	0	0	0	0	0	1	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	3	1	0	4	3	5	1	0	5	2	3	1
Auto-Rickshaw	0.8	7	3	4	8	7	11	3	4	8	4	5	4
Motor-Cycle	1	2	0	1	1	2	0	0	1	0	2	2	1
Bi-cycle	0.5	1	0	2	0	0	1	0	2	1	0	0	1
Cycle-Rickshaw	0.5	21	13	27	15	23	11	13	29	14	18	24	28
Cart	3	0	0	2	0	0	1	0	0	1	0	0	2
Total-Pcu		24	11	25	21	26	25	16	20	25	20	24	29

Note: Time of data collection 2:30 - 3:00 p.m. Day: Monday Date: 22 - 04 - 96

Table A-25 Classified vehicle counts for Dainik Bangla approach of Purana Paltan intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	1	0	0	2	0	0	1	2	0	0
Mini-Bus	1.5	0	1	0	2	0	0	1	0	0	0	1	1
Micro-Bus	1	2	0	0	1	0	0	0	3	0	0	1	0
Utility	1	0	2	0	0	1	0	1	0	2	0	2	1
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	1	0	0	0
Medium-Truck	3	2	0	0	2	0	0	0	0	1	0	4	0
Small-Truck	1.5	0	1	0	0	0	0	0	0	0	0	0	0
Car	1	4	0	0	6	0	0	2	0	9	0	7	0
Auto-Rickshaw	0.8	9	7	5	11	8	3	4	12	8	7	25	4
Motor-Cycle	1	1	0	2	1	0	1	0	0	2	0	0	0
Bi-cycle	0.5	0	0	3	0	0	1	0	0	0	1	0	2
Cycle-Rickshaw	0.5	17	21	14	18	12	19	11	23	12	17	21	22
Cart	3	0	0	1	0	0	0	1	0	0	0	0	1
Total-Pcu		29	21	21	35	13	19	16	24	35	21	54	21
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	2											
Micro-Bus	1	3											
Utility	1	5											
Heavy-Truck	3.5	0											
Medium-Truck	3	3											
Small-Truck	1.5	2											
Car	1	7											
Auto-Rickshaw	0.8	19											
Motor-Cycle	1	8											
Bi-cycle	0.5	9											
Cycle-Rickshaw	0.5	62											
Cart	3	5											
Total-Pcu		104	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	1	0	0	0	0	1	0
Utility	1	2	1	0	3	4	0	2	0	3	1	2	5
Heavy-Truck	3.5	0	0	0	0	0	0	1	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	5	2	1	0	3	4	1	0	3	2	1	2
Auto-Rickshaw	0.8	8	3	4	8	7	9	3	4	7	4	5	3
Motor-Cycle	1	2	0	1	2	2	0	0	1	0	1	2	1
Bi-cycle	0.5	1	0	2	0	0	1	0	2	1	0	0	1
Cycle-Rickshaw	0.5	19	14	21	15	27	14	13	22	16	19	24	23
Cart	3	0	0	1	0	0	1	0	0	1	0	0	2
Total-Pcu		25	12	20	19	28	23	15	16	23	17	22	28

Note: Time of data collection 9:30 - 10:00 a.m. Day: Sunday Date: 21 - 04 - 96

Table A-26 Classified vehicle counts for Dainik Bangla approach of Purana Paltan intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	2	0	1	0	0	0	1	0
Mini-Bus	1.5	2	1	0	2	0	2	0	0	0	1	0	0
Micro-Bus	1	1	2	0	0	0	2	0	1	1	0	2	1
Utility	1	0	1	0	0	0	0	0	1	0	0	0	1
Heavy-Truck	3.5	1	0	0	1	0	0	0	0	0	0	0	1
Medium-Truck	3	0	0	2	0	0	0	0	1	0	2	0	0
Small-Truck	1.5	0	0	0	1	0	0	0	0	1	0	0	0
Car	1	1	2	3	4	3	3	7	4	3	2	1	3
Auto-Rickshaw	0.8	6	11	4	14	6	9	7	14	3	12	9	8
Motor-Cycle	1	0	2	0	1	0	0	2	0	1	0	2	0
Bi-cycle	0.5	0	1	0	2	0	0	3	0	0	0	4	0
Cycle-Rickshaw	0.5	16	9	21	24	27	25	33	37	26	15	13	18
Cart	3	0	1	0	0	3	0	0	0	4	0	0	2
Total-Pcu		21	25	23	37	36	28	36	39	34	27	24	30
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	2											
Micro-Bus	1	3											
Utility	1	6											
Heavy-Truck	3.5	0											
Medium-Truck	3	6											
Small-Truck	1.5	2											
Car	1	11											
Auto-Rickshaw	0.8	27											
Motor-Cycle	1	8											
Bi-cycle	0.5	13											
Cycle-Rickshaw	0.5	81											
Cart	3	9											
Total-Pcu		148	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	1	0	0	0	0	1	0
Utility	1	3	1	0	2	5	1	3	0	3	5	2	2
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	5	2	0	4	4	7	1	0	2	5	7	2
Auto-Rickshaw	0.8	8	3	5	9	8	13	2	4	8	3	5	4
Motor-Cycle	1	3	0	2	1	2	0	0	2	0	2	4	1
Bi-cycle	0.5	2	0	2	0	0	1	0	3	1	0	0	2
Cycle-Rickshaw	0.5	25	14	29	17	23	11	9	21	17	14	21	31
Cart	3	0	0	2	0	0	1	0	0	1	0	0	2
Total-Pcu		31	12	28	23	29	28	10	17	23	21	29	31

Note: Time of data collection 2:30 - 3:00 p.m. Day: Wednesday Date: 24 - 04 - 96

Table A-27 Classified vehicle counts for Dainik Bangla approach of Purana Paltan intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	1	0	1	0	0	0	1	0
Mini-Bus	1.5	3	1	0	2	0	1	2	0	0	1	0	0
Micro-Bus	1	1	2	1	0	0	2	0	1	1	0	3	1
Utility	1	1	1	0	0	0	0	0	1	0	0	0	2
Heavy-Truck	3.5	1	0	0	1	1	0	0	0	0	0	4	1
Medium-Truck	3	0	0	2	0	0	0	0	1	0	2	0	0
Small-Truck	1.5	0	0	0	1	0	0	0	0	1	0	0	0
Car	1	1	3	5	4	6	3	9	6	4	2	2	5
Auto-Rickshaw	0.8	7	9	4	17	6	8	11	13	5	12	9	8
Motor-Cycle	1	0	2	0	1	0	0	2	0	1	1	2	0
Bi-cycle	0.5	0	1	0	2	0	0	3	0	0	0	4	0
Cycle-Rickshaw	0.5	21	11	19	23	29	24	39	37	31	19	17	21
Cart	3	0	1	0	0	3	0	0	0	4	0	0	2
Total-Pcu		27	26	25	39	41	25	47	40	39	30	42	34
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	2											
Micro-Bus	1	7											
Utility	1	9											
Heavy-Truck	3.5	0											
Medium-Truck	3	3											
Small-Truck	1.5	2											
Car	1	12											
Auto-Rickshaw	0.8	27											
Motor-Cycle	1	9											
Bi-cycle	0.5	12											
Cycle-Rickshaw	0.5	84											
Cart	3	7											
Total-Pcu		143	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	1	0	0	0	0	1	0
Utility	1	4	1	0	3	4	1	3	0	2	4	2	3
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	5	2	0	4	3	5	2	0	5	2	3	1
Auto-Rickshaw	0.8	8	3	5	8	7	13	3	3	6	7	2	4
Motor-Cycle	1	3	0	1	1	3	0	0	1	0	2	3	1
Bi-cycle	0.5	1	0	2	0	0	1	0	2	1	0	0	1
Cycle-Rickshaw	0.5	23	13	31	15	23	14	13	29	17	18	24	31
Cart	3	0	0	2	0	0	1	0	2	1	0	0	1
Total-Pcu		30	12	28	22	27	28	14	25	24	23	23	27

Note: Time of data collection 9:30 - 10:00 a.m. Day: Tuesday Date: 23 - 04 - 96

Table A-28 Classified vehicle counts for Dainik Bangla approach of Purana Paltan intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	1	1	2	2	1	0	0	0	0	2
Mini-Bus	1.5	0	0	1	1	3	2	1	1	0	2	1	0
Micro-Bus	1	0	0	0	0	1	0	0	0	0	0	1	0
Utility	1	0	0	1	1	2	1	0	2	1	0	1	2
Heavy-Truck	3.5	0	0	1	1	0	0	0	0	0	1	0	0
Medium-Truck	3	0	0	2	2	1	0	0	0	0	0	2	1
Small-Truck	1.5	0	0	0	0	1	0	0	0	0	0	0	1
Car	1	0	3	0	0	3	2	2	2	3	3	3	0
Auto-Rickshaw	0.8	15	9	4	4	10	12	5	11	10	8	12	7
Motor-Cycle	1	0	1	0	0	2	1	0	0	1	1	1	0
Bi-cycle	0.5	0	0	1	1	0	0	1	0	2	0	0	1
Cycle-Rickshaw	0.5	20	19	18	18	20	11	9	22	20	22	29	21
Cart	3	0	3	5	5	0	0	1	0	2	3	0	0
Total-Pcu		22	30	43	43	41	28	19	25	30	37	38	29
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	2											
Micro-Bus	1	7											
Utility	1	4											
Heavy-Truck	3.5	0											
Medium-Truck	3	2											
Small-Truck	1.5	1											
Car	1	38											
Auto-Rickshaw	0.8	42											
Motor-Cycle	1	6											
Bi-cycle	0.5	4											
Cycle-Rickshaw	0.5	160											
Cart	3	2											
Total-Pcu		187	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	1	0	1	2	0	2	0	0	1	0	2	2
0	1.5	5	4	5	6	4	4	5	4	3	5	6	5
Micro-Bus	1	1	0	3	0	0	1	0	0	2	0	1	1
Utility	1	3	1	2	3	1	3	3	1	1	2	4	2
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	1	0	0	0	1	0	0	0	2	0	0	0
Car	1	0	1	0	0	2	0	0	1	0	0	2	1
Auto-Rickshaw	0.8	14	11	9	15	11	9	8	17	9	12	14	18
Motor-Cycle	1	1	0	0	0	3	0	0	2	0	0	2	1
Bi-cycle	0.5	0	0	2	0	0	0	2	0	0	1	0	0
Cycle-Rickshaw	0.5	49	58	38	61	46	59	39	57	44	48	58	66
Cart	3	0	0	1	0	2	0	0	1	0	0	2	0
Total-Pcu		53	46	46	61	51	53	37	55	43	44	70	66

Note: Time of data collection 2:30 - 3:00 p.m. Day: Monday Date: 22 - 04 - 96

Table A-29 Classified vehicle counts for Secretariate approach of Purana Paltan intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	1	1	2	2	1	0	0	0	0	3
Mini-Bus	1.5	0	0	1	1	3	3	1	1	0	2	1	0
Micro-Bus	1	1	0	0	0	1	0	1	0	0	0	1	0
Utility	1	0	0	3	4	5	3	0	2	1	0	2	2
Heavy-Truck	3.5	0	0	1	1	0	0	0	0	0	1	0	0
Medium-Truck	3	0	0	2	2	1	0	0	0	0	0	2	1
Small-Truck	1.5	0	0	0	0	1	0	0	0	0	0	0	1
Car	1	2	4	0	2	3	2	2	2	3	3	3	0
Auto-Rickshaw	0.8	15	8	7	4	11	12	7	11	10	8	14	8
Motor-Cycle	1	0	1	0	0	2	1	0	0	1	1	1	0
Bi-cycle	0.5	0	0	1	1	0	0	1	0	2	0	0	1
Cycle-Rickshaw	0.5	20	21	19	21	22	13	11	22	20	25	27	19
Cart	3	0	3	5	6	0	0	1	0	2	5	0	0
Total-Pcu		25	31	48	52	46	33	22	25	30	44	39	32
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	2											
Micro-Bus	1	6											
Utility	1	4											
Heavy-Truck	3.5	0											
Medium-Truck	3	2											
Small-Truck	1.5	1											
Car	1	33											
Auto-Rickshaw	0.8	46											
Motor-Cycle	1	6											
Bi-cycle	0.5	4											
Cycle-Rickshaw	0.5	169											
Cart	3	3											
Total-Pcu		192	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	1	2	0	3	0	0	1	0	2	1
Mini-Bus	1.5	4	4	3	6	4	6	5	3	5	3	4	7
Micro-Bus	1	1	0	2	0	0	1	0	0	3	0	1	1
Utility	1	3	1	2	5	1	4	2	3	1	3	4	3
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	1	0	0	0	1	0	0	0	2	0	0	0
Car	1	0	2	0	0	1	0	0	1	0	0	0	1
Auto-Rickshaw	0.8	12	8	9	16	13	9	8	14	9	11	14	19
Motor-Cycle	1	1	0	0	0	3	0	0	2	0	0	2	1
Bi-cycle	0.5	0	0	2	0	0	0	2	0	0	1	0	0
Cycle-Rickshaw	0.5	47	57	39	55	41	55	37	49	41	42	53	61
Cart	3	3	0	1	0	2	0	0	1	0	0	2	0
Total-Pcu		55	44	42	60	49	58	35	49	45	38	63	65

Note: Time of data collection 9:30 - 10:00 a.m. Day: Sunday Date: 21 - 04 - 96

Table A-30 Classified vehicle counts for Secretariate approach of Purana Paltan intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	1	0	2	0	0	0	0	0	0	2
Mini-Bus	1.5	0	0	2	1	4	3	1	1	0	2	1	0
Micro-Bus	1	1	0	0	0	1	0	1	0	0	0	1	0
Utility	1	0	2	6	3	6	4	0	2	1	0	2	4
Heavy-Truck	3.5	0	0	1	1	0	0	0	0	0	1	0	0
Medium-Truck	3	0	0	2	2	1	0	0	0	0	0	2	1
Small-Truck	1.5	1	0	0	0	1	0	0	0	0	0	0	1
Car	1	5	4	0	2	5	2	3	2	3	3	3	0
Auto-Rickshaw	0.8	21	7	11	7	13	17	9	9	10	8	14	9
Motor-Cycle	1	0	1	0	0	3	1	0	0	1	1	1	0
Bi-cycle	0.5	2	0	1	1	0	0	1	0	2	0	0	1
Cycle-Rickshaw	0.5	29	18	23	22	27	18	13	19	20	25	27	21
Cart	3	0	3	5	4	0	0	1	0	2	5	0	0
Total-Pcu		40	31	57	45	55	34	23	22	30	44	39	33
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	3											
Micro-Bus	1	7											
Utility	1	4											
Heavy-Truck	3.5	0											
Medium-Truck	3	3											
Small-Truck	1.5	1											
Car	1	46											
Auto-Rickshaw	0.8	42											
Motor-Cycle	1	8											
Bi-cycle	0.5	4											
Cycle-Rickshaw	0.5	166											
Cart	3	4											
Total-Pcu		211	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	2	0	1	3	0	2	0	0	1	0	2	3
Mini-Bus	1.5	3	5	4	6	2	6	5	4	3	5	6	5
Micro-Bus	1	2	0	3	2	0	1	0	1	2	0	2	1
Utility	1	4	1	3	3	1	5	3	1	3	2	5	2
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	1	0	0	0	1	0	0	0	2	0	0	0
Car	1	0	2	0	1	2	0	1	2	0	0	2	1
Auto-Rickshaw	0.8	15	14	9	17	14	9	8	17	9	13	15	21
Motor-Cycle	1	2	0	1	0	3	0	0	3	0	0	2	1
Bi-cycle	0.5	0	0	2	0	0	0	2	0	0	1	0	0
Cycle-Rickshaw	0.5	54	58	46	61	41	49	62	57	29	46	69	61
Cart	3	0	0	2	0	2	1	0	1	0	0	3	0
Total-Pcu		59	51	53	68	48	56	50	58	37	43	82	69

Note: Time of data collection 2:30 - 3:00 p.m. Day: Wednesday Date: 28 - 04 - 96

Table A-31 Classified vehicle counts for Secretariate approach of Purana Paltan intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	1	0	2	0	0	0	0	0	0	2
Mini-Bus	1.5	0	0	2	1	3	3	1	1	0	2	1	0
Micro-Bus	1	2	0	0	0	1	0	1	0	0	0	1	0
Utility	1	0	2	6	2	5	4	0	3	2	0	8	6
Heavy-Truck	3.5	0	0	1	1	0	0	0	0	0	1	0	0
Medium-Truck	3	0	0	2	2	1	0	0	0	0	0	2	1
Small-Truck	1.5	2	0	0	0	1	0	0	0	0	0	0	1
Car	1	7	6	0	2	5	2	4	2	5	3	3	0
Auto-Rickshaw	0.8	22	7	9	7	11	20	9	10	10	9	17	9
Motor-Cycle	1	0	1	0	0	3	1	0	0	1	1	1	0
Bi-cycle	0.5	2	0	1	1	0	0	1	0	2	0	0	1
Cycle-Rickshaw	0.5	29	23	21	17	25	17	15	21	21	21	29	23
Cart	3	0	3	3	4	0	0	1	0	2	5	0	0
Total-Pcu		45	35	49	42	50	36	25	25	34	43	49	36
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	3											
Micro-Bus	1	7											
Utility	1	6											
Heavy-Truck	3.5	0											
Medium-Truck	3	2											
Small-Truck	1.5	1											
Car	1	44											
Auto-Rickshaw	0.8	51											
Motor-Cycle	1	6											
Bi-cycle	0.5	4											
Cycle-Rickshaw	0.5	152											
Cart	3	7											
Total-Pcu		215	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	1	0	1	2	0	2	0	0	0	0	2	1
Mini-Bus	1.5	6	2	4	5	3	4	5	3	4	3	7	5
Micro-Bus	1	2	0	3	0	1	2	0	1	2	0	2	1
Utility	1	4	3	1	3	1	4	3	1	3	2	4	2
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	1	0	0	0	1	0	0	0	2	0	0	0
Car	1	0	2	0	1	2	0	0	3	0	0	2	1
Auto-Rickshaw	0.8	16	12	9	16	9	7	11	21	11	15	9	14
Motor-Cycle	1	2	0	1	0	4	0	1	2	0	1	2	1
Bi-cycle	0.5	0	0	3	0	0	0	2	0	0	1	0	0
Cycle-Rickshaw	0.5	54	61	41	65	51	64	49	57	44	48	66	59
Cart	3	0	0	1	0	2	0	0	1	0	0	2	0
Total-Pcu		61	48	46	63	53	56	46	60	45	44	73	56

Note: Time of data collection 9:30 - 10:00 a.m. Day: Tuesday Date: 23 - 04 - 96

Table A-32 Classified vehicle counts for Secretariate approach of Purana Paltan intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	1	0	1	0	0	2	1	0	0	0	1	0
Mini-Bus	1.5	0	0	0	2	1	0	0	0	0	0	0	1
Micro-Bus	1	0	0	0	0	2	0	0	0	0	0	0	0
Utility	1	0	0	0	0	0	0	1	3	1	1	0	2
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	1	0
Car	1	2	2	0	3	1	0	0	0	0	0	1	0
Auto-Rickshaw	0.8	6	7	8	0	5	12	4	4	12	3	5	7
Motor-Cycle	1	0	1	0	1	2	0	0	0	1	0	2	1
Bi-cycle	0.5	0	0	0	0	0	0	1	0	0	2	0	5
Cycle-Rickshaw	0.5	31	44	21	19	40	22	26	10	45	22	27	33
Cart	3	0	1	1	1	2	0	1	3	0	0	1	0
Total-Pcu		25	34	23	20	37	27	24	20	34	15	28	29
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	12											
Micro-Bus	1	8											
Utility	1	6											
Heavy-Truck	3.5	0											
Medium-Truck	3	9											
Small-Truck	1.5	2											
Car	1	40											
Auto-Rickshaw	0.8	104											
Motor-Cycle	1	12											
Bi-cycle	0.5	10											
Cycle-Rickshaw	0.5	172											
Cart	3	7											
Total-Pcu		309	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	1	0	1	0	0	0	2	0	0	0	1	0
Mini-Bus	1.5	0	0	0	1	0	2	0	0	1	0	0	1
Micro-Bus	1	0	0	0	0	0	1	0	0	0	1	0	0
Utility	1	1	0	0	1	0	0	2	0	0	0	2	1
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	1	0	0	0	0	1	0	0
Car	1	1	0	0	2	0	0	2	0	0	2	0	2
Auto-Rickshaw	0.8	1	2	0	1	0	2	0	1	2	0	3	1
Motor-Cycle	1	2	1	0	0	2	0	0	1	2	1	0	2
Bi-cycle	0.5	0	0	0	3	0	0	2	0	3	1	2	2
Cycle-Rickshaw	0.5	7	4	8	5	3	8	12	6	4	7	12	11
Cart	3	0	1	0	2	0	0	2	0	0	0	0	1
Total-Pcu		11	8	7	15	5	10	23	5	9	10	14	17

Note: Time of data collection 2:30 - 3:00 p.m. Day: Monday Date: 22 - 04 - 96

Table A-33 Classified vehicle counts for Bijoy Nagar approach of Purana Paltan intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	1	0	1	0	0	2	1	0	0	0	1	0
Mini-Bus	1.5	0	0	0	2	1	0	0	0	0	0	0	1
Micro-Bus	1	0	0	0	0	2	0	0	0	0	0	0	0
Utility	1	1	1	0	0	0	0	1	3	1	1	0	2
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	1	0
Car	1	2	3	0	3	1	0	0	0	0	0	1	0
Auto-Rickshaw	0.8	6	5	9	0	5	13	4	6	11	3	7	6
Motor-Cycle	1	0	1	0	1	2	0	1	0	1	0	1	1
Bi-cycle	0.5	0	0	0	0	1	0	1	1	0	2	0	4
Cycle-Rickshaw	0.5	33	41	23	17	38	27	23	16	39	21	22	35
Cart	3	1	1	1	2	2	0	1	3	0	0	3	0
Total-Pcu		30	33	25	22	36	30	23	25	30	15	32	29
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	9											
Micro-Bus	1	8											
Utility	1	7											
Heavy-Truck	3.5	0											
Medium-Truck	3	9											
Small-Truck	1.5	2											
Car	1	44											
Auto-Rickshaw	0.8	99											
Motor-Cycle	1	14											
Bi-cycle	0.5	10											
Cycle-Rickshaw	0.5	167											
Cart	3	5											
Total-Pcu		299	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	1	0	1	0	0	0	0	0	0	0	2	0
Mini-Bus	1.5	0	0	0	1	0	2	0	0	1	0	0	1
Micro-Bus	1	0	0	0	0	0	1	0	0	0	1	0	0
Utility	1	1	0	0	1	0	0	2	0	0	0	2	1
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	1	0	0	1	0	0	0	0	1	0	0
Car	1	1	0	0	3	0	0	2	0	0	2	0	2
Auto-Rickshaw	0.8	2	2	0	0	0	2	0	1	2	0	1	1
Motor-Cycle	1	2	1	0	0	2	0	0	1	2	1	0	2
Bi-cycle	0.5	0	0	0	3	0	0	2	0	3	1	2	2
Cycle-Rickshaw	0.5	8	3	7	4	3	9	11	5	4	7	9	11
Cart	3	0	1	0	2	0	0	2	0	0	0	0	1
Total-Pcu		13	9	7	15	5	10	17	4	9	10	14	17

Note: Time of data collection 9:30 - 10.00 a.m. Day: Sunday Date: 21 - 04 - 96

Table A-34 Classified vehicle counts for Bijoy Nagar approach of Purana Paltan intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	1	0	1	0	1	1	0	0	1	1	0
Mini-Bus	1.5	0	0	0	1	1	0	0	0	0	0	0	2
Micro-Bus	1	2	0	0	0	2	0	0	0	0	0	0	0
Utility	1	0	0	3	0	0	4	2	6	2	3	0	2
Heavy-Truck	3 5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1 5	0	0	0	0	0	0	0	0	0	0	2	0
Car	1	3	2	4	5	1	0	0	0	0	0	1	0
Auto-Rickshaw	0.8	8	4	9	4	5	16	8	6	12	8	4	6
Motor-Cycle	1	0	1	0	3	2	0	0	0	1	0	2	1
Bi-cycle	0.5	0	0	0	0	0	0	1	0	0	2	0	5
Cycle-Rickshaw	0 5	43	44	32	23	35	34	29	31	41	34	25	39
Cart	3	1	1	1	1	2	0	1	3	0	0	1	0
Total-Pcu		36	34	33	30	34	37	29	35	33	30	28	33
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	15											
Micro-Bus	1	9											
Utility	1	4											
Heavy-Truck	3.5	0											
Medium-Truck	3	7											
Small-Truck	1.5	3											
Car	1	44											
Auto-Rickshaw	0 8	99											
Motor-Cycle	1	14											
Bi-cycle	0.5	10											
Cycle-Rickshaw	0 5	184											
Cart	3	11											
Total-Pcu		328	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	2	0	1	0	0	0	2	0	0	0	1	0
Mini-Bus	1.5	0	0	0	2	0	2	0	0	1	0	0	1
Micro-Bus	1	0	0	0	0	0	1	0	0	0	1	0	0
Utility	1	1	0	0	1	0	0	4	0	1	0	3	1
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	1	0	0	0	0	1	0	0
Car	1	3	0	0	2	0	0	4	0	0	2	0	3
Auto-Rickshaw	0 8	2	2	0	5	0	2	0	1	2	0	3	2
Motor-Cycle	1	2	1	0	0	2	0	0	1	2	1	0	2
Bi-cycle	0 5	0	2	0	3	0	0	3	0	3	1	2	2
Cycle-Rickshaw	0.5	9	4	9	5	3	9	11	8	4	8	13	11
Cart	3	0	2	0	2	0	0	2	0	0	2	0	1
Total-Pcu		18	12	8	20	5	10	27	6	10	16	16	19

Note Time of data collection 2:30 - 3.00 p m. Day: Wednesday Date: 24 - 04 - 96

Table A-35 Classified vehicle counts for Bijoy Nagar approach of Purana Paltan intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	1	0	0	1	0	1	1	0	0	1	0	0
Mini-Bus	1.5	0	0	0	2	1	0	0	0	0	0	0	1
Micro-Bus	1	1	0	0	0	2	0	0	0	0	0	0	0
Utility	1	0	0	3	0	0	4	1	7	4	4	7	3
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	3	0
Car	1	5	2	5	7	4	0	0	0	0	0	1	0
Auto-Rickshaw	0.8	8	6	9	5	7	16	9	8	11	9	5	6
Motor-Cycle	1	0	1	0	3	2	0	0	0	1	0	2	1
Bi-cycle	0.5	0	0	0	0	0	0	1	0	0	2	0	4
Cycle-Rickshaw	0.5	44	36	37	29	33	42	27	38	43	37	27	41
Cart	3	1	2	0	1	0	1	1	2	0	0	1	0
Total-Pcu		40	32	34	38	32	44	28	38	35	34	35	33
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	17											
Micro-Bus	1	8											
Utility	1	8											
Heavy-Truck	3.5	0											
Medium-Truck	3	9											
Small-Truck	1.5	2											
Car	1	42											
Auto-Rickshaw	0.8	111											
Motor-Cycle	1	17											
Bi-cycle	0.5	10											
Cycle-Rickshaw	0.5	188											
Cart	3	6											
Total-Pcu		336	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	2	0	1	0	0	0	2	0	0	0	1	0
Mini-Bus	1.5	0	0	0	1	0	2	0	0	1	0	0	1
Micro-Bus	1	0	0	0	0	0	2	0	1	0	1	0	0
Utility	1	1	0	0	2	1	0	2	0	0	0	2	1
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	1	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	1	0	0	2	0	1	0	0
Car	1	1	0	1	2	0	0	2	0	0	2	0	4
Auto-Rickshaw	0.8	1	2	0	1	0	2	0	1	2	0	3	1
Motor-Cycle	1	3	1	0	0	3	0	0	1	2	2	0	2
Bi-cycle	0.5	0	0	0	3	0	0	2	0	3	1	2	2
Cycle-Rickshaw	0.5	8	5	10	6	3	8	14	7	4	11	12	12
Cart	3	0	1	0	2	1	0	2	0	0	0	0	1
Total-Pcu		19	8	9	17	10	11	24	9	9	13	14	19

Note. Time of data collection 9:30 - 10:00 a.m. Day: Tuesday Date: 23 - 04 - 96

Table A-36 Classified vehicle counts for Bijoy Nagar approach of Purana Paltan intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	3	0	2	1	4	3	4	1	0	0	1	2
Mini-Bus	1.5	0	0	1	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	2	0	0
Utility	1	1	1	0	3	0	0	0	0	0	0	1	3
Heavy-Truck	3.5	0	0	1	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	1	0	2	0	0	1	2	0	1
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	0	2	0	1	0	0	1	0	1	0	1	0
Auto-Rickshaw	0.8	9	4	7	4	2	3	3	2	10	13	9	9
Motor-Cycle	1	0	2	0	0	3	1	1	0	0	0	2	2
Bi-cycle	0.5	0	2	0	2	0	1	0	2	0	0	3	0
Cycle-Rickshaw	0.5	25	23	18	16	28	25	14	16	26	32	19	26
Cart	3	0	0	0	1	0	0	0	1	0	3	1	0
Total-Pcu		30	21	26	25	31	31	23	17	25	43	28	34
Left-Turn													
Bus	3	36											
Mini-Bus	1.5	76											
Micro-Bus	1	4											
Utility	1	7											
Heavy-Truck	3.5	4											
Medium-Truck	3	18											
Small-Truck	1.5	3											
Car	1	4											
Auto-Rickshaw	0.8	114											
Motor-Cycle	1	10											
Bi-cycle	0.5	7											
Cycle-Rickshaw	0.5	335											
Cart	3	18											
Total-Pcu		636	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	1	0	0	0	1	0
Mini-Bus	1.5	0	1	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	1	0	1	0	0	2	0	0	2	0	0	3
Utility	1	0	0	0	0	0	0	0	0	0	0	0	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	1	0	2	0	2	2	0	0	1	1	0	0
Auto-Rickshaw	0.8	2	0	2	1	0	0	2	0	2	0	3	0
Motor-Cycle	1	2	0	0	0	3	0	0	2	0	0	2	1
Bi-cycle	0.5	0	2	0	0	1	0	0	2	0	0	2	0
Cycle-Rickshaw	0.5	7	4	6	3	8	3	6	7	2	5	9	5
Cart	3	0	2	0	0	1	0	0	2	0	0	0	1
Total-Pcu		9	11	8	2	13	6	8	13	6	4	13	10

Note: Time of data collection 2:30 - 3:00 p.m. Day: Monday Date: 22 - 04 - 96

Table A-37 Classified vehicle counts for Shaheed Noor Hossain Square approach of Purana Paltan intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	2	1	2	1	5	1	3	1	1	0	1	1
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	2	0	0
Utility	1	1	1	0	3	0	0	0	0	0	0	1	3
Heavy-Truck	3.5	0	0	1	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	1	0	3	0	0	1	2	0	1
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	0	2	0	2	0	0	2	0	1	0	1	0
Auto-Rickshaw	0.8	9	2	9	5	3	1	3	2	10	15	7	8
Motor-Cycle	1	0	3	0	0	3	1	1	0	0	0	2	2
Bi-cycle	0.5	0	2	0	3	0	1	0	3	0	0	3	0
Cycle-Rickshaw	0.5	32	29	21	19	31	21	17	19	26	27	17	21
Cart	3	0	0	0	1	0	0	0	1	0	3	1	0
Total-Pcu		30	26	27	29	36	25	23	19	28	43	26	28
Left-Turn													
Bus	3	34											
Mini-Bus	1.5	77											
Micro-Bus	1	4											
Utility	1	9											
Heavy-Truck	3.5	4											
Medium-Truck	3	14											
Small-Truck	1.5	3											
Car	1	4											
Auto-Rickshaw	0.8	109											
Motor-Cycle	1	8											
Bi-cycle	0.5	9											
Cycle-Rickshaw	0.5	315											
Cart	3	17											
Total-Pcu		603	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	1	0	0	0	1	0
Mini-Bus	1.5	0	1	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	1	0	1	0	0	2	0	0	2	0	0	3
Utility	1	0	0	0	0	0	0	0	0	0	0	0	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	1	0	2	0	3	2	0	0	1	1	0	0
Auto-Rickshaw	0.8	2	0	1	1	0	0	2	0	2	0	3	0
Motor-Cycle	1	2	0	0	0	3	0	0	1	0	0	2	1
Bi-cycle	0.5	0	2	0	0	1	0	0	2	0	0	2	0
Cycle-Rickshaw	0.5	6	3	7	4	7	3	5	7	2	4	8	5
Cart	3	0	2	0	0	1	0	0	2	0	0	0	1
Total-Pcu		9	10	7	3	13	6	7	12	6	3	12	10

Note: Time of data collection 9:30 - 10:00 a.m. Day: Sunday Date: 21 - 04 - 96

Table A-38 Classified vehicle counts for Shaheed Noor Hossain Square approach of Purana Paltan intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	4	0	2	0	3	2	3	0	1	0	1	1
Mini-Bus	1.5	0	0	1	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	1	1	0
Utility	1	4	1	4	3	0	0	0	1	0	0	0	3
Heavy-Truck	3.5	0	0	1	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	1	1	2	0	0	3	2	1	1
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	0	2	3	1	0	0	1	0	1	0	1	0
Auto-Rickshaw	0.8	12	3	7	11	1	4	3	2	15	11	12	7
Motor-Cycle	1	0	2	0	0	3	1	1	0	0	0	2	2
Bi-cycle	0.5	0	1	2	2	0	1	0	2	0	0	3	0
Cycle-Rickshaw	0.5	32	21	21	17	19	27	17	14	37	29	26	21
Cart	3	0	0	0	1	0	0	0	1	0	3	1	0
Total-Pcu		41.6	18	35	28	25	30	22	14	44	39	37	27
Left-Turn													
Bus	3	41											
Mini-Bus	1.5	81											
Micro-Bus	1	4											
Utility	1	9											
Heavy-Truck	3.5	4											
Medium-Truck	3	21											
Small-Truck	1.5	3											
Car	1	4											
Auto-Rickshaw	0.8	117											
Motor-Cycle	1	10											
Bi-cycle	0.5	7											
Cycle-Rickshaw	0.5	344											
Cart	3	21											
Total-Pcu		685	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	1	0	0	0	1	0
Mini-Bus	1.5	0	1	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	2	0	1	0	0	3	0	0	3	0	0	3
Utility	1	0	0	0	0	1	0	0	2	0	0	0	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	2	0	2	0	2	2	0	0	2	1	0	0
Auto-Rickshaw	0.8	2	0	2	1	0	0	2	0	2	0	3	0
Motor-Cycle	1	3	0	0	0	3	0	0	2	0	0	3	2
Bi-cycle	0.5	0	2	0	0	1	0	0	4	0	0	2	0
Cycle-Rickshaw	0.5	8	4	4	3	9	3	6	7	2	5	9	5
Cart	3	0	2	0	0	1	0	0	2	0	0	0	2
Total-Pcu		13	11	7	2	14	7	8	16	8	4	14	14

Note: Time of data collection 2:30 - 3:00 p.m. Day: Wednesday Date: 24 - 04 - 96

Table A-39 Classified vehicle counts for Shaheed Noor Hossain Square approach of Purana Paltan intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	3	0	1	1	3	1	3	0	1	1	0	1
Mini-Bus	1.5	0	0	1	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	1	1	0
Utility	1	5	3	3	2	0	0	0	1	0	0	0	3
Heavy-Truck	3.5	0	0	1	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	1	1	2	1	0	3	1	1	1
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	0	2	5	1	0	0	4	0	3	0	2	0
Auto-Rickshaw	0.8	16	3	9	8	11	3	3	2	12	9	12	8
Motor-Cycle	1	0	3	0	0	2	1	1	0	0	0	2	2
Bi-cycle	0.5	0	1	2	2	0	1	0	2	1	0	3	0
Cycle-Rickshaw	0.5	38	19	32	17	26	21	28	21	39	23	34	21
Cart	3	0	0	0	1	0	0	0	1	0	3	1	0
Total-Pcu		46	20	40	28	36	23	33	17	45	35	39	28
Left-Turn													
Bus	3	41											
Mini-Bus	1.5	79											
Micro-Bus	1	5											
Utility	1	7											
Heavy-Truck	3.5	21											
Medium-Truck	3	5											
Small-Truck	1.5	3											
Car	1	9											
Auto-Rickshaw	0.8	123											
Motor-Cycle	1	15											
Bi-cycle	0.5	7											
Cycle-Rickshaw	0.5	321											
Cart	3	31											
Total-Pcu		726	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	1	0	0	0	1	0
Mini-Bus	1.5	0	1	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	1	0	2	0	0	2	1	0	2	0	0	3
Utility	1	0	0	0	0	0	0	0	0	0	0	0	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	1	0	0	0	0	0	0	0	0	0	0	0
Car	1	3	1	2	0	3	3	0	2	1	2	0	0
Auto-Rickshaw	0.8	2	0	3	1	0	0	3	0	2	0	3	0
Motor-Cycle	1	2	0	0	1	2	0	0	2	0	0	2	2
Bi-cycle	0.5	0	3	0	0	1	0	0	3	0	0	2	0
Cycle-Rickshaw	0.5	9	4	7	2	9	5	9	7	2	9	11	5
Cart	3	0	2	0	0	1	0	0	4	0	0	0	1
Total-Pcu		14	12	10	3	13	8	11	21	6	7	14	11

Note: Time of data collection 9:30 - 10:00 a.m. Day: Tuesday Date: 23 - 04 - 96

Table A-40 Classified vehicle counts for Shaheed Noor Hossain Square approach of Purana Paltan intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	1	0	0	0	1	0	0	0	0
Mini-Bus	1.5	0	0	1	2	0	2	0	0	0	0	2	0
Micro-Bus	1	0	0	1	0	2	0	0	0	3	4	0	2
Utility	1	0	0	0	2	3	0	0	3	2	0	2	3
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	1	0	0	0	1	0
Small-Truck	1.5	0	0	0	1	0	0	0	0	0	0	0	0
Car	1	7	4	3	2	1	4	3	2	5	3	6	4
Auto-Rickshaw	0 8	17	12	13	9	14	16	11	9	17	12	21	14
Motor-Cycle	1	0	0	1	0	2	1	0	1	0	1	0	1
Bi-cycle	0.5	0	0	2	0	4	0	2	1	0	0	1	0
Cycle-Rickshaw	0 5	21	26	23	27	19	31	26	23	21	29	18	22
Cart	3	0	0	1	0	2	3	4	0	2	0	0	1
Total-Pcu		31	27	32	32	37	45	41	28	40	32	40	35
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	3											
Micro-Bus	1	23											
Utility	1	27											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	106											
Auto-Rickshaw	0.8	113											
Motor-Cycle	1	14											
Bi-cycle	0.5	11											
Cycle-Rickshaw	0.5	511											
Cart	3	17											
Total-Pcu		577	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1 5	0	1	0	0	1	0	2	0	0	0	0	1
Micro-Bus	1	4	4	3	2	0	7	3	1	4	9	3	6
Utility	1	9	7	8	9	6	8	11	13	7	4	9	10
Heavy-Truck	3 5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	1	0	0	1	0	0	0	1	0	0	0
Car	1	18	12	9	14	17	12	21	23	13	17	18	14
Auto-Rickshaw	0.8	44	51	39	42	46	39	58	47	41	38	57	61
Motor-Cycle	1	2	1	2	0	1	0	0	2	0	0	1	2
Bi-cycle	0.5	3	0	2	2	0	2	0	3	2	0	3	1
Cycle-Rickshaw	0.5	77	69	81	59	76	69	83	64	79	58	82	78
Cart	3	1	0	2	0	4	0	0	3	0	3	0	1
Total-Pcu		111	102	101	89	114	94	126	119	99	98	119	125

Note: Time of data collection 2:30 - 3:00 p.m. Day: Monday Date. 22 - 04 - 96

Table A-41 Classified vehicle counts for Kakrail approach of Fakirapool intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	1	1	0	1	1	0	0	0	1
Mini-Bus	1.5	0	0	2	2	0	2	0	0	0	0	2	0
Micro-Bus	1	0	0	3	0	1	0	0	0	2	4	0	2
Utility	1	0	0	0	2	4	0	0	2	2	0	2	5
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	1	0	0	0	1	0
Small-Truck	1.5	0	0	0	1	0	0	0	0	0	0	0	0
Car	1	6	5	7	1	1	7	3	4	5	3	6	5
Auto-Rickshaw	0.8	14	11	16	7	12	21	13	9	16	15	23	19
Motor-Cycle	1	0	0	1	0	2	1	0	1	0	1	0	1
Bi-cycle	0.5	0	0	3	0	4	0	2	1	0	0	1	0
Cycle-Rickshaw	0.5	26	24	32	22	21	33	24	29	23	31	17	34
Cart	3	0	0	2	0	2	3	4	0	2	0	0	1
Total-Pcu		30	26	50	27	39	53	44	32	39	36	41	51
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	3											
Micro-Bus	1	21											
Utility	1	24											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	99											
Auto-Rickshaw	0.8	102											
Motor-Cycle	1	14											
Bi-cycle	0.5	492											
Cycle-Rickshaw	0.5	5											
Cart	3	16											
Total-Pcu		541	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	1	0	0	2	0	2	0	0	0	0	1
Micro-Bus	1	4	7	4	2	0	8	3	1	4	9	4	5
Utility	1	9	7	5	6	6	8	10	13	7	4	9	9
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	1	0	0	1	0	0	0	1	0	0	0
Car	1	21	14	9	14	13	12	23	27	13	19	18	15
Auto-Rickshaw	0.8	46	52	39	44	51	39	61	47	41	38	57	61
Motor-Cycle	1	2	1	2	0	1	0	0	2	0	0	1	2
Bi-cycle	0.5	3	0	2	2	0	2	0	3	2	0	3	1
Cycle-Rickshaw	0.5	81	66	81	57	74	66	79	61	77	61	79	75
Cart	3	1	0	2	0	4	0	0	3	0	3	0	1
Total-Pcu		118	107	99	87	114	93	127	122	98	102	119	122

Note: Time of data collection 9:30 - 10:00 a.m. Day: Sunday Date: 21 - 04 - 96

Table A-42 Classified vehicle counts for Kakrail approach of Fakirapool intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	1	0	1	1	0	0	1	1	0	1	0	1
Mini-Bus	1.5	0	0	1	2	0	2	0	0	0	0	2	0
Micro-Bus	1	0	1	2	0	2	0	2	0	2	4	0	2
Utility	1	2	0	4	5	3	0	0	2	2	0	1	3
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	1	0	2	0	1	0
Small-Truck	1.5	0	0	0	1	0	0	0	0	0	0	0	0
Car	1	8	3	7	3	4	4	6	2	5	4	5	4
Auto-Rickshaw	0.8	19	11	18	11	13	17	14	8	17	19	21	19
Motor-Cycle	1	0	0	4	2	2	1	0	1	0	2	0	2
Bi-cycle	0.5	0	0	2	0	4	0	2	1	0	0	1	1
Cycle-Rickshaw	0.5	34	24	31	32	17	29	34	23	19	34	19	31
Cart	3	2	0	1	0	2	3	4	0	2	0	0	1
Total-Pcu		51	25	55	42	38	45	55	26	44	45	39	48
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	5											
Micro-Bus	1	24											
Utility	1	31											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	112											
Auto-Rickshaw	0.8	121											
Motor-Cycle	1	17											
Bi-cycle	0.5	16											
Cycle-Rickshaw	0.5	529											
Cart	3	12											
Total-Pcu		597	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	2	0	0	1	0	2	0	0	0	0	1
Micro-Bus	1	5	4	3	2	0	7	3	1	4	9	3	6
Utility	1	9	8	9	9	6	8	11	13	7	4	9	10
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	1	0	0	1	0	0	0	1	0	0	0
Car	1	21	16	10	14	21	12	21	23	13	17	18	14
Auto-Rickshaw	0.8	49	54	42	45	46	39	58	47	41	38	57	61
Motor-Cycle	1	3	1	2	0	2	0	0	2	0	0	1	2
Bi-cycle	0.5	3	0	2	4	0	2	0	3	3	0	3	1
Cycle-Rickshaw	0.5	81	74	81	61	78	69	83	68	81	51	79	73
Cart	3	2	0	2	0	4	0	0	3	0	3	0	1
Total-Pcu		125	114	105	94	120	94	126	121	100	95	118	122

Note: Time of data collection 2:30 - 3:00 p.m. Day: Wednesday Date: 24 - 04 - 96

Table A-43 Classified vehicle counts for Kakrail approach of Fakirapool intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	1	0	1	1	1	0	2	0	1	0	1
Mini-Bus	1.5	1	0	2	1	0	2	1	0	0	0	3	0
Micro-Bus	1	0	0	1	0	2	1	1	0	3	4	0	2
Utility	1	3	0	0	3	5	0	0	4	2	0	2	4
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	1	0	0
Medium-Truck	3	0	0	0	0	0	1	1	0	0	0	2	0
Small-Truck	1.5	1	0	0	1	1	0	0	0	1	0	0	0
Car	1	8	5	6	2	5	4	6	2	5	4	6	5
Auto-Rickshaw	0.8	21	14	17	11	18	19	16	7	16	14	19	16
Motor-Cycle	1	0	2	4	0	2	1	2	1	0	2	0	1
Bi-cycle	0.5	2	0	2	0	4	0	2	1	2	0	1	0
Cycle-Rickshaw	0.5	32	24	29	26	28	21	32	26	23	29	18	26
Cart	3	0	0	1	0	3	2	4	2	3	0	0	3
Total-Pcu		48	33	46	33	58	47	55	38	46	42	43	50
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	4											
Micro-Bus	1	31											
Utility	1	24											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	121											
Auto-Rickshaw	0.8	116											
Motor-Cycle	1	21											
Bi-cycle	0.5	11											
Cycle-Rickshaw	0.5	521											
Cart	3	22											
Total-Pcu		628	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	1	0	0	1	0	2	0	0	0	0	1
Micro-Bus	1	6	4	3	2	0	6	3	1	5	11	4	6
Utility	1	9	9	8	7	6	8	15	11	7	4	9	12
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	2	1	0	1	0	0	0	1	0	0	0
Car	1	21	14	9	14	14	12	24	25	15	21	19	16
Auto-Rickshaw	0.8	44	52	41	41	39	37	62	49	42	39	57	61
Motor-Cycle	1	2	1	2	0	1	0	0	2	0	0	1	2
Bi-cycle	0.5	3	0	3	2	0	2	0	3	2	0	3	1
Cycle-Rickshaw	0.5	79	69	86	59	64	58	88	62	78	63	79	81
Cart	3	2	0	2	0	4	0	2	3	0	3	0	1
Total-Pcu		120	109	107	86	99	86	145	120	102	108	120	130

Note: Time of data collection 9:30 - 10:00 a.m. Day: Tuesday Date: 23 - 04 - 96

Table A-44 Classified vehicle counts for Kakrail approach of Fakirapool intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	1	1	0	0	0	1
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	1	0
Micro-Bus	1	0	0	0	1	2	0	3	0	0	1	0	0
Utility	1	2	2	1	0	2	2	3	3	3	4	2	4
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	1	0	0	0	1	0	0	4	1	0	0
Small-Truck	1.5	0	0	0	0	0	0	1	0	7	0	0	0
Car	1	3	6	3	3	4	4	9	9	8	9	7	5
Auto-Rickshaw	0.8	11	17	14	11	9	9	9	9	2	11	11	9
Motor-Cycle	1	0	0	1	0	2	0	3	0	2	1	2	0
Bi-cycle	0.5	0	0	1	0	2	0	1	0	17	0	1	1
Cycle-Rickshaw	0.5	17	19	23	17	17	24	22	17	0	22	21	17
Cart	3	0	1	1	0	0	0	1	0	0	1	1	0
Total-Pcu		22	37	31	21	27	28	44	31	46	41	35	28
Left-Turn													
Bus	3	10											
Mini-Bus	1.5	34											
Micro-Bus	1	3											
Utility	1	0											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	52											
Auto-Rickshaw	0.8	126											
Motor-Cycle	1	7											
Bi-cycle	0.5	4											
Cycle-Rickshaw	0.5	371											
Cart	3	8											
Total-Pcu		455	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	0	0	0	0	0	0	0	0	0	0	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	0	0	0	0	0	0	0	0	0	0	0	0
Auto-Rickshaw	0.8	0	0	0	0	0	0	0	0	0	0	0	0
Motor-Cycle	1	0	0	0	0	0	0	0	0	0	0	0	0
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	3	2	1	3	4	2	3	1	3	0	5	3
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		2	1	1	2	2	1	2	1	2	0	3	2

Note: Time of data collection 2:30 - 3:00 p.m. Day: Monday Date: 22 - 04 - 96

Table A-45 Classified vehicle counts for Bangladesh Bank approach of Fakirapool intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	1	0	0	0	0	0	1	2	0	0	0	1
Mini-Bus	1.5	0	0	1	0	0	0	0	0	0	0	1	0
Micro-Bus	1	0	1	0	1	2	0	3	0	1	1	0	0
Utility	1	2	2	1	0	3	4	2	3	2	4	2	4
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	1	0	0	0	1	0	0	2	1	0	0
Small-Truck	1.5	0	0	0	0	0	0	1	0	1	0	0	0
Car	1	3	5	2	3	5	4	11	9	8	9	4	10
Auto-Rickshaw	0.8	12	18	15	12	9	11	9	10	7	12	8	9
Motor-Cycle	1	0	0	1	0	2	0	3	0	1	1	2	0
Bi-cycle	0.5	0	0	1	0	2	0	2	0	1	2	1	1
Cycle-Rickshaw	0.5	19	17	24	19	21	26	27	21	17	26	32	22
Cart	3	0	2	1	0	0	0	1	0	0	1	1	0
Total-Pcu		27	40	33	23	31	33	48	37	34	45	35	36
Left-Turn													
Bus	3	8											
Mini-Bus	1.5	29											
Micro-Bus	1	4											
Utility	1	1											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	49											
Auto-Rickshaw	0.8	121											
Motor-Cycle	1	9											
Bi-cycle	0.5	3											
Cycle-Rickshaw	0.5	361											
Cart	3	9											
Total-Pcu		436	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	0	0	0	0	0	0	0	0	0	0	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	0	0	0	0	0	0	0	0	0	0	0	0
Auto-Rickshaw	0.8	0	0	0	0	0	0	0	0	0	0	0	0
Motor-Cycle	1	0	0	0	0	0	0	0	0	0	0	0	0
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	5	2	0	3	6	1	2	1	4	0	5	5
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		3	1	0	2	3	1	1	1	2	0	3	3

Note: Time of data collection 9:30 - 10:00 a.m. Day: Sunday Date: 21 - 04 - 96

Table A-46 Classified vehicle counts for Bangladesh Bank approach of Fakirapool intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	1	0	0	1	2	0	1	0	2
Mini-Bus	1.5	0	0	1	0	0	1	0	0	0	0	2	0
Micro-Bus	1	0	0	0	1	3	0	4	0	0	2	0	0
Utility	1	3	2	1	0	2	3	4	4	5	6	3	7
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	1	0	0	0	1	0	0	0	1	0	0
Small-Truck	1.5	0	0	0	0	0	0	1	0	7	0	0	0
Car	1	4	6	3	3	6	4	11	10	12	12	9	8
Auto-Rickshaw	0.8	15	22	14	13	9	12	11	9	2	14	13	14
Motor-Cycle	1	0	0	1	0	2	0	3	0	2	1	2	0
Bi-cycle	0.5	0	0	1	0	2	0	1	0	18	0	1	1
Cycle-Rickshaw	0.5	20	24	28	19	25	28	29	21	0	29	27	27
Cart	3	0	1	1	0	2	0	1	0	0	1	2	1
Total-Pcu		29	44	35	27	40	35	53	38	40	56	47	49
Left-Turn													
Bus	3	12											
Mini-Bus	1.5	34											
Micro-Bus	1	5											
Utility	1	0											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	1											
Car	1	58											
Auto-Rickshaw	0.8	131											
Motor-Cycle	1	9											
Bi-cycle	0.5	4											
Cycle-Rickshaw	0.5	389											
Cart	3	12											
Total-Pcu		498	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	0	0	0	0	0	0	0	0	0	0	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	0	0	0	0	0	0	0	0	0	0	0	0
Auto-Rickshaw	0.8	0	0	0	0	0	0	0	0	0	0	0	0
Motor-Cycle	1	0	0	0	0	0	0	0	0	0	0	0	0
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	7	3	1	4	1	5	3	2	7	0	5	3
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		4	2	1	2	1	3	2	1	4	0	3	2

Note: Time of data collection 2:30 - 3:00 p.m. Day: Wednesday Date: 24 - 04 - 96

Table A-47 Classified vehicle counts for Bangladesh Bank approach of Fakirapool intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	1	0	0	0	0	0	1	1	0	1	0	1
Mini-Bus	1.5	0	1	1	0	0	1	0	0	0	0	2	0
Micro-Bus	1	0	0	0	1	3	0	3	0	0	2	0	0
Utility	1	4	2	1	3	2	3	4	3	5	6	4	6
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	1	0	0	1	1	0	0	0	1	1	0
Small-Truck	1.5	0	0	0	0	0	0	1	0	2	0	0	0
Car	1	5	6	3	3	5	4	11	9	12	9	11	8
Auto-Rickshaw	0.8	15	21	11	15	8	13	19	12	14	11	16	14
Motor-Cycle	1	0	0	1	0	1	0	3	0	2	1	2	0
Bi-cycle	0.5	0	0	1	0	2	0	1	0	1	0	1	1
Cycle-Rickshaw	0.5	21	26	21	27	19	31	28	21	19	32	27	22
Cart	3	0	1	1	0	2	0	2	0	0	1	2	1
Total-Pcu		35	45	29	33	37	37	61	35	43	52	56	43
Left-Turn													
Bus	3	14											
Mini-Bus	1.5	41											
Micro-Bus	1	5											
Utility	1	0											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	2											
Car	1	61											
Auto-Rickshaw	0.8	121											
Motor-Cycle	1	9											
Bi-cycle	0.5	6											
Cycle-Rickshaw	0.5	401											
Cart	3	5											
Total-Pcu		497	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	0	0	0	0	0	0	0	0	0	0	0	0
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	0	0	0	0	0	0	0	0	0	0	0	0
Auto-Rickshaw	0.8	0	0	0	0	0	0	0	0	0	0	0	0
Motor-Cycle	1	0	0	0	0	0	0	0	0	0	0	0	0
Bi-cycle	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Cycle-Rickshaw	0.5	5	2	6	3	7	2	5	1	3	1	6	4
Cart	3	0	0	0	0	0	0	0	0	0	0	0	0
Total-Pcu		3	1	3	2	4	1	3	1	2	1	3	2

Note: Time of data collection 9:30 - 10:00 a.m. Day: Tuesday Date: 23 - 04 - 96

Table A-48 Classified vehicle counts for Bangladesh Bank approach of Fakirapool intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	1	0	1	2	1	2	1	0	2	2	1	2
Utility	1	5	3	2	3	4	6	7	5	5	4	4	6
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	1	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	1	0	0	0	0	0	1	0
Car	1	4	2	6	4	4	6	8	7	6	7	6	7
Auto-Rickshaw	0.8	9	3	5	6	7	11	10	9	8	6	9	6
Motor-Cycle	1	1	0	2	1	0	2	1	1	3	0	1	2
Bi-cycle	0.5	2	1	0	0	1	0	2	1	1	0	1	2
Cycle-Rickshaw	0.5	37	29	35	41	51	45	39	37	41	43	37	39
Cart	3	1	1	2	0	2	1	0	3	0	1	1	2
Total-Pcu		41	25	39	35	48	53	46	48	43	42	43	48
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	31											
Utility	1	123											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	142											
Auto-Rickshaw	0.8	1013											
Motor-Cycle	1	21											
Bi-cycle	0.5	17											
Cycle-Rickshaw	0.5	1121											
Cart	3	2											
Total-Pcu		1702	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	2	1	2	0	0	2	1	0	2	1	2	2
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	2	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	1	0	0	2	1	0	2	1	0	2	1	0
Auto-Rickshaw	0.8	3	5	2	4	6	1	3	4	6	7	3	4
Motor-Cycle	1	2	1	2	0	3	2	0	4	3	1	7	5
Bi-cycle	0.5	0	1	0	2	0	0	2	0	0	1	0	0
Cycle-Rickshaw	0.5	0	0	1	0	0	3	0	0	0	0	2	0
Cart	3	0	2	0	0	0	0	2	0	0	1	0	0
Total-Pcu		7	13	6	6	9	6	12	8	10	13	19	10

Note: Time of data collection 2:30 - 3:00 p.m. Day: Monday Date: 22 - 04 - 96

Table A-49 Classified vehicle counts for RAJUK approach of Fakirapool intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	1	0	1	2	1	2	1	0	2	2	1	2
Utility	1	4	2	2	3	5	4	5	4	3	4	5	4
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	1	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	1	0	0	0	0	0	1	0
Car	1	4	3	5	4	5	3	5	7	6	5	7	7
Auto-Rickshaw	0.8	9	3	6	5	6	7	8	6	7	8	9	6
Motor-Cycle	1	1	0	2	1	0	2	1	1	3	0	0	0
Bi-cycle	0.5	2	1	0	0	1	0	2	1	1	0	1	1
Cycle-Rickshaw	0.5	36	32	31	41	52	31	34	32	38	41	32	35
Cart	3	1	1	2	0	1	1	0	3	0	1	1	2
Total-Pcu		39	27	36	35	47	38	36	42	39	41	41	42
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	33											
Utility	1	111											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	136											
Auto-Rickshaw	0.8	989											
Motor-Cycle	1	19											
Bi-cycle	0.5	14											
Cycle-Rickshaw	0.5	1021											
Cart	3	2											
Total-Pcu		1614	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	3	1	2	0	0	2	1	0	2	1	2	3
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	2	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	1	0	0	2	1	0	2	1	0	2	1	0
Auto-Rickshaw	0.8	2	4	2	3	5	2	3	3	7	8	3	4
Motor-Cycle	1	2	0	2	0	3	2	0	4	3	1	6	5
Bi-cycle	0.5	0	1	0	2	0	0	2	0	0	1	0	0
Cycle-Rickshaw	0.5	0	0	1	0	0	3	0	0	0	0	2	0
Cart	3	0	2	0	0	0	0	2	0	0	1	0	0
Total-Pcu		8	11	6	5	8	7	12	7	11	14	18	11

Note: Time of data collection 9:30 - 10:00 a.m. Day: Sunday Date: 21 - 04 - 96

Table A-50 Classified vehicle counts for RAJUK approach of Fakirapool intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	3	0	1	3	2	2	1	0	2	4	3	2
Utility	1	6	4	2	4	6	6	7	5	4	6	7	8
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	1	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	1	0	0	0	0	0	1	0
Car	1	6	2	7	6	5	3	8	9	8	10	7	9
Auto-Rickshaw	0.8	11	3	8	6	8	11	9	7	8	10	12	7
Motor-Cycle	1	1	0	2	1	0	2	1	1	3	0	1	2
Bi-cycle	0.5	2	1	0	0	1	0	2	1	1	0	1	2
Cycle-Rickshaw	0.5	43	32	38	48	68	38	42	38	42	49	41	46
Cart	3	2	1	2	0	2	1	0	3	0	1	1	2
Total-Pcu		53	28	43	43	61	47	46	49	45	56	53	57
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	35											
Utility	1	133											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	2											
Car	1	142											
Auto-Rickshaw	0.8	1056											
Motor-Cycle	1	25											
Bi-cycle	0.5	24											
Cycle-Rickshaw	0.5	1162											
Cart	3	4											
Total-Pcu		1788	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	3	4	2	0	0	3	2	0	2	0	2	3
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	2	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	2	0	0	2	1	0	2	1	0	2	1	0
Auto-Rickshaw	0.8	5	7	2	4	6	1	3	5	6	7	3	4
Motor-Cycle	1	2	1	2	0	3	2	0	4	3	1	7	7
Bi-cycle	0.5	0	1	0	2	0	0	2	0	0	1	0	0
Cycle-Rickshaw	0.5	0	0	2	0	0	4	0	0	0	0	2	0
Cart	3	0	2	0	0	0	0	2	0	0	2	0	0
Total-Pcu		11	17	7	6	9	8	13	9	10	15	19	13

Note: Time of data collection 2:30 - 3:00 p.m. Day: Wednesday Date: 24 - 04 - 96

Table A-51 Classified vehicle counts for RAJUK approach of Fakirapool intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	3	0	1	3	2	2	1	0	2	4	3	2
Utility	1	7	5	2	4	5	6	7	4	8	6	7	8
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	1	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	1	0	0	0	0	1	1	0
Car	1	8	2	6	7	5	6	4	8	7	10	12	6
Auto-Rickshaw	0.8	11	4	8	9	8	11	9	7	10	9	14	7
Motor-Cycle	1	1	0	2	1	0	2	1	1	3	0	1	2
Bi-cycle	0.5	2	1	0	0	1	0	2	1	1	0	2	2
Cycle-Rickshaw	0.5	47	33	34	54	51	48	35	38	52	44	37	46
Cart	3	4	1	2	1	2	3	0	3	2	1	3	2
Total-Pcu		64	30	40	52	52	61	39	47	61	54	64	54
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	41											
Utility	1	130											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	1											
Car	1	139											
Auto-Rickshaw	0.8	1041											
Motor-Cycle	1	29											
Bi-cycle	0.5	15											
Cycle-Rickshaw	0.5	1099											
Cart	3	5											
Total-Pcu		1745	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	0	0	0	0	0	0	0	0
Utility	1	4	2	1	0	0	4	1	0	3	2	5	3
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	2	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	2	0	0	2	1	0	1	2	0	2	2	0
Auto-Rickshaw	0.8	3	7	0	6	6	2	3	5	8	7	3	5
Motor-Cycle	1	5	1	2	0	3	2	0	4	4	2	7	6
Bi-cycle	0.5	0	2	0	3	0	0	1	0	0	1	0	0
Cycle-Rickshaw	0.5	0	0	1	0	0	5	0	0	0	0	3	0
Cart	3	1	2	0	0	0	0	0	2	0	0	0	1
Total-Pcu		16	16	4	8	9	10	5	16	13	12	24	16

Note: Time of data collection 9:30 - 10:00 a.m. Day: Tuesday Date: 23 - 04 - 96

Table A-52 Classified vehicle counts for RAJUK approach of Fakirapool intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	1	0	0	0	0	0	1	0	0	0
Micro-Bus	1	0	0	0	0	1	0	0	1	0	1	1	0
Utility	1	2	2	4	0	0	0	4	6	2	4	6	8
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	3	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	5	2	3	2	5	4	3	2	3	5	7	2
Auto-Rickshaw	0.8	8	9	5	6	5	6	4	5	7	4	5	7
Motor-Cycle	1	1	0	0	2	1	0	1	1	0	0	1	2
Bi-cycle	0.5	1	2	0	2	0	1	0	2	1	1	1	2
Cycle-Rickshaw	0.5	19	32	16	33	21	19	29	17	32	27	29	37
Cart	3	1	1	1	1	0	1	0	2	1	0	1	1
Total-Pcu		27	31	24	29	22	22	26	30	32	38	37	40
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	0											
Utility	1	0											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	0											
Auto-Rickshaw	0.8	26											
Motor-Cycle	1	12											
Bi-cycle	0.5	14											
Cycle-Rickshaw	0.5	196											
Cart	3	12											
Total-Pcu		174	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	12	0	0	0	0	1	0	0	0	0	2	1
Utility	1	2	1	0	3	2	0	4	0	1	2	0	3
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	2	1	3	0	4	2	1	0	5	3	2	6
Auto-Rickshaw	0.8	3	2	0	0	3	2	1	4	0	2	3	4
Motor-Cycle	1	0	1	2	0	0	2	0	0	0	2	3	0
Bi-cycle	0.5	3	0	0	0	0	1	0	0	0	0	2	0
Cycle-Rickshaw	0.5	12	8	16	11	15	12	9	11	7	12	9	17
Cart	3	0	1	0	2	0	1	0	0	2	0	0	1
Total-Pcu		26	12	13	15	16	16	10	9	16	15	15	25

Note: Time of data collection 2:30 - 3:00 p.m. Day: Monday Date: 22 - 04 - 96

Table A-53 Classified vehicle counts for Rajarbag approach of Fakirapool intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	1	0	0	0	0	0	1	0	0	0
Micro-Bus	1	0	0	0	0	1	0	0	1	0	1	1	0
Utility	1	3	2	5	1	0	1	7	7	2	6	3	5
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	7	1	4	3	4	6	4	2	4	4	7	4
Auto-Rickshaw	0.8	5	7	6	5	5	5	8	7	7	5	8	8
Motor-Cycle	1	0	0	0	2	1	0	1	1	0	0	1	2
Bi-cycle	0.5	1	1	0	2	0	1	0	2	1	1	1	2
Cycle-Rickshaw	0.5	17	24	21	33	21	32	21	19	21	29	29	44
Cart	3	0	1	1	2	0	1	0	2	1	0	1	2
Total-Pcu		23	24	29	34	21	31	29	33	27	30	36	46
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	0											
Utility	1	0											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	0											
Auto-Rickshaw	0.8	21											
Motor-Cycle	1	11											
Bi-cycle	0.5	9											
Cycle-Rickshaw	0.5	179											
Cart	3	14											
Total-Pcu		164	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	9	0	0	0	0	1	0	0	0	0	2	1
Utility	1	2	2	0	4	2	0	4	0	1	2	0	3
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	3	1	3	0	4	2	1	0	5	2	2	6
Auto-Rickshaw	0.8	3	3	0	0	3	2	1	4	0	2	3	4
Motor-Cycle	1	0	1	2	4	0	2	0	0	0	2	3	0
Bi-cycle	0.5	3	0	0	0	0	1	0	0	0	0	2	0
Cycle-Rickshaw	0.5	13	7	16	9	11	12	10	11	7	12	9	14
Cart	3	0	1	0	2	0	1	0	0	2	0	0	1
Total-Pcu		24	13	13	19	14	16	11	9	16	14	15	23

Note: Time of data collection 9:30 - 10.00 a.m. Day: Sunday Date: 21 - 04 - 96

Table A-54 Classified vehicle counts for Rajarbag approach of Fakirapool intersection at existing traffic condition

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	1	0	0	0	0	0	1	0	0	0
Micro-Bus	1	0	0	0	0	1	0	0	1	0	1	1	0
Utility	1	4	4	6	1	0	2	7	8	2	6	6	8
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	8	2	4	3	5	5	4	2	3	6	7	4
Auto-Rickshaw	0.8	8	9	7	8	6	6	7	6	7	7	8	9
Motor-Cycle	1	1	0	0	2	1	0	1	1	0	0	1	2
Bi-cycle	0.5	1	2	0	2	0	1	0	2	1	1	1	2
Cycle-Rickshaw	0.5	21	30	19	38	29	32	39	18	36	33	29	41
Cart	3	0	1	1	2	0	1	0	2	1	0	1	2
Total-Pcu		30	32	30	38	26	31	37	33	34	36	39	49
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	0											
Utility	1	0											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	0											
Auto-Rickshaw	0.8	31											
Motor-Cycle	1	14											
Bi-cycle	0.5	16											
Cycle-Rickshaw	0.5	209											
Cart	3	17											
Total-Pcu		202	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	14	0	0	0	0	1	0	0	0	0	2	2
Utility	1	3	1	0	4	2	0	5	0	2	2	0	3
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	4	1	3	0	4	2	0	0	5	3	2	7
Auto-Rickshaw	0.8	3	2	0	0	5	2	1	4	0	4	3	4
Motor-Cycle	1	0	1	2	0	0	2	0	0	0	2	3	0
Bi-cycle	0.5	4	0	0	0	0	1	0	0	0	0	2	0
Cycle-Rickshaw	0.5	15	8	16	14	15	12	9	13	7	12	9	19
Cart	3	0	1	0	2	0	1	0	0	2	0	0	1
Total-Pcu		33	12	13	17	18	16	10	10	17	16	15	28

Note: Time of data collection 2:30 - 3:00 p.m. Day: Wednesday Date: 24 - 04 - 96

Table A-55 Classified vehicle counts for Rajarbag approach of Fakirapool intersection with traffic police

Through Traffic	pcu factors	Phase (p)											
		p-1	p-2	p-3	p-4	p-5	p-6	p-7	p-8	p-9	p-10	p-11	p-12
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	1	0	0	0	0	0	0	0	0	0
Micro-Bus	1	0	0	0	0	1	0	0	1	0	1	1	0
Utility	1	5	4	7	4	0	5	9	7	2	5	4	8
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	9	3	5	3	7	5	5	4	3	6	5	8
Auto-Rickshaw	0.8	12	9	7	6	8	6	11	6	7	9	6	12
Motor-Cycle	1	2	0	0	1	3	0	1	1	0	0	1	2
Bi-cycle	0.5	1	2	0	2	2	1	0	2	1	1	1	2
Cycle-Rickshaw	0.5	32	27	26	31	36	34	39	17	36	37	27	47
Cart	3	1	1	3	2	0	2	0	2	2	0	1	4
Total-Pcu		45	32	41	35	36	38	43	33	35	38	33	64
Left-Turn													
Bus	3	0											
Mini-Bus	1.5	0											
Micro-Bus	1	0											
Utility	1	0											
Heavy-Truck	3.5	0											
Medium-Truck	3	0											
Small-Truck	1.5	0											
Car	1	0											
Auto-Rickshaw	0.8	33											
Motor-Cycle	1	17											
Bi-cycle	0.5	15											
Cycle-Rickshaw	0.5	201											
Cart	3	17											
Total-Pcu		202	0	0	0	0	0	0	0	0	0	0	0
Right Turn													
Bus	3	0	0	0	0	0	0	0	0	0	0	0	0
Mini-Bus	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Micro-Bus	1	15	0	0	0	0	1	0	0	0	0	3	1
Utility	1	2	1	2	4	2	0	4	0	1	2	0	3
Heavy-Truck	3.5	0	0	0	0	0	0	0	0	0	0	0	0
Medium-Truck	3	0	0	0	0	0	0	0	0	0	0	0	0
Small-Truck	1.5	0	0	0	0	0	0	0	0	0	0	0	0
Car	1	3	2	4	0	4	2	2	0	5	3	2	6
Auto-Rickshaw	0.8	3	2	0	0	3	2	1	4	0	2	3	5
Motor-Cycle	1	0	1	2	0	0	2	0	0	0	2	3	0
Bi-cycle	0.5	3	0	0	0	0	1	0	0	0	0	2	0
Cycle-Rickshaw	0.5	9	8	18	14	15	12	11	14	9	12	9	21
Cart	3	0	2	0	2	0	0	0	0	2	0	0	2
Total-Pcu		28	16	17	17	16	13	12	10	17	15	16	31

Note: Time of data collection 9:30 - 10:00 a.m. Day: Tuesday Date: 23 - 04 - 96

Table A-56 Classified vehicle counts for Rajarbag approach of Fakirapool intersection with traffic police

APPENDIX-B

Type	Typical Application
Longitudinal lines	
Broken white line	Lane line of multilane highways
Broken yellow line	Center line of two-lane, two-way roadways where overtaking and passing permitted
Solid white line	Pavement edge marking, as a lane line approaching an intersection, as a line to delineate left or right turning lanes.
Double solid white line	Channelizing line in advance of obstruction
Solid yellow line	Used with broken yellow line to indicate no-passing zone for traffic adjacent to solid line
Double broken yellow line	Edges of reversible traffic lanes
Dotted lines	Extension of lines through an intersection or interchange area
Transverse Markings	
Crosshatched shoulder markings	To discourage use of shoulders as a traffic lane
Pairs of solid white lines, 6 in or more in width, spacing 6 ft or more apart	Pedestrian crosswalks
Solid white line, 12 to 24 in. in width	Stop lines to indicate where vehicles are required to stop

Source: U.S. Department of Transportation Federal Highway Administration, Mannual on Uniform Traffic Control Devices For Streets & Highways, 1971.

Typical Applications of Pavement Markings