NATIONAL TRANSPORT RESEARCH CENTRE
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TRAFFIC FACTORS FOR PAKISTAN-II
(Average Annual Daily Traffic)

NTRC-138

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C O N T E N T S

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INTRODUCTION

The importance of information with regard to various characteristics of traffic flow cannot be over-emphasised in planning the road infrastructure. The shortage of traffic flow data in developing countries is often the basic cause of this planning. Sufficient information is required by researchers, policy-makers and administration for carrying out an in-depth study which is absolutely essential for arriving at accurate conclusions.

The main objective of this study is to develop stable traffic factors reflecting variations in traffic over time and to provide systematic information on the nature of the traffic flowing down the major highways in the country. The first attempt that was made in 1981-82 to establish traffic factors on the basis of traffic count data collected by Provincial Highway Department was not successful mainly due to the gaps in the data and non-availability of suitable computer to coincide with the data. Efforts were then made to fill the gap by using 24 hours traffic volume data collected by National Transport Research Centre during 1979-80 in connection with its own country-wide origin destination survey but the desired objectives could still not be fully achieved since continuous traffic flow data (at least for 365 days) was essential for formulating certain variations and factors.

As a result, it was decided to defer the actual objective of determining the required traffic factors to a subsequent study when such information would be available. The consequential decision was also made that National Transport Research Centre, would carry out surveys to collect necessary data. Accordingly, a traffic count programme was undertaken under which 10 permanent traffic count stations were set up on major National Highways during July-October, 1985. Subsequently, on the recommendations of an Inter-Ministerial meeting, 10 more permanent stations were added to the net-work during July-December, 1986. With the help of automatic counters installed at each stations, the hourly volume was taken for one year. Periodical two-hours manual classified counts were also recorded at each station for a period of one continuous year.

This report is actually in continuation of one of the Centre's publications (NTRC-55) printed under the same title suggesting to work out traffic factors when the requisite data has been available.

The Centre had set up 10 permanent traffic count stations on important National Highways by the end of September, 1985. In December, 1985 the second Inter-Ministerial Committee Meeting held in Islamabad, the committee reviewed the progress and achievement of the programme. The desirabilities of extending the coverage of the programme came under discussion and it was decided to set up 10 more permanent stations under Phase-II of

the ongoing programme. An additional amount of Rs.4.25 million was approved accordingly. The 10 permanent stations were named as Phase-I stations.

A-2: GENERAL PURPOSE AND POSSIBLE USES FOR TRAFFIC VOLUME DATA

Traffic Volume Studies are made to obtain factual data concerning the movement of vehicles at selected points on highway system. Volume data are expressed in relation to time. This information is extremely important in traffic planning, design, operation and research. Types of information vary according to the application of the data. Possible uses of different categories are as follows:

A-2.1:Annual Total Traffic Volume:

(1) Measuring and establishing trends in traffic volume and determining annual travel in vehicles kilometers, in a geographic area as economic justification for proposed expenditure.

(2) Computing accidents rates per 100 million vehicles-kilometers.

(3) Estimating expected highway user revenues.

(4) Indicating trends in volume, especially on total facilities.

A-2.2:Annual Average Daily Traffic (AADT) Volume.

(1) Highway Planning activities such as measuring the present demand for service by the highway, developing free-way system, selecting the best route for a new facility or improvement, designing and maintenance.

(2) Evaluating the present traffic flow with respect to the existing highway system.

(3) Locating area where new facilities or improvements to existing facilities needed.

(4) Programming capital investment programme to determine need and priority.

A-2.3:Peak Hour Volume:

(1) Geomatric design with respect to number and width of lines, channelization, shoulder design and similar geomatric feature of the highway.

(2) Determining deficiencies in capacity

(3) Justifying, Planning and locating traffic control devices, signs and markings.

(4) Evaluating capacity deficiencies.

(5) Highway classification.

(6) Justifying and Planning enforcement.

A-2.4:Classified volume:

Classified Volume giving the types of vehicles and number of axles are used for:

(1) Geometric Design with respect to minimum turning path, clearance, grades, etc.

(2) Structural design of the pavement, bridges and other highway facilities.

(3) Analysis of capacity in determining the effect of commercial vehicles.

(4) Estimating highway user revenues.

(5) Adjusting machines counts.

A-2.5:Particular Objectives:

The purpose and uses for traffic volume data as mentioned above are general in nature. Government and private

transportation agencies and consultants request for the data from time to time which is always provided free of cost. They make use of it according to their requirement. This not only helps them reduce the cost of their projects but also saves the time resulting a quick implementation. Provision of data by the Centre's Data Bank to outside agencies has been a major purpose of the programme. The data is used as well in different research studies undertaken by the Centre.

The most important purpose for collecting the information is to determine certain traffic factors which have not so far been attempted in the country as there was no system to collect continuous traffic volume before NTRC set up permanent traffic count stations. The expansion factors, derived from a long continuous series of traffic volume data collected at all permanent traffic count stations in the country will lead to a reliable estimate of total annual traffic, annual average daily and the volume estimate for an hour, day, week or month from actual count carried out for a few hours, days or weeks.

With the help of the factors hourly, daily and monthly pattern is to be interpreted by graphs showing the percentage shares of hourly, daily, weekly and monthly traffic in the daily, weekly and yearly volumes respectively. Such graphs reflect the picture at a glance and would be useful in understanding the pattern in respect of a geographical region.

Estimates of average growth rate for the entire country and for each location is another important objective. Similarly, the time series analysis will indicate the seasonal, cyclic and irregular variations. Useful information about the trend would also be obtained and projection would also be possible.

A-3:SELECTION OF COUNTING POINTS

As mentioned above, 20 permanent traffic count stations were set up to collect the data. The points were selected after a long consideration and in consultation with some experts.

The actual principal (Ref-4) is that traffic counts are carried out at 'N' points chosen in such a way as to make the flow observed there representative of these on the total road system. If points are chosen at random on a set of roads, so that each point in the set has the same chance of inclusion, then the traffic flow in a day, a month, or a year at the census points will be a random sample of the flow at the census points; thus gives an estimate of the average flow over the set of roads. Therefore, the average flow observed on the set of roads multiplied by the total length of the roads in a set gives an estimate of the amount of travel in vehicles on these roads during the period concerned. The number of points is arbitrary - the more there are the greater will be the accuracy.

However, the census points for this programme were chosen by Stratified Random Sampling, dividing the entire Highways network into parts according to importance, need and geometrical regions.

The purpose of the stratified random sampling was three fold. Firstly, it increased the precision of the overall population estimates. Secondly, the sub-division of the whole network (population) resulted in relatively homogenous groups which are some times known as domains of study. Thirdly, it reduced the standard error.

For instance it was decided that out of the first 10 permanent traffic count points, 7 would be set up on N-5, 2 on N-25 and 1 on N-35, the three Highways had many temporary points on which the Provincial Department had been collecting the data. Each of these temporary old points was then allotted a number and the points were chosen with the help of random table taking an arbitrary starting points. The decision of taking 12 points on N-5, N-25, and N-35 was made for geographical/traffic importance and urgent need for the information.Theoretically the allocation should have been done by dividing the total number of points between the different highways in proportion to the length multiplied by the square root of the estimated daily traffic flow but at some points traffic was approaching a level at which improvements like the dual carriageway, increase in width, construction of overhead bridge was surely necessary. Early requirement for repair and maintenance at some sections seemed to be necessary. Moreover, political disturbance, geographical nature of the regions and some administrative problems were the factors that influenced the number of points to be allocated at

various Highways. As the automatic tube and loop detector counters were supposed to be used in the programme, all necessary technical and social requirement were considered. For instance, in one case the point was not sensitive enough for a loop detector due to high and continuous gradient of the section whereas in the second case the point located in such an area from which the nearest locality/village was 10-12 miles away. In both cases alternative points were selected.

As a result, 20 sites were selected to set up permanent traffic count stations; 10 each under Phase-I and Phase-II. The points and respective locations may be seen in Annexure-A-3.

A-4:AUTOMATIC COUNTERS USED

The following type of automatic traffic counters were used in the programme:-

(1) 30 SYX-RRL 4A Inductive Loop Detector counters

(2) 10 SYX-RRL 4B Pneumatic Tube Detector Counters

(3) 4 MR-103 Tube/Loop Detector counters.

A Three weeks training in using automatic counters and their maintenance was arranged for the recruited staff. Special emphasis was given to the maintenance of equipment and the manufactureres (Mangood Corporation, UK) were requested to send user and service manuals. The tube counters were easy to install but difficult to maintain. The major problem was with tube which was not locally available. Frequent replacement of tube created re-installation and data adjustment problems. The tube used was of 'O' section with 12.5 mm outside diameter and 6 mm bore made

from a natural rubber compound. The average life of a tube with an average daily flow of 6000-7000 vehicles was found to be 20-30 days, but wheels of animal drawn vehicles were found to be the most harmful to tubes. Degree of roughness of road and speed of vehicles were other important elements. On the other hand installation of loop detector counters was rather complicated, but they were easy to maintain once installed properly. However, overcounting problem was experienced at some stations in three cases. Firstly, it was observed that at some stations loop detector counters counted more than actual flow in case of heavy rain or when an articulated trailer passed over the loop area with considerable low velocity or when batteries having more than 5 Ampere current were attached to the counters.

As the loop detector counter works on the principle of detecting a magnetic filed, the reason for overcounting in the second case could be explained. In case of a trailer the entire body of the vehicle consists of two or three parts with a 2-4 feet gap. If the speed is slow the counter counts two or three inductions instead of one. However, no solid or reliable justification could be found out for the first case. But in most of the cases the overcounting did not exceed 5 vehicles per hour which was negligible keeping in view the fact that no counter counts with hundred percent accuracy.

Spare parts were available at each station for minor repairing work but in case of a major fault the counter used to be replaced by spare one. Local agencies were engaged for repairing out of order counters. 3 counters were kept ready at the headquarter for emergency needs.

A-5:SURVEY FORMS & VEHICLE CLASSIFICATION

The programme included automatic and manual counting. For comprehensive and complete information the basic form was designed for counting hourly directional traffic. Separate forms were designed for manual counting as classification of vehicles was impossible from the data collected by SYX-RRL counters. Traffic information being collected by directional and vehicle classification on a manual count form using five desh system of recording traffic flow (four vertical strokes crossed by fifth oblique/stroke). The Enumerators were advised to mention on the forms if an extraordinary incidence, that might caused a sudden fluctuation in traffic flow, took place. Daily, weekly and monthly forms for manual and automatic counting were also designed.

The Provincial Highway department used the classification in their counts irrespective of number of axles of vehicles. The importance of counting number of axles has been felt by various agencies in the country. The trend to use multi-axles vehicles in the private sector and especially in the case of National Logistic Cell (NLC) has tremendously increased over the last 7-10

years. Unlike developed countries where car is the dominating mode of the total flow, in Pakistan traffic consists of 40-60% of heavy goods vehicles. On account of the rapid growth in multi-axles vehicles, traditional vehicles classification was revised. Besides, animal carts were also important to see the nature of non-motorized traffic and its effects on speed, vehicles operating cost, space occupancy, journey time and value of time. The following classification is used in the programme.

Table : A-5
VEHICLE CLASSIFICATION

Code No.	Type of Vehicles
01	Pedal Cycles
02	Animal Drawns
03	Motor Cycles, Scooters
04	Motor Rickshaws
05	Car, Taxis, Jeeps
06	Wagons, Minibuses
07	Buses
08	Truck - 2 Axles
09	Truck - 3 Axles
10	Tractors and Trailers 3-Axles
11	Tractors and Trailers 4-Axles
12	Tractors and Trailers 5-Axles
13	Tractors and Trailers 6-Axles
14	Other (Ambulances, Crane, etc)

A-6:COUNTING METHODOLOGY

At present NTRC has 52 SYX/RRL automatic traffic counters installed at the stations. It was decided that reading would be taken on hourly basis during the first year after which it would be taken only once a day. Direction-wise counting was preferred

but it was different at the stations where the road was single and non-availability of median prevented from taking directional count. Moreover, the programme was started with limited resources and an average allocation of only 2 counters at each station was made. It was necessary to keep at least one spare counter at each station and as a result many stations were left with one counter. However, directional counters were taken at some stations where magnetic induced loop detector counters were installed. It was also impossible to classify traffic by those counters. But classified and directional counts were essential to take into account.

In order to obtain information on the type of vehicle passing each site, manual counts were necessary in addition to automatic ones. At the first stage it was thought that manual counting would be undertaken round the clock to observe hourly fluctuations, but the proposal was turned down on the solid ground that the survey was not of limited counts and in the presence of counters it would be wastage of resources. Hence it was decided to carry out hourly manual counting periodically (day to day). On the other side, information by 'day' and 'night' was also important. Therefore, arrangement for 2 hours manual counting in a day was made. Taking sun-rise and sun-set timings into account, every 24 hours-time was divided into two parts i.e. 'day' and 'night' then manual counting for the two parts was taken periodically selecting a suitable starting hour. For

example, in Pakistan the normal sun-rise and sun-set timings in August are 6 a.m. and 7 a.m. respectively. On August 1 manual counting was done from 6 a.m to 7 a.m for 'day' time and from 7 p.m to 8 p.m for 'night time'. On the next day i.e. August 2 it was done from 7 a.m. to 8 a.m and from 8 p.m to 9 p.m for 'day time' and 'night time' respectively and so on. After completing a circle a complete hourly traffic statement based on all 24 hours was obtained. It did not make a significant differnce for the reason that the points were fixed, the process was repeated continuously and on average 2 circles of manual classified counts were completed in a month by this periodic method.

The manual counting gave useful information by direction, classification and day/night fluctuation. In addition to that an opportunity to examine the validity of traffic counters was obtained from reconciliation and compilation. The calibration proved to be helpful in getting accurate result by proper repair and maintenance of the counters.

As previously estimated, maximum peak day traffic on N-5 was 6,500 vehicles, it was decided to depute 4 Enumerators for one hour manual counting; 2 for each direction. Keeping in view the domination of heavy multi-axles, vehicles, one of the two Enumerators was asked to count multi-axles vehicles only.

STATISTICAL ANALYSIS

B-1 DATA ANALYSIS

No planning can succeed without relevant and accurate statistics. Transport planning like any other type of planning involves the accumulation of a considerable amount of data. However, the amount of basic data collected and the details in which it is presented varies according to the objective of a particular situation or need. Data analysis plays a pivotal part in the decision making process, since it is only on the basis of the analytical results of the collected information that informed decisions may be made.

This section assesses the 'information content' of the collected traffic flow information in quantitative terms. As mentioned above, the basic and major objective of the study was the derivation of ultimate ratios and factors which could indicate the hourly, daily, weekly and monthly flow pattern in the country, and when used with short counts could lead to reliable estimate of AADT. The whole exercise tends to be computer-oriented, and all calculations are worked out through either 'mini-frame or micro-computers in order to obtain higher degree of accuracy. Only final ratios, factors and results are mentioned in the coming sections under the relevant heading, however, these ratios and factors in respect of all permanent stations can also be seen at different annexures. In addition to the statistics regarding patterns and variations which occur over

a specified time period, some other important aspects such as growth rate of traffic flow, composition of flow and role of multi-axle heavy goods vehicles are also discussed in the report. Where felt necessary, important issues are illustrated by tables with the help of diagrames. Emphasis is laid on the qualitative way of presenting the results, and commentary on the tables is restricted to outstanding issues only.

The data to be analysed is spreaded over a period of about 4 years 4 months; from September, 1985 to December, 1989. The information collected at all twenty permanent traffic count stations during the first 365 days, irrespective of any calendar year is used for the base for deriving certain ratios and traffic factors. The analysis comprised for four phases which are as below:-

(a) Initial data manipulation, i.e. the assembly of the data in a form suitable for detailed analysis and the carrying out of checks on quality of data. It includes the presentation of data in a systematic form by preparing tables on hourly, daily monthly and quarterly basis.

(b) Preliminary analysis, in which the intention was to clarify the general form of the data and to suggest the direction which a more elaborate analysis might taken. This is done by simple tables and graphs, e.g.percentage share of hourly, daily, weekly and monthly traffic flow, ups and downs of curves with respect to mean or average level, percentage share by modes and direction, averages & standard deviations and other measurement of dispersion.

(c) Definitive analysis, which was intended to provide the basis for the conclusion e.g indicating existing pattern, trend, formulation of traffic factors, etc.

(d) Presentation of conclusions in a concise and lucid form.

This leads to the subject matter interpretation of the conclusions. For instance, suggestion and recommendation how the derived factors could be applied, which factor would be suitable for a particular road-section, the best time for counting for estimating AADT in respect of a specified section, Prediction of further volume and trend etc.

Hence analysis of traffic count data chiefly includes to examine the flow by volume and composition, to see the variations in flow during different intervals time, and of course, to determine certain traffic factors which multiplied by a short period count would give the best estimate of AADT at that site.

B-2 Annual Average Daily Traffic (AADT)

As mentioned above, twenty permanent traffic count stations are set up on all important highways all over the country in order to collect traffic flow information. Eight of them are established on N-05. The strategy that was adopted in selecting the location of these stations is explained in section A-3. As defined in the guide for traffic volume counting mannual published in Washington DC, 1965 by the US Department of Commerce, AADT is actually annual average number of vehicles during 24 consecutive hours that pass a particular point on a road over the period of 365 days. Remembering that the same term in some European countries (e.g.Britain) means only 16-hours traffic volume known as "m-hours day", it could be seen that the

term seems to have number of advantages not shared by the various "m-hours day". Thus it eliminates these problems associated with variations in the hourly distribution of traffic in different locations. As we shall see later in this report, the proportion of multi-axles goods vehicles specially on the 8 stations of N-5 and precisely during late-night has significantly changed the distribution of total daily flow among the hours of a day. The most important advantage of the AADT concept is that it enables statistical methods to be applied to the problem of rural traffic counting. Generally, it would seem to be the most logical basis for traffic observations and is the one used in the analysis for this report.

Exact locations of permanent traffic count stations with the date of establishment is shown at Annexure-A-3, which indicates that the first ten station were set up from September 1985 to December 1985 under Phase-I of the programme followed by ten more from August 1986 to January 1987 under Phase-II.

Briefly saying, the sites were chosen to be representative of the general range of flow levels, highway types, and climatic conditions found in the country. Average Annual Daily Traffic (AADT) for 20 stations has been worked out by taking the daily

average of the data based on 365 days. These figures are as follow:

Table.B-2.i
Annual Average Daily Traffic

Code	Name of Station	Year	Sum	AADT
1.	Attock Bridge	Sep85 - Aug86	1778713	4873
2.	Jhari Kass	Sep85 - Aug86	815434	2234
3.	Jhelum	Sep85 - Aug86	3416865	9361
4.	Pattoki	Sep85 - Aug86	2064129	5655
5.	Satlaj Bridge	Sep85 - Aug86	2067829	5666
6.	Sadiqabad	Sep85 - Aug86	1787939	4899
7.	Khairpur	Nov85 - Oct86	1614697	4424
8.	Super Highway	Nov85 - Oct86	2190262	6001
9.	Gaddani	Oct85 - Sep86	325804	893
10.	Quetta	Dec85 - Nov86	239006	6548
11.	Kohala	Aug86 - Jul87	218692	599
12.	Mattani	Aug86 - Jul87	1590539	4358
13.	Sakhakot	Aug86 - Jul87	1271609	3484
14.	Fatehpur	Sep86 - Aug87	757748	2076
15.	Kamoke	Oct86 - Sep87	4683532	12832
16.	Sakhi Sarwar	Jan87 - Dec87	335219	918
17.	Shikarpur	Sep86 - Aug87	613737	1681
18.	Thatta	Sep86 - Aug87	479499	1314
19.	Besham	Sep86 - Aug87	249057	682
20.	Pezu	Jan87 - Dec87	448719	1230

Standard Deviation from mean, in terms of number of vehicles, is calculated for each station to see the extent to which absolute volume varies from the AADT. On the basis of standard deviations, Co-efficient of variation in percentage terms is also calculated. This type of co-efficient is a relative measure of variation that expresses the standard deviation as a percentage in terms of mean. This can be used as a criterion of consistency. It can be seen that these co-efficients for Quetta, Kohala, Thatta and Besham stations are relatively higher. The

reasons for this variablility is explained thoroughly in section 8-7.1.

Annual Average Daily Traffic figures as shown above are independent of any calander years, and are worked out on the basis of the data collected during the first 365 days since the establishment of each station. However, the table as under shows these figures for calander years from 1986 to 1989.

Table:8-2.2
Annual Average Daily traffic
From 1986 to 1989
(No.of Vehicles)

Sl. No.	Name of Stations	AADT 1986	AADT 1987	AADT 1988	AADT 1989
01	Attock	5077	5565	5898	6194
02	J.Kass	2248	2210	2283	2424
03	Jhelum	9522	10191	10471	11535
04	Pattoki	5910	6281	6114	5684
05	Sutlaj	5767	5751	5958	6161
06	Sdq8ad	4819	4893	4894	4978
07	Khair Pur	4481	4715	4728	5270
08	Super Hway	5970	6621	6438	6158
09	Baddani	915	962	993	1002
10	Quetta	6570	5115	4916	4661
11	Kohala	589	619	644	670
12	Matni	4396	4329	3897	4716
13	Sakhakot	3471	3564	3706	3882
14	Fatehpur	2057	2123	2302	2556
15	Kamonki	12978	12768	12443	13115
16	Sakhi Srw	918	1187	1151	
17	Shikarpur	1675	1851	2384	2259
18	Thatta	1357	1364	1245	1382
19	Besham	599	709	795	827
20	Pezu	-	1229	1349	1405

B-3:Growth Rate:

From the table B-3 it is clear that there is an increasing tendency in the AADT figures. Generally, volume of traffic is considered as a function of time provided that no significant change is occured in the infrastructure of a nearby region. Growth rates in terms of percentage are calculated for each site on the basis of the data collected from 1986 to 1989 to examine the function of time and flow. The rates are as under:

Table:B-3
Traffic Growth Rate At 20 Stations

St.No.	Station Name	Growth Rate (%)
01	Attock Bridge	6.940
02	Jhari Kass	5.642
03	Jhelum	4.035
04	Pattoki	4.127
05	Satlaj	3.165
06	Sadiqabad	4.004
07	Khairpur	5.162
08	Super Highway	4.951
09	Gaddani	4.311
10	Quetta	-10.010
11	Kohala	5.451
12	Mattani	2.323
13	Sakhakot	6.250
14	Fatehpur	10.136
15	Kamoke	2.616
16	Sakhi Sarwar	18.490
17	Shikarpur	9.224
18	Thatta	2.469
19	Besham	9.270
20	Pezu	5.499
Average		5.203

8-4 Composition of AADTs:

As explained in Section A - 6 classified manual counts were also taken at the stations to achieve the knowledge of composition of volume. These Counts were recorded for two hours a day; one each in day and night spell. Schedules for such counts were periodic to make a cycle so that occuring chances of each hour could be equalized. This sort of schedule not only expressed the representative composition of all hours, but also made it possible to take into account the variation in composition with respect to different hours. The Summary of composition on the basis of the average of classified counts taken during the period at each station is as under:-

Table: 8-4.1
Composition of Traffic Flow
(Percentage Share

S.No.	Stations	Padal Cycle	Animal Drawn	Motor Cycle	Car Jeep	Wagon Minibus	Bus	H.G.V	Other
01	Attock	1.4	0.8	1.3	42.9	14.4	14.1	24.1	0.4
02	J.Kasa	1.9	0.1	2.9	35.6	27.3	17.0	14.1	0.8
03	Jhelum	2.3	0	16.0	36.2	8.6	11.2	25.2	0.2
04	Pattoki	7.6	4.1	7.8	25.8	11.1	12.2	30.4	0.7
05	Sultaj	6.6	1.0	11.8	21.1	7.7	12.7	35.8	0.3
06	SdqBad	2.3	0.6	6.7	12.6	1.3	6.9	68.8	0.8
07	Moro	0.8	0.3	5.6	17.8	5.1	4.9	64.7	0.2
08	S.Hway	0	0.1	0.8	28.6	3.6	9.9	56.8	0.1
09	Badani	0.3	0.1	3.4	34.9	8.1	8.0	45.0	0.2
10	Quetta	-	3.5	10.5	34.4	6.9	11.7	33.0	-
11	Kohala	0.1	-	1.3	39.9	3.7	27.0	27.4	0.6
12	Matni	2.4	0.2	2.8	43.2	19.3	13.4	17.5	0.7
13	Sakhakot	4.5	1.2	4.5	50.8	10.4	10.0	17.5	0.9
14	Fatehpur	18	4.8	7.8	16.8	3.0	7.6	40.3	1.7

S.No.	Stations	Padal Cycle	Animal Drawn	Motor Cycle	Car Jeep	Wagon Minibus	Bus	H.G.V	Other
15	Kamoki	3.5	1.6	3.9	40.5	21.9	7.5	20.9	0.3
16	SkhSwr	6.6	3.0	17.7	11.2	1.6	2.3	56.6	1.0
17	Shkrpur	2.7	1.3	4.5	28.1	15.6	9.3	37.5	0.7
18	Hydbad	1.2	0.3	5.7	24.3	1.2	4.3	61.9	1.1
19	Besham	4.9	-	1.8	64.5	7.4	3.9	17.2	0.3
20	Pezu	1.7	-	1.6	34.3	10.2	7.5	44.1	0.5
Average		3.8	1.4	5.9	32.2	9.4	10.1	36.9	0.6

It can be seen that composition of stream is dominated by Heavy Goods Vehicles followed by Cars. The overall result shows that HGVs and cars contribute 36.9% and 32.2%, respectively. In contrary, cars make over 80% of traffic streams in Europeon or North-American countries. For example, according to the composition model used in COBA 9 Manual, UK published by the Department of Transport Assessments, United kingdom, in May 1981, (Ref.19) Cars composed 82.2% of traffic flow against the contribution of only 8.2% by HGV. Low car-ownership rate in Pakistan is one of the major factors. Only 24,186 motor cars were found on roads in the country (Economic Survey 1987-88, Finance Division) in 1986 against the population of about 101 million in the same year. A traffic stream dominated by HGV is a common characteristic in developing countries. For instance,the data collected on Dacca-Chatagang National Highway in 1987 by the Roads & Highway Department, Bangladesh, it was found that HGV composed about 69% of the flow.

The movement and distribution of commodities by load is closely related to levels of economic activity both a large and in specific industries and services. Output is a dynamic process with some contraction, stability and growth sectors at any point in time. Transport policies and the competitiveness of modes is also subject to change, albeit relatively slowly. In developed countries there is a strong relationship between income per person and freight movement by all modes. The amount conveyed by road is affected by the distribution of population, ratio of manufactures to agriculture, import/export ratios and past location, and the relative networks and costs of competing modes.

Freight traffic (Tonne kilometers) on roads is rising with a growth rate of 7.58% in the country (Economic Survey-1988-89, Finance Division) 32.835 billion tonne kilometre were carried by roads in 1988-89 against 21.18 billion tonne kilometre in 1982-83.

The table B-4.1 also reveals that the composition of traffic flow on National Highway-5 differs from that on other highways or roads. This difference can be seen in the table B-4.2

Table: B-4.2
Comparison of Traffic composition (%share)

Average	Padal Cycle	Animal Drawn	Motor Cycle	Car Jeep	Wagon Minibus	Bus	H.G.V	Other	Total
Av.of N-5 Stations	3.5	1.2	6.7	28.2	9.2	9.9	40.8	0.4	100
Av.of other Stations	4.0	1.6	5.4	34.8	9.6	10.2	34.3	0.8	100
Av.of all Stations	3.8	1.4	5.9	32.2	9.4	10.1	36.9	0.6	100

This percentage of HGV in traffic flow is found to be remarkably higher at four stations set up at Sadiqabad,Khairpur, Super Highway and Thatta. The percentage figures of 68.8, 64.7, 56.8 and 61.9 stand for HGV at these four stations, respectively.

HGV fleet mostly consists of 2 axle trucks which makes 86.7% of it followed by 3 axle trucks with 5.3% of the fleet. Heavy articulated long vehicles with 3,4 and 5 axles make 3.5%, 3.7% and 0.6% respectively, However,6-axles articulated trailers make just 0.1% of HGV fleet. Proportion of multi-axle vehicles at N-5 stations is higher than that is observed at other stations. The following table shows the proportion of different rigid and articulated vehicles at the stations:-

Table:B-4.3
Proportion of Rigid and Articulated Vehicles

Average	Truck 2-Axle	Truck 3-Axle	Tractor & Trailer 3-Axle	Trailer 4-Axle	Trailer 5-Axle	Trailer 6-Axle	Total
Av.of N-S Stations	84.1	6.0	1.8	6.8	1.1	0.1	100
Av.of other Stations	89.0	4.7	5.1	1.0	0.2	0.1	100
Av.of all Stations	86.7	5.3	3.5	3.7	0.6	0.1	100

B-5 Hourly Flow:

Traffic volumes can never be considered to be static and, therefore, volume data are only accurate for the time of the counts. However, since variations in volumes are generally rhythmic and repetitive, knowledge of volume characteristics is important in relating volumes at one time and place to volumes as some other time or place, and in determining the accuracy of counts.

An attempt to understand the variation in traffic flow by hours of day, days of week and months of year is made in this report. The analysis has shown that variation by hours of a day is more significant than that by days of week or by months of a year. As we shall see later, contribution of different week-days

(except Friday and Saturday) to weekly volume does not significantly differ from each other. Similarly variation by months of a year is not as distinctive as we see in the European and North American countries. Actually the pattern of traffic in the country during different months of a year does not exhibit greater variation except on the roads which lead to hilly areas. The matter, however, is discussed in detail in the section of "Seasonal Variations".

The Annexure B-5 reflects the traffic pattern on hourly basis. Hourly percentages of corresponding AADTs at each station are shown in this Annexure. However, final ratios based on average of all stations are as under:-

Table: B-5.1
Percentage of AADT

Hours	Percentage	Hours	Percentage
Hour 1	2.4233	Hour 13	5.3928
Hour 2	2.1541	Hour 14	5.3173
Hour 3	1.9022	Hour 15	5.4019
Hour 4	1.8333	Hour 16	5.8765
Hour 5	1.8662	Hour 17	6.1517
Hour 6	2.2636	Hour 18	6.0540
Hour 7	3.2709	Hour 19	5.5867
Hour 8	4.5728	Hour 20	4.6204
Hour 9	5.3344	Hour 21	3.8464
Hour 10	5.5036	Hour 22	3.3299
Hour 11	5.5251	Hour 23	3.0359
Hour 12	5.4782	Hour 24	2.7367

Table: B-5.2
Percentage of AADTs over different
Time Intervals of a day

Hours	Stations on N - 5	Station On other Highway	All Highways
Midnight To 6 AM	16.0	10.2	12.5
6 AM To 12 Noon	27.2	31.8	30.0
12 Noon To 6 PM	31.6	36.3	34.4
6 PM To Midnight	24.8	21.9	23.0

The table expresses the mean percentages of the AADTs. The values are based on the data collected on hourly basis at all 20 station during the first year of the operation.

As stated above, 8 out of 20 stations are set up on N-5, commonly known as the G.T Road. N-5 is the longest highway in the country which runs from Torkhum to Karachi, a distance of 1,665 Km. It is the bussiest road, for it links all the major cities including Karachi, the port-city. Composition of traffic flow on this road varies from that flows on other highways (Section B-4 is referred). So does the hourly flow as indicated by the table B-5.2. The distribution of traffic through the hours of the day varies with highway characteristic (Ref.3) the distribution on a major highway like N-5, carrying a large proportion of Heavy Goods Vehicles (HGV), is unlikely to be the same as that on a road that passes through less active areas (economic, social

and industrial activities) in the country or some sections of which lead to a recreational resorts.

It can be seen that on average traffic flowing at the stations of N-5 makes 16.0% of AADTS from mid-night to 6 a.m, whereas, flow at other stations makes only 10.2% of AADTs during this interval of time. The average of all stations shows this percentage as 12.5 of AADTs. After 6 a.m, the curve of traffic flow begins to rise on all highways, and at N-5 stations 27.2% of AADTs is contributed by the time interval from 6 a.m. to noon. Other highways show a greater percentage of 31.8 during the same interval to take all highways figure to 30.0% for this particular period. Then comes the busiest part of day which can be considered from 12 noon to 6 p.m. in evening. The percentages of AADTs during this peak interval on N-5 and other highways are worked out as 31.6% and 36.3%, respectively. The share on this interval on all highway in the country is 34.4%. From 6 p.m. the curve begins to fall. The data collected at N-5 stations shows that 24.8% of AADTs is donated by the period from 6 p.m. to mid-night against 21.9% on the stations other than N-5. Taking the average of all stations in the country, it is found that 23.3% of AADTs is contributed by this Interval.

It shows that the hourly flow distribution of N-5 stations differs from that of other stations. However, rising and falling characteristic of the two curves resembled with each other.

As shown above the peak period of the day at all highway starts from noon and the highways remain very busy till 6 p.m; or more precisely, from 3 p.m to 6 p.m. the table reveals that, on average, 5.87% of AADTs volume passes during the hour from 3 P.M. to 4 P.M. at the stations of N-5. This percentage increases by 0.39 and 0.4 respectively in the next two hours at the same stations. Greater percentages are observed during these hours when we look at the distribution of hourly flow on other highways where the flow during 3 p.m to 4 p.m makes 6.27% of the AADTs and percentages increase upto 6.48% and 6.29% in the next two hours.

Summing up, it can be said that the peak hour on all highways is from 4 p.m to 5 p.m and the average of all ratios (absolute hourly volume divided by AADT) is 0.63 i.e. 6.31% of AADT. The second highest peak appears in the following hour (5 p.m to 6 p.m) for which the average ratio is 0.0602 (6.02% of AADT). The following table B-5.3 shows the peak hour factor as observed throughout the year at each station.

Table B-5.3

Peak-Hour Factors

S.No	Name of Station	Peak Hour	Percentage of AADT	Peak-Hour Multiplying Factors
01	Attock	4pm - 5pm	7.1414	0.1400
02	J.Kass	4pm - 5pm	7.5649	0.1322
03	Jhelum	2pm - 3pm	4.9995	0.2000
04	Pattoki	5pm - 6pm	5.6410	0.1773
05	Sutlej	4pm - 5pm	5.4898	0.1822
06	SdqBad	9am -10am	5.5329	0.1807
07	Moro	4pm - 5pm	5.1989	0.1923
08	S.Hway	5pm - 6pm	5.5990	0.1786
09	Gadani	5pm - 6pm	6.3830	0.1567
10	Quetta	8am - 9am	7.4527	0.1342
11	Kohala	4pm - 5pm	6.8447	0.1461
12	Matni	3pm - 4pm	7.3199	0.1366
13	Sakhakot	4pm - 5pm	7.3192	0.1366
14	Fathpur	4pm - 5pm	5.4913	0.1821
15	Kamoki	5pm - 6pm	6.4760	0.1544
16	SkhSwr	4pm - 5pm	5.9913	0.1669
17	Shkrpur	4pm - 5pm	6.5437	0.1528
18	HydBad	6pm - 7pm	5.7839	0.1729
19	Besham	9am -10am	7.7713	0.1287
20	Pezu	4pm - 5pm	5.5330	0.1807
All Station		Av.Peak Hr.	6.3039	0.1586

It can be seen, that at ten stations, the peak hour is 4 pm - 5 pm, and the hour 5 pm - 6 pm stands as the peak at four stations whereas, 9 am - 10 am was observed as peak hour at 2 stations. However, average shows that 4 pm - 5 pm is the peak-hour for the country with 6.3039 percent of AADT for which the peak- hour multiplying factors comes to be 0.1586. Except at Jhelum (peak-hour 2pm -3pm) and Sadiqabad (peak-hour 9am -10am),

all N-5 stations show their peak at either 4 pm -5 pm or 5 pm -6 pm. Average of these station shows that highest percentage of AADT (5.7) is contributed by the hour 4 pm -5 pm for which multiplying factor is worked-out as 0.1584.

B-6 Hourly Multiplying Factors:

Simply saying, multiplying factors are those ratios which are worked out for a specified time period and which when multiplied by the short-counts taken in the regions of same time periods, give reliable estiamtes for yearly flow or AADT. Such estimates can be more reliable if derived from a full year traffic data.

In most of the developed countries, the art of estimating annual traffic has been refined to such an extent that a traffic count for a few minutes in a particular week-day of the month can be expanded to its AADT by the use of suitable factors within reasonable levels of accuracy.

Hence, the idea of using multiplying factors is to calculate AADT of a specify road just by taking a short traffic count. It saves time, enormous cost and voluminous work. Although the traffic flow is subjected to variation by time (hourly,daily,weekly,monthly) and site (geographical location) as well as by composition, yet the research has shown that traffic

flow patterns on roads are quite stable and there is a definite relationship between hourly,daily,weekly and monthly traffic volume. This leads to the conclusion of establishing and using multiplying factors.

In Britain, the Local Government Operational Research Unit (LGORU) investigated the method of estimating total annual traffic flow and produced Multiplying Factors.Two theoretical models called the "Ratio" method and "Regression" method were considered. The first method was adopted finally due to the fact that the observed Multiplying Factors were found not to becorrelated with the annual flow. Also the regression method was found to be inappropriate because the variance of the error term increased as the annual flow increased.

The continuous hourly traffic flow data collected at 20 sites in the country has now enabled to derive these factors by calculating different ratios. By taking hourly volume at any site on any highway, reliable estimate of AADT can be computed now by applying the formula:-

AADT = (Hourly Volume) (HMF) (WDMF) (MMF)

Where HMF, WDMF and MMF stand for hourly, week-day and monthly multiplying factors, respectively.

The hourly multiplying factors in respect of each site can be seen at annexure B-5.

However, these factors for the entire country are as under:-

Table: B-6
Final Hourly Multplying factors

Hours	HMF Multplying Factors	Hours	HMF Multplying Factors
Hours 1	0.4127	Hour 13	0.1854
Hour 2	0.4642	Hour 14	0.1881
Hour 3	0.5257	Hour 15	0.1851
Hour 4	0.5455	Hour 16	0.1702
Hour 5	0.5359	Hour 17	0.1626
Hour 6	0.4418	Hour 18	0.1652
Hour 7	0.3057	Hour 19	0.1790
Hour 8	0.2187	Hour 20	0.2164
Hour 9	0.1875	Hour 21	0.2600
Hour 10	0.1817	Hour 22	0.3003
Hour 11	0.1810	Hour 23	0.3294
Hour 12	0.1825	Hour 24	0.3654

B-6.1: 12 Hours and 16-Hours Factors:

12-Hours or 16-Hours traffic flow data has its own importance in traffic counting. Sometimes, ADT is estimated by counting traffic from 6 am to 6 pm (12 hours count) or from 6 am to 10 pm (16 hours count). More accurate estimate can be achieved if the relevant factors are available. Ratios of respective AADT to the 12-hours and 16-hours volume are shown in the following table (Table B-6.1).

Table: B-6.1
Different hours Volume Ratio AADT

S.No.	Name of Stations	12 hours Ratios (6 AM - 6 PM)	16 Hours Ratios (6 PM - 10 PM
01	Attock	1.5213	1.2009
02	J.Kass	1.378	1.1237
03	Jhelum	1.7590	1.3229
04	Pattoki	1.7387	1.3210
05	Sutlaj	1.7592	1.3399
06	SdqBad	1.7897	1.3941
07	Moro	1.7958	1.4979
08	S.Hway	2.0695	1.4979
09	Gadani	1.7842	1.3301
10	Quetta	1.3380	1.225
11	Kohala	1.5081	1.2431
12	Matni	1.3029	1.1101
13	Sakhkot	1.3222	1.1065
14	Fathpur	1.6769	1.3123
15	Kamoki	1.6538	1.2408
16	SkhSwr	1.7826	1.3270
17	Shkpur	1.4913	1.2003
18	Thatta	2.1161	1.4782
19	Besham	1.3158	1.1210
20	Pezu	1.6450	1.2950
Average		1.6374	1.2750

It can be seen in the table that the averages of the two columns come to be 1.6374 and 1.2750 respectively for the ratios of AADTs to 12 and 16-Hours counts. Simply saying, it means that 61.07% volume of AADT is observed during 12 hours from 6 am to 6 pm, whereas 78.43% is observed during the interval of 16 hours from 6 am to 10 pm. The values of the co-efficient of variation for the two columns are 14.5% and 9.6%. This shows the consistency of the pattern at different stations.

If the averages of Super Highway and Thatta stations are estimated the co-efficient of variation reduced to 11.6% and 7.9% respectively for the two ratios in order to show more consistancy in the pattern at different points in the country. It is also clear from the table that at two stations i.e. Super-Highway and Thatta, day and night pattern is different from rest of the network. For instance, only 47% of the AADT is observed from 6 am to 6pm at Thatta station while 48% is observed at Super Highway during the same interval. This clearly shows that more than 50% traffic (of AADTs) is observed at night on these stations. In fact the two stations are situated between Hyderabad and Karachi and intensity on the roads is greater during night hours. According to an Origin-Destination Survey carried out by National Transport Research Centre in 1986, it was found that heavy goods vehicle coming from Karachi Steel Mill, Port Qasim, Pipri, Malir, etc. preferred old National Highway (via Thatta) for approaching Hyderabad or some other regions of interior Sind. Similarly HGV from other parts of the country preferred Super Highway to get to Karachi.

If the 12-hours period from 6 am to 6 pm is considered to be 'day' and rest of the hours as 'night', then the

proportion of day and night traffic will be as under:-

Table: B-6.2
Proportion of Day and Night Flow

S.No.	Name of Stations	Percentage of AADT	
		Day Time	At Night
01	Attock	65.7	34.3
02	J.Kass	72.6	27.4
03	Jhelum	56.9	43.1
04	Pattoki	57.5	42.5
05	Sutlaj	56.8	43.2
06	SdqBad	55.9	44.1
07	Moro	55.7	44.3
08	S.Hway	48.3	51.7
09	Sadani	56.0	44.0
10	Quetta	74.7	25.3
11	Kohala	66.3	33.7
12	Matni	76.8	23.2
13	Sakhkot	75.6	24.4
14	Fathpur	59.6	40.4
15	amoki	60.5	39.5
16	SkhSwr	56.1	43.9
17	Shkpur	67.1	32.9
18	HydBad	47.3	52.7
19	Besham	76.0	24.0
20	Pezu	60.8	39.2
Average		62.0%	38.0%

B-7: Daily Flow:

Variation in traffic flow by week-day as observed at 20 permanent stations is discussed in this section in terms of average daily traffic by week-day, its relationship with AADT, contribution of daily flow to total weekly flow and week-day

multiplying factors. Detailed quantitative information is provided at relevant annexures B-7.

B-7.1: Average Daily Traffic by week-days:

Average Daily Traffic (ADT) by days of a week in respect of all 20 stations can be seen at Table B-7.1. The sum of traffic volume flowed during various week-days is calculated to work-out respective averages for ADT by week-days. Standard deviations and co-efficients of variation are also found out to see the extent to which absolute week-day traffic at each station varies from the mean.

As stated above, 8 out of 20 permanent stations lie on N-5, which is the most important highway linking the main cities of the country. This highway has comperatively higher volume than others. Comparing the co-efficients of variation of N-5 stations with that of others, the traffic on N-5 was found to be more consistence showing lower variation. On average, the co-efficients of week-day in respect of N-5 station do not exceed 12 percent, whereas the data of other station shows the value from 14 to 17 percent. As a matter of fact, the higher the flow, the lower will be the co-efficent of variation (Ref-13). For instance, the Kamonke Station which is situated on Gujranwala - Lahore section of N-5 and had the AADT of 12832 vehicles per day for 1986-87, showed a variation of only 5-8 percent for all week-days except Thursday and Friday. On the other hand the station at Gaddani (N-25), Sakhi- Sarwar and Desham (N-35) in Baluchistan,

Punjab and N.W.F.P, respectively showed a small size of AADTs less than one thousand. At these stations the flow is low enough to prevent co-efficient of variation from showing a figure lower than 13 percent. At the first of these three stations this variation is calculated from 13 to 25 percent followed by 14 - 20 percent at Sakhi-Sarwar and 15 to 21 percent at the Besham Station.

Second reason for higher values of co-efficients for the three stations as mentioned above is the seasonal variability, (discussed later) especially by virtue of either geographical position of a station or its location on a tourist type road. For instance, the traffic flow at Besham (on the way to Gilgit) and Quetta Stations is lower in winter. Both the stations were set up in the winter of 1985 and 1986, and hence the middle parts of the data distributions i.e. that belongs to summer, shows a relatively higher volume.

The following table shows the average daily traffic by week-day in respect of each station. The period of one year on which averages are based is also mentioned against each station:

Table: B-7.1
ADT By Week-Day At 20 Permanent Stations

S.No	Name of Station	Year of Counting	Sun	Mon	Tue	Wed	Thu	Fri	Sat
01)	Attock	Sep85-Aug86	4891	4776	4855	4862	5128	4850	4749
02)	J.Kass	Sep85-Aug86	2203	2158	2122	2190	2420	2291	2254
03)	Jhelum	Sep85-Aug86	9293	9328	9351	9340	9813	9230	9176
04)	Pattok	Sep85-Aug86	5586	5550	5576	5722	5843	5706	5604
05)	Sutlaj	Sep85-Aug86	5504	5684	5732	5680	5734	5800	5526
06)	SdqBad	Sep85-Aug86	4811	5056	5048	5028	4885	5053	4410
07)	Moro	Nov85-Oct85	4362	4549	4606	4499	4381	4711	3859
08)	S.Hway	Nov85-Oct85	5920	6080	6021	6085	6201	5867	5832
09)	Gadani	Oct85-Sep86	889	911	921	907	912	844	864
10)	Quetta	Dec85-Nov86	6504	6459	6539	6716	6890	6069	6661
11)	Kohala	Aug86-Jul87	591	601	605	618	614	605	559
12)	Matni	Aug86-Jul87	4320	4417	4376	4379	4428	4181	4403
13)	Skhkot	Aug86-Jul87	3450	3568	3376	3526	3488	3497	3483
14)	Fthpur	Sep86-Aug87	2085	2145	2114	2076	2067	2022	2022
15)	Kamoki	Oct86-Sep87	12707	12850	12703	13085	12974	12825	12680
16)	SkhSwr	Jan87-Dec87	907	932	913	923	933	943	879
17)	Shkpur	Sep86-Aug87	1696	1766	1698	1694	1707	1557	1652
18)	HydBad	Sep86-Aug87	1264	1312	1302	1365	1361	1316	1277
19)	Besham	Oct86-Sep87	675	702	706	710	683	642	659
20)	Pezu	Jan87-Dec87	1177	1221	1342	1206	1245	1230	1185

It may be borne in mind that the above figures regarding the discussion on average daily traffic by week-day are based upon the first year data since the establishment of a station, irrespective of any calander year. But when a calendar year is taken into account, the picture of week-day averages is slightly different in absolute terms, though retains the relativity with other factors. The ADT By Week-Day from 1986 to 1989 can be seen at Annexure B-7.1 on calander year basis.

B-7.2 contribution to weekly flow and percentage of AADT

To examine the mutual relationship, average daily traffic by week-days is related to respective AADT and then to ultimate average weekly flow at a station. Furthermore, absolute week-day volumes are related to daily average of corresponding week, which, in turn, is discussed under the heading of "Week-day Multiplying Factors".

The table as under shows the week-day percentage of corresponding Annual Average Daily Traffic (AADT) and the contribution to average weekly flow at each station:-

Table:B-7.2.1
Percentage of Average Weekly Flow:

S.No	Name of Sta.	Sun	Mon	Tue	Wed	Thu	Fri	Sat
01)	Attock	14.57	13.96	14.19	14.22	14.99	14.18	13.89
02)	J.Kass	14.32	13.76	13.53	13.97	15.43	14.61	14.37
03)	Jhelum	14.41	14.20	14.23	14.21	14.93	14.05	13.96
04)	Pattok	14.34	13.98	14.05	14.42	14.72	14.38	14.12
05)	Sutlaj	14.11	14.29	14.42	14.28	14.42	14.56	13.90
06)	SdqBad	14.26	14.71	14.68	14.62	14.21	14.69	12.82
07)	Moro	14.32	14.65	14.83	14.49	14.11	15.17	12.43
08)	S.Hway	14.33	14.44	14.29	14.45	14.72	13.93	13.85
09)	Gadani	14.46	14.55	14.70	14.47	14.56	13.47	13.80
10)	Quetta	14.42	14.05	14.23	14.61	14.99	13.20	14.49
11)	Kohala	14.33	14.29	14.39	14.70	14.60	14.39	13.30
12)	Matni	14.39	14.44	14.31	14.32	14.48	13.67	14.39
13)	Skhkot	14.38	14.59	13.80	14.42	14.26	14.30	14.24
14)	Fthpur	14.59	14.72	14.51	14.25	14.19	13.87	13.88
15)	Kamoki	14.38	14.27	14.10	14.53	14.40	14.24	14.08
16)	SkhSwr	14.33	14.45	14.17	14.32	14.47	14.63	13.64
17)	Shkpur	14.65	14.96	14.39	14.35	14.46	13.19	14.00
18)	HydBad	13.98	14.23	14.12	14.80	14.76	14.27	13.85
19)	Besham	14.37	14.65	14.74	14.82	14.25	13.39	13.77
20)	Pezu	13.90	14.16	15.55	13.98	14.43	14.25	13.73
	Average	14.34	14.37	14.36	14.41	14.57	14.12	13.83

Table:B-7.2.2
Percentage of Annual Average Daily Traffic

S.No	Name of Sta.	Sun	Mon	Tue	Wed	Thu	Fri	Sat
01)	Attock	100	98	100	100	105	100	97
02)	J.Kass	99	97	95	98	108	103	101
03)	Jhelum	99	100	100	100	105	99	98
04)	Pattok	99	98	99	101	103	101	99
05)	Sutlaj	97	100	101	100	101	102	98
06)	SdqBad	98	103	103	103	100	103	90
07)	Moro	99	103	104	102	99	106	87
08)	S.Hway	99	101	100	101	103	98	97
09)	Gadani	100	102	103	102	102	94	97
10)	Quetta	99	99	100	103	105	93	102
11)	Kohala	99	100	101	103	103	101	93
12)	Matni	99	101	100	100	102	96	101
13)	Skhkot	99	102	97	101	100	100	100
14)	Fthpur	100	103	102	100	100	97	97
15)	Kamoki	99	100	99	102	101	100	99
16)	SkhSwr	99	101	100	101	102	103	96
17)	Shkpur	101	105	101	101	102	93	98
18)	HydBad	96	100	99	104	104	100	97
19)	Besham	99	103	104	104	100	94	97
20)	Pezu	96	99	109	98	101	100	96
	Average	99	101	101	101	102	99	97

In the first table:B-7.2.1), week-day flows are represented in terms of percentages of average weekly flow, i.e. if on average 100 vehicles pass through the Attock Bridge stations during a week, 14.99 of them passed on Thursday followed by 14.57 on Sunday and 14.19 on Tuesday.

In the last row overall averages based on first year data in respect of all stations are shown. The highest percentage of weekly flow belongs to Thursday when 14.57% of the average weekly traffic runs on roads in the country. Wednesday and Monday

trafic is the 14.41% and 14.37% of the weekly traffic respectively. Saturday contribute lowest share to average weekly flow when only 13.83 percent of traffic flows on the highways. Friday remains a light day with 14.12% of average weekly traffic.

The picture remains almost unchanged if the week-day flow is expressed in terms of the percentage of AADT at each station.

It can be seen in the last row of the second table (Table:8.7.2.2) that the trafic contributed to AADT by the week-days from Monday to Thursday is above the mean (AADT), whereas the shares of Sunday, Friday and Saturday are below the average segment with 99%, 99% and 97% of the mean, respectively. Thursday can be considered as the heaviest day with 102% whereas Saturday with 97% of AADT remains as the lowest flow day.

If the figures of N-5 stations are taken into account, Saturday (96.0%) appears as the lowest traffic day followed by Sunday with 98.99%. Monday reflects a normal character with 100 percent while the week-day from Tuesday to Friday are slightly above the normal line. It can be seen that at those stations which are not very far from Islamabad, Karachi, Lahore and Quetta Thursday remains as the highest flow day. This is, because working people in the main cities leave for their native towns for visiting their families at week-end. At N-5 stations Thursday has 102% of AADT on average.

Weekdays averages on the basis of calander years from 1985 to 1989, in respect of all 20 stations, can be seen at Annexure-B-7.1.

The following table is designed by taking average values (based on all stations) of week-day percentage of AADT shown against the respective year.

Table: B-7.2.3
Week-day Average Volume As % of AADT
From 1986 to 1989
(All Stations)

Week-day Years	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1986	98.0	99.8	101.2	101.1	100.9	100.9	95.0
1987	99.3	100.7	102.1	104.0	99.0	100.4	94.6
1988	98.2	102.4	101.0	99.8	99.7	102.2	96.8
1989	97.3	100.4	99.0	97.3	100.7	102.5	102.8
Average	98.2	100.8	100.8	100.6	101.5	101.5	97.3

B-7.3 Week-Day Multiplying Factors

Taking the absolute volume of first 365 days in respect of all stations, the data was fed with respect to days of week (Sunday,Monday,etc). Average Volume (for one day) of each week in the years was calculated for different stations. Then individual volume of different week-day was divided by the corresponding weekly average. The ratios so obtained were then

again averaged in order to obtain mean of all 7 week-days at a station. These ratios can be seen in the table as under:-

Table:B-7.3.1

Week-Days Ratios

S.No! Sun	! Mon	! Tue	! Wed	! Thu	! Fri	! Sat
01	1.0036	0.9800	0.9963	0.9978	1.0523	0.9953	0.9745
02	0.9861	0.9659	0.9500	0.9804	1.0834	1.0254	1.0090
03	0.9927	0.9965	0.9989	0.9977	1.0483	0.9860	0.9802
04	0.9877	0.9815	0.9860	1.0119	1.0331	1.0090	0.9910
05	0.9715	1.0033	1.0119	1.0026	1.0121	1.0237	0.9754
06	0.9822	1.0322	1.0306	1.0265	0.9972	1.0314	0.9002
07	0.9860	1.0284	1.0413	1.0171	0.9904	1.0650	0.8722
08	0.9866	1.0133	1.0034	1.0141	1.0333	0.9778	0.9719
09	0.9960	1.0211	1.0317	1.0160	1.0217	0.9453	0.9683
10	0.9933	0.9863	0.9986	1.0256	1.0523	0.9268	1.0173
11	0.9867	1.0033	1.0098	1.0320	1.0250	1.0098	0.9337
12	0.9913	1.0136	1.0043	1.0049	1.0162	0.9595	1.0103
13	0.9903	1.0240	0.9689	1.0121	1.0011	1.0038	0.9999
14	1.0045	1.0334	1.0181	1.0001	0.9958	0.9739	0.9741
15	0.9903	1.0014	0.9900	1.0198	1.0111	0.9995	0.9882
16	0.9871	1.0143	0.9946	1.0049	1.0154	1.0268	0.9572
17	1.0089	1.0503	1.0100	1.0072	1.0150	0.9258	0.9826
18	0.9625	0.9988	0.9912	1.0389	1.0357	1.0017	0.9720
19	0.9898	1.0286	1.0346	1.0400	1.0005	0.9402	0.9665
20	0.9572	0.9936	1.0914	0.9813	1.0131	1.0004	09638

Week-day Multiplying Factors for each station are obtained by taking the reciprocal of the ratios which are mentions in the Table:B-7.3.2 These WDMFs are as follows:

Table:B-7.3.2
Week-Day Multiplying Factors

S.No	Sun	Mon	Tue	Wed	Thu	Fri	Sat
01	0.9964	1.0204	1.0037	1.0022	0.9503	1.0047	1.0261
02	1.0141	1.0353	1.0526	1.0200	0.9230	0.9752	0.9911
03	1.0074	1.0036	1.0011	1.0023	0.9540	1.0142	1.0202
04	1.0125	1.0189	1.0142	0.9883	0.9679	0.9911	1.0090
05	1.0293	0.9967	0.9883	0.9974	0.9880	0.9768	1.0252
06	1.0181	0.9688	0.9703	0.9742	1.0028	0.9695	1.1109
07	1.0142	0.9724	0.9604	0.9832	1.0097	0.9390	1.1465
08	1.0136	0.9869	0.9966	0.9861	0.9678	1.0228	1.0289
09	1.0041	0.9794	0.9693	0.9842	0.9787	1.0579	1.0327
10	1.0068	1.0139	1.0014	0.9750	0.9503	1.0790	0.9830
11	1.0135	0.9967	0.9903	0.9690	0.9756	0.9903	1.0711
12	1.0087	0.9865	0.9958	0.9951	0.9840	1.0423	0.9898
13	1.0097	0.9765	1.0321	0.9881	0.9989	0.9962	1.0001
14	0.9956	0.9676	0.9822	0.9999	1.0042	1.0268	1.0266
15	1.0098	0.9986	1.0101	0.9806	0.9890	1.0005	1.0120
16	1.0130	0.9859	1.0054	0.9951	0.9848	0.9739	1.0447
17	0.9912	0.9521	0.9901	0.9929	0.9852	1.0801	1.0177
18	1.0389	1.0012	1.0089	0.9626	0.9655	0.9984	1.0288
19	1.0103	0.9722	0.9666	0.9615	0.9995	1.0636	1.0347
20	1.0447	1.0065	0.9162	1.0190	0.9871	0.9996	1.0375
Ave.	1.0126	0.9920	0.9928	0.9888	0.9783	1.0101	1.0319

B-8: Monthly Flow:

Traffic flow varies from hour to hour and day to day. So does it by month of a year and shows variation what is known as "monthly variation". In this section nature and pattern of monthly flow at various stations in the country is reviewed. Annexure B-8a is a table showing some important statistics about the monthly pattern in respect of all existing stations. It shows average daily traffic by month. Annexure B-8b shows the monthly percentage of corresponding AADTs, total yearly flow and mean monthly flow in respect of all stations. However, the following table summarizes the Annexures.

Table: B-8
Percentage of Mean
Monthly Flow and AADT

Months	Percentage of Total Yearly Flow	Percentage of Mean Monthly flow	Percentage of AADT
January	8.303	100.26	98.37
February	7.563	91.45	99.34
March	8.481	101.96	100.05
April	8.527	102.98	104.41
May	8.358	98.38	96.52
June	8.350	99.81	101.20
July	8.700	104.64	102.67
August	8.426	100.57	98.67
September	8.211	98.65	100.02
October	8.508	102.53	100.60
November	8.234	98.88	100.25
December	8.339	99.90	98.03
Average	8.33	100	100

The table which is based on the averages of all 20 stations reveals that except for February, all other months contribute from 8.211% to 8.700 to the total annual traffic flow. July and April dominate the monthly flow pattern with 8.70% and 8.53%,followed by October with 8.51% i.e. a reduction of just 0.19% and 0.02% when compared with April and July respectively. February, being the lowest flow month, contributes only 7.56% to the total yearly traffic. March,August and May contribute 8.48%, 8.43% and 8.36% respectively, whereas June and December are almost on the average monthly flow line segment with 8.35% and 8.34% respectively. The

second column of the table shows the percentages of mean monthly flow. Both the columns have a strong relationship with each other, since they illustrate the monthly flow pattern at different stations. All the troughs and crests of the two curves show indentical deflection. Monthly flow pattern in terms of percentage of AADTs is shown in the third column.

On averaging the mean values of different stations, it is found that variation by stations is low enough to prevent the values of co-efficient of variation from exceeding 11%. Only one month, August, show a co-efficient of variation of 13.77%,otherwise, the values of the rest of months remain in the limit from 5.13% to 11.00%. October shows the lowest co-efficient of variation of 5.132% followed by April, May and November with the values of 6.11%, 7.40% and 7.75% respectively. Low values of the co-efficients show the consistency of monthly pattern at various stations on different highways in the country. It could be concluded that the monthly flow pattern does not change significantly at different parts of the country. It is also concluded that there is a stronger consistency among the eight stations of N-5. The values of monthly co-efficient of variation in respect of N-5 stations are smaller than that of the stations set up on other highways or that of all 20 stations. Figure B-8 on page-97 reflects the monthly flow pattern at all 20 stations.

B-8.1: Monthly Multiplying Factors:

In order to obtain monthly multplying factors, absolute volume of each month is divided by the average monthly flow at a station during a specified year. The reciprocal of the ratios so obtained are shown in the Annexure B-8a. However, average of all stations is as under:

Table: B-8.1
Monthly Multiplying Factors

Months	M.M.F
January	0.9974
February	1.0935
March	0.9808
April	0.9711
May	1.0165
June	1.0019
July	0.9557
August	0.9943
September	1.0137
October	0.9753
November	1.0113
December	1.0010

B-8.2:Co-efficient of Seasonal (Monthly) Variation.

The Seasonal Variation,in terms of monthly fluctuation can be expressed as a factor related to the annual average daily traffic. The method is being used in the United Kingdom (Ref-20). In this method ADT of a specified month at a particular station is divided by the AADT of that station. For example, the co-efficient of seasonal variation say "C" for a month "Z" will be:

$$Ciz = \frac{\text{Average Daily Traffic for Z Month at Station 'i'}}{\text{Annual Average Daily Traffic at station 'i'}}$$

The following table shows co-efficicients of monthly seasonal variation in respect of all stations.

Table: B-8.2
Co-efficients of Monthly Seasonal Variation

Station	Jan	Feb	March	April	May	June
01	0.949	0.968	1.015	1.098	1.007	1.028
02	0.929	0.953	1.025	1.152	0.899	1.038
03	0.992	0.997	1.011	1.045	1.007	1.009
04	0.997	1.031	1.073	1.034	1.021	0.976
05	0.988	1.007	1.052	1.061	0.973	0.972
06	1.037	1.010	1.037	1.048	0.975	0.954
07	1.026	1.016	0.974	1.000	0.986	1.029
08	1.041	1.056	1.042	1.010	0.965	0.980
09	0.981	0.956	0.981	1.034	0.937	0.946
10	0.745	0.745	0.745	0.745	0.745	0.745
11	0.908	0.871	0.946	1.096	0.931	1.102
12	0.977	0.978	0.982	1.040	0.955	1.024
13	0.977	0.980	1.008	1.047	0.942	1.040
14	0.999	0.993	0.926	1.003	1.032	1.058
15	0.999	1.000	1.006	1.030	0.981	1.007
16	1.078	1.053	1.010	1.036	0.892	0.900
17	1.004	1.080	1.044	1.061	0.990	0.972
18	1.117	1.207	1.164	0.995	0.865	0.916
19	0.951	0.972	0.953	1.059	0.909	1.101
20	0.981	0.991	0.980	1.054	0.988	1.007
Ave.	0.984	0.993	0.999	1.032	0.950	0.990

Co-efficient of Monthly Seasonal Variation

Jul	Aug	Sep	Oct	Nov	Dec
1.044	1.068	0.985	0.961	0.944	0.932
1.077	1.039	1.019	0.990	0.975	0.906
1.024	0.988	0.998	0.972	0.975	0.982
0.995	0.952	0.922	0.955	1.035	1.011
0.975	0.933	1.009	0.996	1.028	1.007
0.954	0.901	0.932	1.027	1.076	1.048
1.016	0.920	0.926	1.014	1.052	1.041
0.941	0.988	0.976	0.958	1.009	1.037
1.053	1.016	1.089	1.048	1.005	0.947
0.745	0.745	0.745	0.745	0.745	0.745
1.204	0.945	1.098	1.012	1.023	0.865
1.000	1.022	1.009	1.018	1.011	0.984
1.006	1.038	1.005	1.010	0.975	0.973
1.033	0.944	0.976	1.031	1.019	0.988
1.005	0.997	0.989	0.995	0.997	0.992
0.969	0.993	1.000	1.033	1.000	1.045
0.887	0.847	0.900	1.044	0.991	1.079
1.146	1.123	1.091	0.929	0.877	0.897
0.986	0.946	0.925	0.987	1.047	1.076
0.999	0.968	0.977	0.988	0.992	0.976

ANNEXURES AND REFERENCES

ANNEXURE: A-3

PERMANENT TRAFFIC COUNT STATIONS

Sr. No.	Name of Stations	Location	Date of Establishment
1.	Attock	Peshawar - Rawalpindi Road (N-5)	September, 1985
2.	J.Kass	Hassanabdal-Abbottabad Road (N-35)	- do -
3.	Jhelum	Rawalpindi - Jhelum Road (N-5)	- do -
4.	Pattoki	Lahore - Sahiwal Road (N-5)	- do -
5.	Sutlaj	Multan - Bahawalpur Road (N-5)	- do -
6.	Sadiqabad	Rahimyar Khan-Sukkur Road(N-5)	- do -
7.	Khairpur	Khairpur - Hyderabad Road (N-5)	November, 1985
8.	Super hway	Hyderabad - Karachi Road (N-5)	- do -
9.	Gaddani	Karachi - Lasbela Road (N-5)	October, 1985
10.	Quetta	Sariab - Quetta Road (N-5)	December, 1985
11.	Kohala	Murree - Muzaffarabad Road	August, 1986
12.	Mattani	Peshawar - Kohat Road (N-55)	- do -
13.	Sakhakot	Mardan - Chitral Road	- do -
14.	Fateh Pur	Mianwali - Layyah Road	September, 1986
15.	Kamonke	Jhelum - Lahore Road (N-5)	October, 1986
16.	Sakhi Swr	Sakhi Sarwar - Quetta Road	January, 1987
17.	Shikarpur	Sukkur - Quetta Road (N-65)	September, 1986
18.	Thatta	Hyderabad - Thatta Road	- do -
19.	Besham	Manshera - Besham Road (N-35)	October, 1986
20.	Pezu	Bannu - D.I. Khan Road (N-55)	January, 1987

Attock Bridge

Hour	Avrg	S.Dev	Co.Var	% AADT	Mult.Fact
Hr 1	81	19	23	1.6622	0.6016
Hr 2	66	18	27	1.3544	0.7383
Hr 3	66	16	25	1.3544	0.7383
Hr 4	75	22	29	1.5391	0.6497
Hr 5	96	28	29	1.9700	0.5076
Hr 6	110	30	27	2.2573	0.4430
Hr 7	157	51	32	3.2218	0.3104
Hr 8	214	40	18	4.3915	0.2277
Hr 9	253	35	14	5.1919	0.1926
Hr10	266	34	12	5.4586	0.1832
Hr11	271	32	11	5.5613	0.1798
Hr12	272	33	12	5.5818	0.1792
Hr13	269	34	12	5.5202	0.1812
Hr14	274	30	11	5.6228	0.1778
Hr15	291	37	12	5.9717	0.1675
Hr16	323	44	13	6.6294	0.1509
Hr17	348	49	14	7.1414	0.1400
Hr18	336	37	11	6.8951	0.1450
Hr19	298	38	12	6.1153	0.1635
Hr20	243	25	10	4.9867	0.2005
Hr21	196	29	14	4.0222	0.2486
Hr22	146	24	16	2.9961	0.3338
Hr23	124	20	16	2.5446	0.3930
Hr24	100	16	16	2.0521	0.4873

Jhari Kass

Hr 1	19	6	32	0.8505	1.1758
Hr 2	14	6	43	0.6267	1.5957
Hr 3	14	5	36	0.6267	1.5957
Hr 4	13	5	38	0.5819	1.7185
Hr 5	16	7	44	0.7162	1.3963
Hr 6	40	19	48	1.7905	0.5585
Hr 7	74	28	38	3.3124	0.3019
Hr 8	105	20	19	4.7001	0.2128
Hr 9	134	19	14	5.9982	0.1667
Hr10	144	16	11	6.4458	0.1551
Hr11	143	23	16	6.4011	0.1562
Hr12	143	24	17	6.4011	0.1562
Hr13	138	22	16	6.1773	0.1619
Hr14	139	23	17	6.2220	0.1607
Hr15	144	26	18	6.4458	0.1551
Hr16	164	37	23	7.3411	0.1362
Hr17	169	35	21	7.5649	0.1322
Hr18	163	35	21	7.2963	0.1371
Hr19	140	31	22	6.2668	0.1596
Hr20	105	27	26	4.7001	0.2128
Hr21	79	23	29	3.5363	0.2828
Hr22	56	17	30	2.5067	0.3989
Hr23	40	14	35	1.7905	0.5585
Hr24	26	9	35	1.1638	0.8592

Jhelum Bridge

Hours	Avrg	S.Dev	Co.Var	% AADT	Mult.Fact
Hr 1	347	50	14	3.7069	0.2698
Hr 2	315	48	15	3.3650	0.2972
Hr 3	254	38	15	2.7134	0.3685
Hr 4	215	33	15	2.2968	0.4354
Hr 5	183	32	17	1.9549	0.5115
Hr 6	178	34	19	1.9015	0.5259
Hr 7	227	41	18	2.4250	0.4124
Hr 8	326	53	16	3.4825	0.2871
Hr 9	413	44	10	4.4119	0.2267
Hr10	424	37	8	4.5294	0.2208
Hr11	459	36	7	4.9033	0.2039
Hr12	467	38	8	4.9888	0.2004
Hr13	465	42	9	4.9674	0.2013
Hr14	467	32	6	4.9888	0.2004
Hr15	468	67	14	4.9995	0.2000
Hr16	519	41	7	5.5443	0.1804
Hr17	545	49	9	5.8220	0.1718
Hr18	557	37	6	5.9502	0.1681
Hr19	538	31	5	5.7472	0.1740
Hr20	469	50	10	5.0101	0.1996
Hr21	398	42	10	4.2517	0.2352
Hr22	379	39	10	4.0487	0.2470
Hr23	371	40	11	3.9633	0.2523
Hr24	367	41	11	3.9205	0.2551

Patoki Station

Hr 1	177	31	17	3.1300	0.3195
Hr 2	159	26	16	2.8117	0.3557
Hr 3	144	28	19	2.5464	0.3927
Hr 4	135	28	20	2.3873	0.4189
Hr 5	135	28	21	2.3873	0.4189
Hr 6	152	29	19	2.6879	0.3720
Hr 7	193	36	19	3.4129	0.2930
Hr 8	251	40	16	4.4385	0.2253
Hr 9	282	32	11	4.9867	0.2005
Hr10	281	30	11	4.9691	0.2012
Hr11	277	35	12	4.8983	0.2042
Hr12	279	34	12	4.9337	0.2027
Hr13	276	36	13	4.8806	0.2049
Hr14	262	37	14	4.6331	0.2158
Hr15	261	39	14	4.6154	0.2167
Hr16	293	45	15	5.1813	0.1930
Hr17	314	37	12	5.5526	0.1801
Hr18	319	36	11	5.6410	0.1773
Hr19	309	36	11	5.4642	0.1830
Hr20	265	35	13	4.6861	0.2134
Hr21	237	32	13	4.1910	0.2386
Hr22	230	32	14	4.0672	0.2459
Hr23	215	34	16	3.8019	0.2630
Hr24	198	33	16	3.5013	0.2856

Satlaj Bridge

Hours	Avrg	S.Dev	Co.Var	% AADT	Mult.Fact
Hr 1	173	28	16	3.0538	0.3275
Hr 2	158	26	16	2.7891	0.3585
Hr 3	151	21	14	2.6655	0.3752
Hr 4	149	21	14	2.6302	0.3802
Hr 5	149	21	14	2.6302	0.3802
Hr 6	163	25	15	2.8773	0.3475
Hr 7	207	39	18	3.6540	0.2737
Hr 8	259	28	10	4.5719	0.2187
Hr 9	270	30	11	4.7661	0.2098
Hr10	271	32	11	4.7838	0.2090
Hr11	267	29	11	4.7132	0.2122
Hr12	262	30	11	4.6249	0.2162
Hr13	259	27	10	4.5719	0.2187
Hr14	261	30	11	4.6072	0.2170
Hr15	264	31	11	4.6602	0.2146
Hr16	278	31	11	4.9073	0.2038
Hr17	311	39	12	5.4898	0.1822
Hr18	310	34	11	5.4722	0.1827
Hr19	310	31	10	5.4722	0.1827
Hr20	276	35	12	4.8720	0.2053
Hr21	250	31	12	4.4131	0.2266
Hr22	233	29	12	4.1130	0.2431
Hr23	221	32	14	3.9011	0.2563
Hr24	202	23	11	3.5658	0.2804

Sadiqabad Station

Hr 1	139	29	20	2.8379	0.3524
Hr 2	128	27	21	2.6133	0.3827
Hr 3	124	24	19	2.5316	0.3950
Hr 4	126	24	19	2.5725	0.3887
Hr 5	135	24	18	2.7562	0.3628
Hr 6	159	22	13	3.2462	0.3081
Hr 7	198	34	17	4.0425	0.2474
Hr 8	234	26	11	4.7775	0.2093
Hr 9	253	35	14	5.1654	0.1936
Hr10	271	40	14	5.5329	0.1807
Hr11	269	42	15	5.4920	0.1821
Hr12	263	39	15	5.3695	0.1862
Hr13	246	27	11	5.0225	0.1991
Hr14	232	26	11	4.7366	0.2111
Hr15	233	28	12	4.7570	0.2102
Hr16	237	40	17	4.8387	0.2067
Hr17	251	43	17	5.1245	0.1951
Hr18	247	37	15	5.0429	0.1983
Hr19	234	38	16	4.7775	0.2093
Hr20	208	40	19	4.2466	0.2355
Hr21	189	35	18	3.8587	0.2592
Hr22	180	37	20	3.6750	0.2721
Hr23	174	38	22	3.5525	0.2815
Hr24	155	34	22	3.1646	0.3160

Khairpur Station

Hour	Avrg	S.Dev	Co.Var	% AADT	Mult.Fact
Hr 1	149	29	19	3.3680	0.2969
Hr 2	143	26	18	3.2324	0.3094
Hr 3	134	25	18	3.0289	0.3301
Hr 4	128	24	18	2.8933	0.3456
Hr 5	131	25	19	2.9611	0.3377
Hr 6	141	24	17	3.1872	0.3138
Hr 7	175	39	22	3.9557	0.2528
Hr 8	212	40	18	4.7920	0.2087
Hr 9	223	37	16	5.0407	0.1984
Hr10	229	37	16	5.1763	0.1932
Hr11	230	37	16	5.1989	0.1923
Hr12	228	37	16	5.1537	0.1940
Hr13	223	37	16	5.0407	0.1984
Hr14	216	38	17	4.8825	0.2048
Hr15	204	37	18	4.6112	0.2169
Hr16	224	40	17	5.0633	0.1975
Hr17	230	42	18	5.1989	0.1923
Hr18	220	31	14	4.9729	0.2011
Hr19	204	33	16	4.6112	0.2169
Hr20	177	34	19	4.0009	0.2499
Hr21	164	32	19	3.7071	0.2698
Hr22	152	32	21	3.4358	0.2911
Hr23	150	33	22	3.3906	0.2949
Hr24	148	26	17	3.3454	0.2989

Super Highway

Hr 1	311	35	11	5.1825	0.1930
Hr 2	273	36	13	4.5492	0.2198
Hr 3	231	39	17	3.8494	0.2598
Hr 4	184	27	14	3.0662	0.3261
Hr 5	160	28	18	2.6662	0.3751
Hr 6	153	41	27	2.5496	0.3922
Hr 7	161	27	16	2.6829	0.3727
Hr 8	205	34	16	3.4161	0.2927
Hr 9	226	31	13	3.7660	0.2655
Hr10	230	36	15	3.8327	0.2609
Hr11	216	34	15	3.5994	0.2778
Hr12	217	38	15	3.6161	0.2765
Hr13	230	30	13	3.8327	0.2609
Hr14	243	35	14	4.0493	0.2470
Hr15	259	34	13	4.3159	0.2317
Hr16	291	40	13	4.8492	0.2062
Hr17	320	40	12	5.3324	0.1875
Hr18	336	36	10	5.5991	0.1786
Hr19	325	39	11	5.4158	0.1846
Hr20	282	33	11	4.6992	0.2128
Hr21	264	34	13	4.3993	0.2273
Hr22	272	39	14	4.5326	0.2206
Hr23	297	42	14	4.9492	0.2021

Gaddani Station

Hour	Avrg	S.Dev	Co.Var	% AADT	Mult.Fact
Hr 1	28	8	30	3.1355	0.3189
Hr 2	23	7	31	2.5756	0.3883
Hr 3	19	6	36	2.1277	0.4700
Hr 4	18	6	36	2.0157	0.4961
Hr 5	19	7	38	2.1277	0.4700
Hr 6	21	6	31	2.3516	0.4252
Hr 7	23	7	33	2.5756	0.3883
Hr 8	35	9	26	3.9194	0.2551
Hr 9	41	8	20	4.5913	0.2178
Hr10	41	8	19	4.5913	0.2178
Hr11	41	8	21	4.5913	0.2178
Hr12	39	8	21	4.3673	0.2290
Hr13	38	8	21	4.2553	0.2350
Hr14	41	8	19	4.5913	0.2178
Hr15	43	8	20	4.8152	0.2077
Hr16	54	11	22	6.0470	0.1654
Hr17	56	12	21	6.2710	0.1595
Hr18	57	11	19	6.3830	0.1567
Hr19	53	10	20	5.9351	0.1685
Hr20	48	11	24	5.3751	0.1860
Hr21	39	8	22	4.3673	0.2290
Hr22	37	9	24	4.1433	0.2414
Hr23	36	10	28	4.0314	0.2481
Hr24	33	9	29	3.6954	0.2706

Quetta Station

Hr 1	37	17	45	0.5651	1.7697
Hr 2	26	12	46	0.3971	2.5185
Hr 3	24	11	48	0.3665	2.7283
Hr 4	25	14	57	0.3818	2.6192
Hr 5	36	24	68	0.5498	1.8189
Hr 6	82	60	73	1.2523	0.7985
Hr 7	221	143	64	3.3751	0.2963
Hr 8	418	177	42	6.3836	0.1567
Hr 9	488	114	23	7.4527	0.1342
Hr10	476	91	19	7.2694	0.1376
Hr11	464	83	18	7.0861	0.1411
Hr12	452	85	18	6.9029	0.1449
Hr13	449	79	17	6.8571	0.1458
Hr14	451	79	17	6.8876	0.1452
Hr15	425	85	20	6.4905	0.1541
Hr16	429	80	18	6.5516	0.1526
Hr17	449	86	19	6.8571	0.1458
Hr18	442	99	22	6.7502	0.1481
Hr19	406	115	28	6.2004	0.1613
Hr20	315	124	39	4.8106	0.2079
Hr21	207	99	48	3.1613	0.3163
Hr22	134	60	45	2.0464	0.4887
Hr23	85	41	48	1.2981	0.7704
Hr24	54	31	56	0.8247	1.2126

Kohala Station

Hour	Avrg	S.Dev	Co.Var	% AADT	Mult.Fact
Hr 1	10	4	41	1.6694	0.5990
Hr 2	9	3	36	1.5025	0.6656
Hr 3	9	3	36	1.5025	0.6656
Hr 4	10	4	42	1.6694	0.5990
Hr 5	11	4	37	1.8364	0.5445
Hr 6	13	7	54	2.1703	0.4608
Hr 7	19	9	47	3.1720	0.3153
Hr 8	25	10	39	4.1736	0.2396
Hr 9	31	10	32	5.1753	0.1932
Hr10	33	10	32	5.5092	0.1815
Hr11	36	11	31	6.0100	0.1664
Hr12	39	12	30	6.5109	0.1536
Hr13	38	9	24	6.3439	0.1576
Hr14	35	8	24	5.8431	0.1711
Hr15	37	8	23	6.1770	0.1619
Hr16	38	10	27	6.3439	0.1576
Hr17	41	10	25	6.8447	0.1461
Hr18	38	10	28	6.3439	0.1576
Hr19	32	10	33	5.3422	0.1872
Hr20	25	9	38	4.1736	0.2396
Hr21	19	7	40	3.1720	0.3153
Hr22	15	6	41	2.5042	0.3993
Hr23	12	6	50	2.0033	0.4992
Hr24	11	5	44	1.8364	0.5445

Matni Station

Hr 1	24	9	38	0.5507	1.8158
Hr 2	20	7	38	0.4589	2.1790
Hr 3	20	8	42	0.4589	2.1790
Hr 4	33	12	38	0.7572	1.3206
Hr 5	41	14	36	0.9408	1.0629
Hr 6	87	13	15	1.9963	0.5009
Hr 7	174	15	8	3.9927	0.2505
Hr 8	255	21	8	5.8513	0.1709
Hr 9	298	26	9	6.8380	0.1462
Hr10	310	33	10	7.1134	0.1406
Hr11	305	31	10	6.9986	0.1429
Hr12	298	28	9	6.8380	0.1462
Hr13	300	27	9	6.8839	0.1453
Hr14	295	34	11	6.7692	0.1477
Hr15	304	39	12	6.9757	0.1434
Hr16	319	35	10	7.3199	0.1366
Hr17	302	25	8	6.9298	0.1443
Hr18	275	28	10	6.3102	0.1585
Hr19	242	24	10	5.5530	0.1801
Hr20	163	14	9	3.7402	0.2674
Hr21	116	21	18	2.6618	0.3757
Hr22	74	11	16	1.6980	0.5889
Hr23	54	16	30	1.2391	0.8070
Hr24	37	13	35	0.8490	1.1778

Sakhakot Station

Hour	Avrg	S.Dev	Co.Var	% AADT	Mult.Fact
Hr 1	29	7	26	0.8324	1.2014
Hr 2	22	6	29	0.6315	1.5836
Hr 3	18	5	29	0.5166	1.9356
Hr 4	20	6	29	0.5741	1.7420
Hr 5	26	8	30	0.7463	1.3400
Hr 6	57	7	12	1.6361	0.6112
Hr 7	116	7	6	3.3295	0.3003
Hr 8	186	14	7	5.3387	0.1873
Hr 9	226	26	11	6.4868	0.1542
Hr10	237	23	9	6.8025	0.1470
Hr11	241	20	8	6.9173	0.1446
Hr12	240	23	9	6.8886	0.1452
Hr13	229	25	11	6.5729	0.1521
Hr14	220	24	11	6.3146	0.1584
Hr15	227	26	11	6.5155	0.1535
Hr16	248	26	10	7.1183	0.1405
Hr17	255	24	9	7.3192	0.1366
Hr18	243	22	9	6.9747	0.1434
Hr19	216	26	12	6.1998	0.1613
Hr20	153	13	9	4.3915	0.2277
Hr21	107	8	8	3.0712	0.3256
Hr22	69	14	20	1.9805	0.5049
Hr23	57	9	16	1.6361	0.6112
Hr24	40	10	26	1.1481	0.8710

Fathehpur Station

Hr 1	63	12	19	3.0347	0.3295
Hr 2	57	12	22	2.7457	0.3642
Hr 3	52	11	22	2.5048	0.3992
Hr 4	50	11	22	2.4085	0.4152
Hr 5	51	9	19	2.4564	0.4071
Hr 6	52	13	26	2.5048	0.3992
Hr 7	65	13	20	3.1310	0.3194
Hr 8	102	31	31	4.9133	0.2035
Hr 9	122	16	13	5.8767	0.1702
Hr10	114	13	12	5.4913	0.1821
Hr11	107	12	11	5.1541	0.1940
Hr12	102	12	12	4.9133	0.2035
Hr13	101	12	12	4.8651	0.2055
Hr14	101	13	13	4.8651	0.2055
Hr15	101	13	13	4.8651	0.2055
Hr16	110	18	16	5.2987	0.1887
Hr17	114	14	12	5.4913	0.1821
Hr18	113	14	12	5.4432	0.1837
Hr19	106	16	15	5.1060	0.1958
Hr20	87	17	19	4.1908	0.2386
Hr21	77	16	20	3.7091	0.2696
Hr22	75	14	19	3.6127	0.2768
Hr23	72	15	21	3.4682	0.2883
Hr24	67	14	21	3.2274	0.3099

Kamonke Station

Hour	Avrg	S.Dev	Co.Var	%AADT	Mult.Fact
Hr 1	305	41	13	2.3769	0.4207
Hr 2	266	39	14	2.0729	0.4824
Hr 3	238	33	13	1.8547	0.5392
Hr 4	229	37	16	1.7846	0.5603
Hr 5	231	38	16	1.8002	0.5555
Hr 6	255	41	16	1.9872	0.5032
Hr 7	369	37	10	2.8756	0.3478
Hr 8	500	42	8	3.8965	0.2566
Hr 9	590	43	7	4.5979	0.2175
Hr10	637	52	8	4.9642	0.2014
Hr11	685	52	7	5.3382	0.1873
Hr12	688	53	7	5.3616	0.1865
Hr13	689	42	6	5.3694	0.1862
Hr14	658	39	6	5.1278	0.1950
Hr15	678	46	6	5.2837	0.1893
Hr16	748	37	5	5.8292	0.1716
Hr17	803	33	4	6.2578	0.1598
Hr18	831	33	4	6.4760	0.1544
Hr19	787	42	5	6.1331	0.1630
Hr20	702	37	5	5.4707	0.1828
Hr21	603	38	6	4.6992	0.2128
Hr22	514	37	7	4.0056	0.2496
Hr23	447	42	9	3.4835	0.2871
Hr24	368	39	10	2.8678	0.3487

Sakhi Sarwar

Hr 1	24	6	26	2.6144	0.3825
Hr 2	21	5	25	2.2876	0.4371
Hr 3	19	5	27	2.0697	0.4832
Hr 4	20	5	27	2.1786	0.4590
Hr 5	20	5	27	2.1786	0.4590
Hr 6	25	6	25	2.7233	0.3672
Hr 7	33	7	21	3.5948	0.2782
Hr 8	37	8	21	4.0305	0.2481
Hr 9	43	10	23	4.6841	0.2135
Hr10	44	11	25	4.7930	0.2086
Hr11	43	10	24	4.6841	0.2135
Hr12	44	10	23	4.7930	0.2086
Hr13	44	10	22	4.7930	0.2086
Hr14	43	10	24	4.6841	0.2135
Hr15	46	11	24	5.0109	0.1996
Hr16	52	11	22	5.6645	0.1765
Hr17	55	11	21	5.9913	0.1669
Hr18	55	11	20	5.9913	0.1669
Hr19	51	11	21	5.5556	0.1800
Hr20	46	8	19	5.0109	0.1996
Hr21	42	8	20	4.5752	0.2186
Hr22	37	7	20	4.0305	0.2481
Hr23	33	7	23	3.5948	0.2782

Shikarpur Station

Hour	Avrg	S.Dev	Co.Var	% AADT	Mult.Fact
Hr 1	27	8	32	1.6962	0.6226
Hr 2	26	8	31	1.5467	0.6465
Hr 3	24	8	32	1.4277	0.7004
Hr 4	25	9	36	1.4872	0.6724
Hr 5	29	10	34	1.7252	0.5797
Hr 6	36	10	29	2.1416	0.4669
Hr 7	54	17	32	3.2124	0.3113
Hr 8	74	14	19	4.4021	0.2272
Hr 9	93	16	18	5.5324	0.1808
Hr10	100	13	13	5.9488	0.1681
Hr11	105	13	13	6.2463	0.1601
Hr12	103	14	13	6.1273	0.1632
Hr13	101	14	14	6.0083	0.1664
Hr14	102	15	15	6.0678	0.1648
Hr15	102	16	16	6.0678	0.1648
Hr16	106	21	20	6.3058	0.1586
Hr17	110	18	16	6.5437	0.1528
Hr18	105	16	15	6.2463	0.1601
Hr19	98	16	16	5.8299	0.1715
Hr20	80	14	18	4.7591	0.2101
Hr21	60	13	22	3.5693	0.2802
Hr22	44	12	28	2.6175	0.3820
Hr23	34	7	21	2.0226	0.4944
Hr24	31	9	30	1.8441	0.5423

Thatta (Hydbad)

Hr 1	61	15	24	4.6423	0.2154
Hr 2	55	15	27	4.1857	0.2389
Hr 3	42	13	31	3.1963	0.3129
Hr 4	39	12	32	2.9680	0.3369
Hr 5	30	8	28	2.2831	0.4380
Hr 6	30	9	29	2.2831	0.4380
Hr 7	35	12	34	2.6636	0.3754
Hr 8	45	11	25	3.4247	0.2920
Hr 9	51	11	21	3.8813	0.2576
Hr10	51	11	21	3.8813	0.2576
Hr11	52	12	24	3.9574	0.2527
Hr12	51	12	24	3.8813	0.2576
Hr13	49	11	23	3.7291	0.2682
Hr14	49	12	24	3.7291	0.2682
Hr15	54	14	26	4.1096	0.2433
Hr16	60	13	21	4.5662	0.2190
Hr17	66	13	19	5.0228	0.1991
Hr18	74	15	20	5.6317	0.1776
Hr19	76	16	21	5.7839	0.1729
Hr20	71	17	24	5.4033	0.1851
Hr21	64	15	24	4.8706	0.2053
Hr22	64	17	27	4.8706	0.2053
Hr23	67	21	31	5.0989	0.1961
Hr24	66	20	30	5.0228	0.1991

Besham Station

Hour	Avrg	S.Dev	Co.Var	%AADT	Mult.Fact
Hr 1	6	1	27	0.8798	1.1367
Hr 2	5	1	37	0.7331	1.3640
Hr 3	4	1	40	0.5865	1.7050
Hr 4	3	0	28	0.4399	2.2733
Hr 5	3	1	40	0.4399	2.2733
Hr 6	6	1	25	0.8798	1.1367
Hr 7	18	9	49	2.6393	0.3789
Hr 8	37	9	25	5.4252	0.1843
Hr 9	48	10	22	7.0381	0.1421
Hr10	53	9	17	7.7713	0.1287
Hr11	52	9	17	7.6246	0.1312
Hr12	49	8	18	7.1848	0.1392
Hr13	48	8	18	7.0381	0.1421
Hr14	45	8	19	6.5982	0.1516
Hr15	43	9	21	6.3050	0.1586
Hr16	45	9	20	6.5982	0.1516
Hr17	46	9	20	6.7449	0.1483
Hr18	44	10	22	6.4516	0.1550
Hr19	37	12	34	5.4252	0.1843
Hr20	26	12	46	3.8123	0.2623
Hr21	19	8	43	2.7859	0.3589
Hr22	14	5	38	2.0528	0.4871
Hr23	11	5	49	1.6129	0.6200
Hr24	8	4	53	1.1730	0.8525

Pezu Station

Hr 1	34	8	23	2.7665	0.3615
Hr 2	32	8	25	2.6037	0.3841
Hr 3	26	8	31	2.1155	0.4727
Hr 4	25	6	25	2.0342	0.4916
Hr 5	27	7	27	2.1969	0.4552
Hr 6	35	11	31	2.8478	0.3511
Hr 7	51	17	32	4.1497	0.2410
Hr 8	63	10	17	5.1261	0.1951
Hr 9	64	10	16	5.2075	0.1920
Hr10	64	11	17	5.2075	0.1920
Hr11	63	11	18	5.1261	0.1951
Hr12	63	11	18	5.1261	0.1951
Hr13	63	11	18	5.1261	0.1951
Hr14	63	12	19	5.1261	0.1951
Hr15	62	11	18	5.0448	0.1982
Hr16	68	13	20	5.5330	0.1807
Hr17	68	11	17	5.5330	0.1807
Hr18	64	10	16	5.2075	0.1920
Hr19	59	10	17	4.8007	0.2083
Hr20	50	10	21	4.0683	0.2458
Hr21	48	9	19	3.9056	0.2560
Hr22	45	9	20	3.6615	0.2731
Hr23	41	9	24	3.3360	0.2998
Hr24	39	10	25	3.1733	0.3151

Attock Bridge

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wd	Thu	Fri	Sat
a	Mean	4891	4776	4855	4862	5128	4850	4749
b	% of AADT	100	98	100	100	105	100	97
c	% Of Wkly Flw	14.57	13.96	14.419	14.22	14.99	14.18	13.89
d	Mult.Factor	0.9964	1.0204	1.0037	1.0022	0.9503	1.0047	1.0261

Jhari Kass

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wd	Thu	Fri	Sat
a	Mean	2203	2158	2122	2190	2420	2291	2254
b	% of AADT	99	97	95	98	108	103	101
c	% of Wkly Flw	14.32	13.76	13.53	13.97	15.43	14.61	14.37
d	Mult.Factor	1.0141	1.0353	1.0526	1.02	0.923	0.9752	0.9911

Jhelum Bridge

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wd	Thu	Fri	Sat
a	Mean	9293	9328	9351	9340	9813	9230	9176
b	% of AADT	99	100	100	100	105	99	98
c	% of Wkly Flw	14.41	14.2	14.23	14.21	14.93	14.05	13.96
d	Mult.Factor	1.0074	1.0036	1.0011	1.0023	0.954	1.0142	1.0202

PattokiStation

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wd	Thu	Fri	Sat
a	Mean	5586	5550	5576	5722	5843	5706	5604
b	% of AADT	99	98	99	101	103	101	99
c	% of Wkly Flw	14.34	13.98	14.05	14.42	14.72	14.38	14.12
d	Mult.Factor	1.0125	1.0189	1.0142	0.9883	0.9679	0.9911	1.009

Satlaj Bridge

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wd	Thu	Fri	Sat
a	Mean	5504	5684	5732	5680	5734	5800	5526
b	% of AADT	97	100	101	100	101	102	98
c	% of Wkly Flw	14.11	14.29	14.42	14.28	14.42	14.58	13.9
d	Mult.Factor	1.0293	0.9967	0.9883	0.9974	0.988	0.9768	1.0252

Sadiqab Station

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wd	Thu	Fri	Sat
a	Mean	4811	5056	5048	5028	4885	5053	4410
b	% of AADT	98	103	103	103	100	103	90
c	% of Wkly Flw	14.26	14.71	14.68	14.62	14.21	14.69	12.82
d	Mult.Factor	1.0181	0.9688	0.9703	0.9742	1.0028	0.9695	1.1109

Khairpur Station

		Days Of Week						
S.	Parameter	Sun	Mon	Tue	Wd	Thu	Fri	Sat
a	Mean	4362	4549	4606	4499	4381	4711	3859
b	% of AADT	99	103	104	102	99	106	87
c	% of Wkly Flw	14.32	14.65	14.83	14.49	14.11	15.17	12.43
d	Mult.Factor	1.0142	0.9724	0.9604	0.9832	1.0097	0.939	1.1465

Super Highway

		Days Of Week						
S.	Parameter	Sun	Mon	Tue	Wd	Thu	Fri	Sat
a	Mean	5920	6080	6021	6085	6201	5867	5832
b	% of AADT	99	101	100	101	103	98	97
c	% of Wkly Flw	14.33	14.44	14.29	14.45	14.72	13.93	13.85
d	Mult.Factor	1.0136	0.9869	0.9966	0.9861	0.9678	1.0228	1.0289

Gaddani Station

		Days Of Week						
S.	Parameter	Sun	Mon	Tue	Wd	Thu	Fri	Sat
a	Mean	889	911	921	907	912	844	864
b	% of AADT	100	102	103	102	102	94	97
c	% of Wkly Flw	14.46	14.55	14.7	14.47	14.56	13.47	13.8
d	Mult.Factor	1.0041	0.9794	0.9693	0.9842	0.9787	1.0579	1.0327

Quetta Station

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wed	Thu	Fri	Sat
a	Mean	6504	6459	6539	6716	6890	6069	6661
b	% of AADT	99	99	100	103	105	93	102
c	% of Wkly Flw	14.42	14.05	14.23	14.61	14.99	13.2	14.49
d	Mult.Factor	1.0068	1.0139	1.0014	0.975	0.9503	1.079	0.983

Kohala Station

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wed	Thu	Fri	Sat
a	Mean	591	601	605	618	614	605	559
b	% of AADT	99	100	101	103	103	101	93
c	% of Wkly Flw	14.33	14.29	14.39	14.7	14.6	14.39	13.3
d	Mult.Factor	1.0135	0.9967	0.9903	0.9690	0.9756	0.9903	1.0711

Mattani Station

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wed	Thu	Fri	Sat
a	Mean	4320	4417	4376	4379	4428	4181	4403
b	% of AADT	99	101	100	100	102	96	101
c	% of Wkly Flw	14.39	14.44	14.31	14.32	14.48	13.67	14.39
d	Mult.Factor	1.0087	0.9865	0.9958	0.9951	0.984	1.0423	0.9898

Sakha Kot

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wed	Thu	Fri	Sat
a	Mean	3450	3568	3376	3526	3488	3497	3483
b	% of AADT	99	102	97	101	100	100	100
c	% of Wkly Flw	14.38	14.59	13.8	14.42	14.26	14.3	14.24
d	Mult.Factor	1.0097	0.9765	1.0321	0.9881	0.9989	0.9962	0.0001

Fathepur Station

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wed	Thu	Fri	Sat
a	Mean	2085	2145	2114	2076	2067	2022	2022
b	% of AADT	100	103	102	100	100	97	97
c	% of Wkly Flw	14.59	14.72	14.51	14.25	14.19	13.87	13.88
d	Mult.Factor	0.9956	0.9676	0.9822	0.9999	1.0042	1.0268	1.0266

Kamonke Station

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wed	Thu	Fri	Sat
a	Mean	12707	12850	12703	13085	12974	12825	12680
b	% of AADT	99	100	99	102	101	100	99
c	% of Wkly Flw	14.38	14.27	14.1	14.53	14.4	14.24	14.08
d	Mult.Factor	1.0098	0.9986	1.0101	0.9806	0.989	1.0005	1.012

Sakhi Sarwar

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wed	Thu	Fri	Sat
a	Mean	907	932	913	923	933	943	879
b	% of AADT	99	101	100	101	102	103	96
c	% of Wkly Flw	14.33	14.45	14.17	14.32	14.47	14.63	13.64
d	Mult.Factor	1.013	0.9859	1.0054	0.9951	0.9848	0.9739	1.0447

Shikarpur Station

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wed	Thu	Fri	Sat
a	Mean	1696	1766	1698	1694	1707	1557	1652
b	% of AADT	101	105	101	101	102	93	98
c	% of Wkly Flw	14.65	14.96	14.39	14.35	14.46	13.19	14
d	Mult.Factor	0.9912	0.9521	0.9901	0.9929	0.9852	1.0801	1.0177

Thatta Station

S.	Parameter	Days Of Week						
		Sun	Mon	Tue	Wed	Thu	Fri	Sat
a	Mean	1264	1312	1302	1365	1361	1316	1277
b	% of AADT	96	100	99	104	104	100	97
c	% of Wkly Flw	13.98	14.23	14.12	14.8	14.76	14.27	13.85
d	Mult.Factor	1.0389	1.0012	1.0089	0.9626	0.9655	0.9984	1.0288

Besham Station

		Days Of Week						
S.	Parameter	Sun	Mon	Tue	Wd	Thu	Fri	Sat
a	Mean	675	702	706	710	683	642	659
b	% of AADT	99	103	104	104	100	94	97
c	% of Wkly Flw	14.37	14.65	14.74	14.82	14.25	13.39	13.77
d	Mult.Factor	1.0103	0.9722	0.9666	0.9615	0.9995	1.0636	1.0347

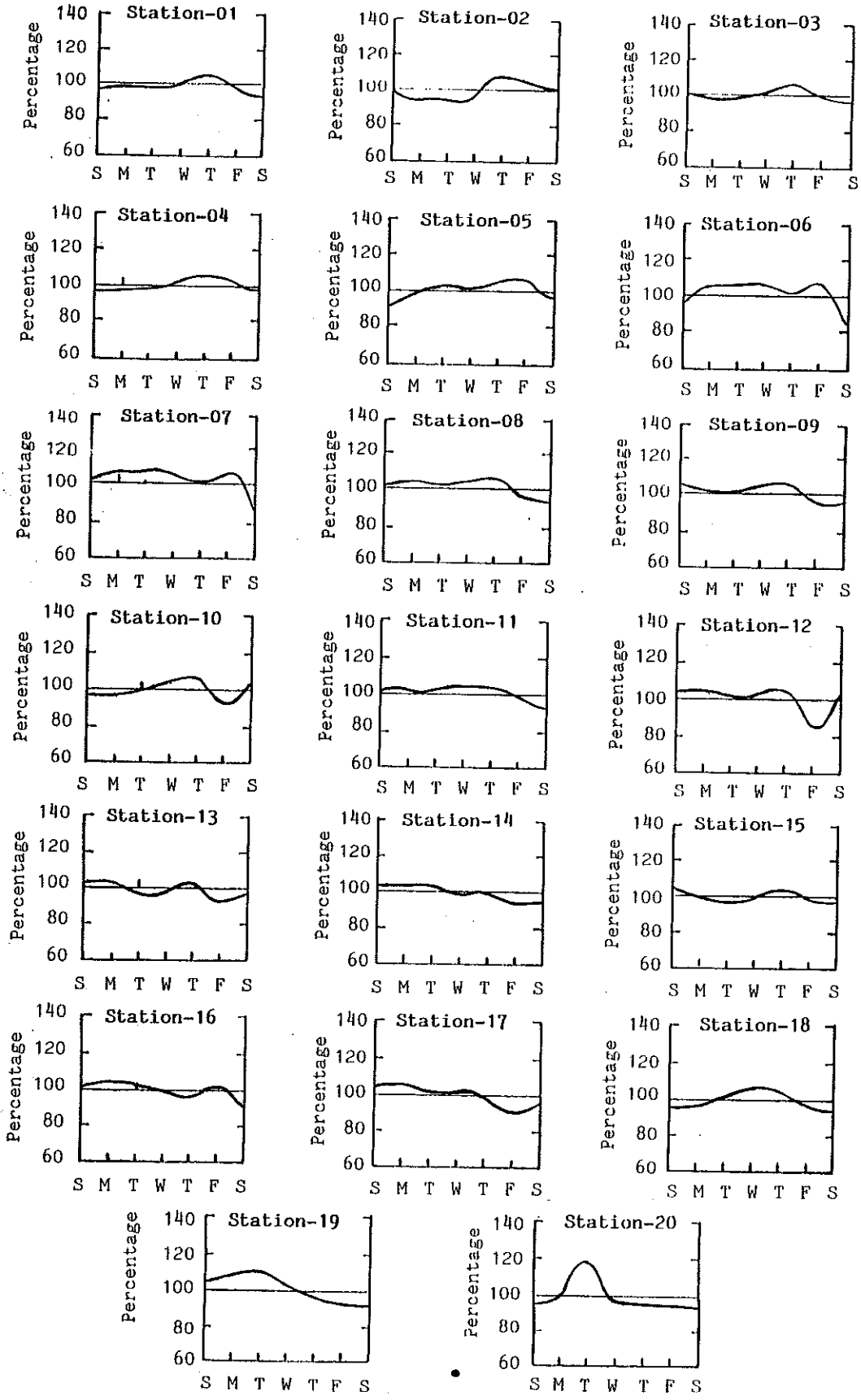
Pezu Station

		Days Of Week						
S.	Parameter	Sun	Mon	Tue	Wd	Thu	Fri	Sat
a	Mean	1177	1221	1342	1206	1245	1430	1185
b	% of AADT	96	99	109	98	101	100	96
c	% of Wkly Flw	13.9	14.16	15.55	13.98	14.43	14.25	13.73
d	Mult.Factor	1.0447	1.0065	0.9162	1.019	0.9871	0.9996	1.0375

All Stations

		Days Of Week						
S.	Parameter	Sun	Mon	Tue	Wd	Thu	Fri	Sat
a	% of AADT	99	101	101	101	102	99	97
b	% of Wkly Flw	14.34	14.37	14.36	14.41	14.57	14.12	13.83
c	Mult.Factor	1.0126	0.992	0.9928	0.9888	0.9783	1.0101	1.0318

WEEKLY FLOW PATTERN AT 20 STATIONS
PERCENTAGE OF A.A.D.T.



Annexure B 7.1

Average Daily Traffic By Week-Day
(1986)

Station	Sun	Mon	Tue	Wed	Thud	Fri	Sat
Attock	5057	4989	5046	5049	5263	5167	4966
Jhari Kass	2220	2195	2169	2256	2419	2335	2300
Jhelum	9407	9500	9472	9469	10010	9563	9233
Pattoki	5840	5805	5855	5958	6096	6072	5812
Sutlaj	5523	5757	5843	5798	5790	5954	5705
Sadiqabad	4636	5018	4995	5000	4821	5030	4564
Khairpur	4630	4586	4673	4489	4440	4595	3956
Sup.Highway	6081	6148	6147	6211	6248	5836	5807
Gaddani	924	927	931	935	928	859	902
Quetta	6430	6320	6478	6576	6763	6027	6586

Annexure B 7.1

Average Daily Traffic By Week-Day
(1987)

Station	Sun	Mon	Tue	Wed	Thud	Fri	Sat
Attock	5614	5590	5636	5534	5507	5683	5393
Jhari Kass	2373	2373	2373	2355	2357	2398	2354
Jhelum	10265	10170	10212	10398	10155	10625	9511
Pattoki	6201	6159	6147	6408	6339	6639	6056
Sutlaj	5939	5966	5954	6008	5787	6180	5988
Sadiqabad	4794	5088	5283	5216	5019	5332	5003
Khairpur	4365	4839	4824	5005	4869	4842	4259
Sup.Highway	6668	6931	7024	6982	6727	6649	5150
Gaddani	945	986	960	992	961	951	825
Quetta	5196	5199	5212	5059	5114	5024	5023
Kohala	620	633	622	642	615	610	588
Matani	4468	4444	4390	4374	4415	4250	4401
Sakhakot	3571	3622	3485	3542	3546	3588	3527
Fatehpur	2180	2164	2163	2145	2113	2086	2014
Kamonki	12967	12967	12799	12995	12917	13032	12789
Sakhi Sarwar	924	932	913	923	915	943	879
Shikar Pur	1898	1911	1869	1873	1860	1757	1789
Thatta	1326	1333	1353	1419	1411	1382	1320
Besham	707	718	728	712	704	660	680
Pezu	1199	1221	1342	1206	1222	1230	1185

Annexure B 7.1

Average Daily Traffic By Week-Day
(1988)

Station	Sun	Mon	Tue	Wed	Thud	Fri	Sat
Attock	5506	5659	5752	5521	5558	5935	5516
Jhari Kass	2501	2529	2517	2502	2515	2566	2528
Jhelum	10546	10561	10608	10560	10552	10653	10453
Pattoki	6413	6409	6337	6567	6636	6743	6351
Sutlaj	5826	6218	6303	6315	6415	6412	6304
Sadiqabad	4953	5244	5372	5364	5231	5390	5282
Khairpur	5003	5147	5149	5170	5282	4814	4827
Sup.Highway	6830	6828	6791	6950	7006	6811	6064
Gaddani	980	1027	1011	1012	1013	1059	850
Quetta	4895	4969	4967	4922	4909	4952	4703
Kohala	629	637	643	652	631	676	639
Matani	4552	4547	4587	4464	4541	4453	4479
Sakhakot	3539	3773	3698	3581	3870	3625	3678
Fatehpur	2303	2326	2358	2309	2401	2238	2181
Kamonki	13222	13177	13063	13004	13031	13850	13198
Sakhi Sarwar	1120	1085	1125	1073	1140	1120	1108
Shikar Pur	2217	2302	2264	2317	2202	2208	2290
Thatta	1400	1389	1359	1376	1363	1395	1377
Besham	767	820	816	816	815	793	737
Pezu	1296	1290	1403	1445	1343	1368	1298

Annexure B 7.1

Average Daily Traffic By Week-Day
(1989)

Station	Sun	Mon	Tue	Wed	Thud	Fri	Sat
Attock	6066	6126	6217	6102	6240	6615	6093
Jhari Kass	2666	2669	2654	2690	2658	2727	2682
Jhelum	10377	10478	10660	10866	10961	11432	10280
Pattoki	6665	6740	6574	6731	6699	6717	6664
Sutlaj	6166	6105	6287	6463	6462	6515	6351
Sadiqabad	5071	5347	6358	5436	5343	5336	5434
Khairpur	4566	5180	5377	5565	5469	5227	5123
Sup.Highway	6942	6876	6671	6778	7071	6901	7077
Gaddani	995	1074	1052	1070	1057	1065	961
Quetta	4727	4663	4714	4743	4710	4900	4474
Kohala	657	669	693	694	715	708	681
Matani	4583	4574	4628	4598	4678	4639	4490
Sakhakot	3948	4083	4154	3997	3979	4238	3766
Fatehpur	2533	2614	2742	2632	2556	2562	2391
Kamonki	13549	13564	13272	13534	13455	14093	13721
Sakhi Sarwar	1184	1272	1512	1302	1273	1214	1273
Shikar Pur	2110	2105	2155	2140	2561	2171	2212
Thatta	1443	1420	1446	1440	1411	1400	1463
Besham	767	852	863	873	677	841	792
Pezu	1334	1319	1382	1500	1381	1380	1284

Average Daily Traffic By Month , Percentage Of AADT , Monthly Multiplying Factor And Coefficient Of Monthly Seasonal Variation

Attock Bridge

Month	Mean/ADT	% Of AADT	* M.M.F	* C.M.S.V
JAN	4624	94.90	0.9671	0.949
FEB	4718	96.81	0.8912	0.968
MAR	4945	101.48	1.0342	1.015
APR	5350	109.78	1.0827	1.098
MAY	4908	100.73	1.0265	1.007
JUN	5009	102.78	1.0137	1.028
JUL	5089	104.44	1.0644	1.044
AUG	5205	106.81	1.0885	1.068
SEP	4800	98.49	0.9714	0.985
OCT	4684	96.11	0.9795	0.961
NOV	4601	94.41	0.9311	0.944
DEC	4540	93.17	0.9495	0.932

Jhari Kass

Month	Mean/ADT	% Of AADT	* M.M.F	* C.M.S.V
JAN	2075	92.66	0.9464	0.929
FEB	2129	95.32	0.8774	0.953
MAR	2291	102.54	1.0450	1.025
APR	2574	115.20	1.1362	1.152
MAY	2009	89.92	0.9164	0.899
JUN	2319	103.79	1.0237	1.038
JUL	2406	107.68	1.0974	1.077
AUG	2321	103.89	1.0588	1.039
SEP	2276	101.90	1.0050	1.019
OCT	2211	98.98	1.0088	0.990
NOV	2178	97.51	0.9617	0.975
DEC	2024	90.58	0.9232	0.906

* M.M.F = Monthly Multiplying Factor
C.M.S.V = Co-efficient Of Monthly Seasonal Variation

Average Daily Traffic By Month , Percentage Of AADT , Monthly Multiplying Factor And Coefficient Of Monthly Seasonal Variation

Jhelum Bridge

Month	Mean/ADT	% Of AADT	* M.M.F	* C.M.S.V
JAN	9287	99.21	1.0111	0.992
FEB	9330	99.66	0.9174	0.997
MAR	9463	101.09	1.0302	1.011
APR	9784	104.52	1.0309	1.045
MAY	9431	100.75	1.0268	1.007
JUN	9443	100.88	0.995	1.009
JUL	9584	102.38	1.0434	1.024
AUG	9252	98.84	1.0073	0.988
SEP	9346	99.84	0.9847	0.998
OCT	9096	97.17	0.9903	0.972
NOV	9129	97.52	0.9618	0.975
DEC	9195	98.23	1.0011	0.982

Pattoki

Month	Mean/ADT	% Of AADT	* M.M.F	* C.M.S.V
JAN	5636	99.67	1.0157	0.997
FEB	5832	103.12	0.9493	1.031
MAR	6070	107.33	1.0939	1.073
APR	5847	103.39	1.0197	1.034
MAY	5775	102.12	1.0408	1.021
JUN	5522	97.65	0.9631	0.976
JUL	5626	99.49	1.0140	0.995
AUG	5382	95.17	0.9700	0.952
SEP	5212	92.16	0.9089	0.922
OCT	5400	95.5	0.9733	0.955
NOV	5855	103.54	1.0212	1.035
DEC	5716	101.08	1.0301	1.011

* M.M.F = Monthly Multiplying Factor
C.M.S.V = Co-efficient Of Monthly Seasonal Variation

Average Daily Traffic By Month , Percentage Of AADT , Monthly Multiplying Factor And Coefficient Of Monthly Seasonal Variation

Sutlag Bridge

Month	Mean/ADT	% Of AADT	* M.M.F	* C.M.S.V
JAN	5598	98.81	1.0071	0.988
FEB	5708	100.74	0.9275	1.007
MAR	5962	105.23	1.0726	1.052
APR	6009	106.05	1.0462	1.061
MAY	5512	97.28	0.9916	0.973
JUN	5508	97.21	0.9589	0.972
JUL	5526	97.53	0.9942	0.975
AUG	5289	93.35	0.9515	0.933
SEP	5715	100.87	0.995	1.009
OCT	5642	99.58	1.015	0.996
NOV	5826	102.82	1.0142	1.028
DEC	5705	100.68	1.0262	1.007

Sadiqabad

Month	Mean/ADT	% Of AADT	* M.M.F	* C.M.S.V
JAN	5082	103.74	1.0575	1.037
FEB	4949	101.01	0.93	1.01
MAR	5079	103.67	1.0567	1.037
APR	5137	104.85	1.0342	1.048
MAY	4778	97.53	0.9941	0.975
JUN	4674	95.4	0.941	0.954
JUL	4671	95.36	0.972	0.954
AUG	4416	90.14	0.9188	0.901
SEP	4568	93.25	0.9198	0.932
OCT	5032	102.71	1.0469	1.027
NOV	5271	107.58	1.0612	1.076
DEC	5132	104.76	1.0678	1.048

* M.M.F = Monthly Multiplying Factor
C.M.S.V = Co-efficient Of Monthly Seasonal Variation

Annexure:B-8a

Average Daily Traffic By Month, Percentage Of AADT, Monthly Multiplying Factor and Coefficient of Monthly seasonal Variation

Moro Station

Month	Mean/ADT	% of AADT	* M.M.F	* C.M.S.V
JAN	4540	102.62	1.0459	1.026
FEB	4496	101.62	0.9355	1.016
MAR	4310	97.43	0.9931	0.974
APR	4424	99.99	0.9863	1.000
MAY	4363	98.61	1.0051	0.986
JUN	4553	102.92	1.0151	1.029
JUL	4494	101.58	1.0354	1.016
AUG	4070	92.00	0.9377	0.920
SEP	4099	92.64	0.9138	0.926
OCT	4486	101.41	1.0336	1.014
NOV	4656	105.23	1.0380	1.052
DEC	4604	104.07	1.0606	1.041

Super Highway

Month	Mean/ADT	% of AADT	* M.M.F	* C.M.S.V
JAN	6246	104.08	1.0608	1.041
FEB	6337	105.59	0.9721	1.056
MAR	6256	104.25	1.0625	1.042
APR	6061	101.00	0.9962	1.010
MAY	5792	96.52	0.9837	0.965
JUN	5883	98.03	0.9669	0.980
JUL	5649	94.13	0.9594	0.941
AUG	5931	98.84	1.0074	0.988
SEP	5858	97.61	0.9628	0.976
OCT	5750	95.82	0.9766	0.958
NOV	6054	100.88	0.9950	1.009
DEC	6220	103.66	1.0565	1.037

* M.M.F = Monthly Multiplying Factor
C.M.S.V = Co-efficient of Monthly Seasonal Variation

Annexure:B-8a

Average Daily Traffic By Month, Percentage Of AADT, Monthly Multiplying Factor and Coefficient of Monthly seasonal Variation

Gadani Station

Month	Mean/ADT	% of AADT	* M.M.F	* C.M.S.V
JAN	876	98.09	1.0001	0.981
FEB	853	95.57	0.8802	0.956
MAR	876	98.09	1.0002	0.981
AFR	924	103.43	1.0206	1.034
MAY	837	93.72	0.9556	0.937
JUN	845	94.64	0.9338	0.946
JUL	940	105.28	1.0735	1.053
AUG	908	101.64	1.0363	1.016
SEP	973	108.91	1.0747	1.089
OCT	936	104.76	1.0682	1.048
NOV	898	100.51	0.9917	1.005
DEC	845	94.65	0.9651	0.947

Quetta Station

Month	Mean/ADT	% of AADT	* M.M.F	* C.M.S.V
JAN	4880	74.52	0.7595	0.745
FEB	4970	74.93	0.6898	0.749
MAR	5095	77.81	0.7930	0.778
APR	6405	97.82	0.9648	0.978
MAY	6861	104.77	1.0678	1.048
JUN	7723	117.94	1.1632	1.179
JUL	8441	128.91	1.3138	1.289
AUG	7387	112.81	1.1497	1.128
SEP	7967	121.66	1.1999	1.217
OCT	7256	110.82	1.1294	1.108
NOV	6198	94.66	0.9336	0.946
DEC	5386	82.25	0.8355	0.822

* M.M.F = Monthly Multiplying Factor
C.M.S.V = Co-efficient of Monthly Seasonal Variation

Average Daily Traffic By Month , Percentage Of AADT , Monthly Multiplying Factor And Coefficient Of Monthly Seasonal Variation

Kohala Station

Month	Mean/ADT	% Of AADT	* M.M.F	* C.M.S.V
JAN	544	90.76	0.9248	0.908
FEB	522	87.10	0.8016	0.871
MAR	566	94.57	0.9636	0.946
APR	657	109.64	1.0811	1.096
MAY	559	93.12	0.9488	0.931
JUN	660	110.21	1.0867	1.102
JUL	721	120.38	1.2266	1.204
AUG	566	94.51	0.9630	0.945
SEP	658	109.85	1.0832	1.098
OCT	606	101.16	1.0307	1.012
NOV	613	102.29	1.0086	1.023
DEC	518	86.49	0.8813	0.865

Matni Station

Month	Mean/ADT	% Of AADT	* M.M.F	* C.M.S.V
JAN	4259	97.72	0.9960	0.977
FEB	4261	97.78	0.9002	0.978
MAR	4282	98.25	1.0014	0.982
APR	4532	103.98	1.0257	1.04
MAY	4162	95.51	0.9735	0.955
JUN	4462	102.39	1.0100	1.024
JUL	4359	100.03	1.0196	1
AUG	4454	102.21	1.0418	1.022
SEP	4396	100.86	0.9949	1.009
OCT	4434	101.75	1.0371	1.018
NOV	4404	101.07	0.9969	1.011
DEC	4288	98.40	1.0030	0.984

* M.M.F = Monthly Multiplying Factor
C.N.S.V = Co-efficient Of Monthly Seasonal Variation.

Average Daily Traffic By Month , Percentage Of AADT , Monthly Multiplying Factor And Coefficient Of Monthly Seasonal Variation

Sakha Kot

Month	Mean/ADT	% Of AADT	* M.M.F	* C.M.S.V
JAN	3403	97.67	0.9954	0.977
FEB	3413	97.96	0.9018	0.980
MAR	3511	100.77	1.0270	1.008
APR	3648	104.72	1.0329	1.047
MAY	3283	94.22	0.9603	0.942
JUN	3623	103.98	1.0256	1.040
JUL	3505	100.60	1.0253	1.006
AUG	3616	103.80	1.0580	1.038
SEP	3502	100.53	0.9915	1.005
OCT	3517	100.95	1.0289	1.010
NOV	3395	97.46	0.9613	0.975
DEC	3391	97.32	0.9919	0.973

Fathehpur

Month	Mean/ADT	% Of AADT	* M.M.F	* C.M.S.V
JAN	2074	99.92	1.0184	0.999
FEB	2061	99.27	0.9138	0.993
MAR	1922	92.61	0.9438	0.926
APR	2082	100.30	0.9893	1.003
MAY	2142	103.19	1.0517	1.032
JUN	2196	105.78	1.0433	1.058
JUL	2144	103.25	1.0523	1.033
AUG	1959	94.37	0.9618	0.944
SEP	2026	97.61	0.9627	0.976
OCT	2141	103.14	1.0512	1.031
NOV	2115	101.88	1.0048	1.019
DEC	2051	98.80	1.0069	0.988

* M.M.F = Monthly Multiplying Factor
C.M.S.V = Co-efficient Of Monthly Seasonal Variation.

Annexure:B-8a

Average Daily Traffic By Month, Percentage Of AADT, Monthly Multiplying Factor and Coefficient of Monthly seasonal Variation

Komonki Station

Month	Mean/ADT	% of AADT	M.M.F	C.M.S.V
JAN	12820	99.91	1.0183	0.999
FEB	12838	100.05	0.9210	1.000
MAR	12915	100.64	1.0258	1.006
APR	13220	103.03	1.0162	1.030
MAY	12590	98.11	1.0000	0.981
JUN	12923	100.71	0.9934	1.007
JUL	12898	100.52	1.0245	1.005
AUG	12799	99.74	1.0166	0.997
SEP	12692	98.91	0.9756	0.989
OCT	12773	99.54	1.0145	0.995
NOV	12791	99.68	0.9832	0.997
DEC	12730	99.20	1.0111	0.992

Sakhi Sarwar

Month	Mean/ADT	% of AADT	M.M.F	C.M.S.V
JAN	989	107.77	1.0978	1.078
FEB	967	105.35	0.9693	1.053
MAR	927	100.96	1.0285	1.010
APR	951	103.58	1.0212	1.036
MAY	819	89.22	0.9089	0.892
JUN	826	90.01	0.8874	0.900
JUL	889	96.89	0.9870	0.969
AUG	911	99.26	1.0112	0.993
SEP	918	100.01	0.9859	1.000
OCT	948	103.28	1.0521	1.033
NOV	918	100.04	0.9862	1.000
DEC	959	104.49	1.0644	1.045

M.M.F = Monthly Multiplying Factor
C.M.S.V = Co-efficient of Monthly Seasonal Variation

Annexure:B-8a

Average Daily Traffic By Month, Percentage Of AADT, Monthly Multiplying Factor and Coefficient of Monthly seasonal Variation

Shikar Pur

Month	Mean/ADT	% of AADT	% M.M.F	% C.M.S.V
JAN	1688	100.44	1.0234	1.004
FEB	1815	107.95	0.9935	1.080
MAR	1755	104.43	1.0640	1.044
APR	1784	106.15	1.0466	1.061
MAY	1664	99.02	1.0089	0.990
JUN	1634	97.23	0.9587	0.972
JUL	1563	92.99	0.9474	0.930
AUG	1589	94.54	0.9632	0.945
SEP	1575	93.72	0.9241	0.937
OCT	1737	103.34	1.0530	1.033
NOV	1742	103.65	1.0220	1.037
DEC	1642	97.66	0.9951	0.977

Thatta

Month	Mean/ADT	% of AADT	% M.M.F	% C.M.S.V
JAN	1467	111.66	1.1383	1.117
FEB	1586	120.67	1.1111	1.207
MAR	1530	116.40	1.1866	1.164
APR	1308	99.53	0.9819	0.995
MAY	1136	86.48	0.8816	0.865
JUN	1204	91.64	0.9041	0.916
JUL	1166	88.71	0.9043	0.887
AUG	1112	84.66	0.8631	0.847
SEP	1182	89.97	0.8876	0.900
OCT	1372	104.39	1.0642	1.044
NOV	1302	99.12	0.9778	0.991
DEC	1417	107.85	1.0995	1.079

M.M.F = Monthly Multiplying Factor
C.M.S.V = Co-efficient of Monthly Seasonal Variation

Annexure:B-8a

Average Daily Traffic By Month, Percentage Of AADT, Monthly Multiplying Factor and Coefficient of Monthly seasonal Variation

Besham

Month	Mean/ADT	% of AADT	* M.M.F	* C.M.S.V
JAN	649	95.09	0.9686	0.951
FEB	663	97.20	0.8943	0.972
MAR	650	95.32	0.9710	0.953
APR	722	105.85	1.0435	1.059
MAY	620	90.85	0.9255	0.909
JUN	751	110.12	1.0856	1.101
JUL	781	114.59	1.1673	1.146
AUG	766	112.30	1.1439	1.123
SEP	744	109.10	1.0755	1.091
OCT	634	92.90	0.9463	0.929
NOV	598	87.74	0.8650	0.877
DEC	612	89.68	0.9135	0.897

Pezu

Month	Mean/ADT	% of AADT	* M.M.F	* C.M.S.V
JAN	1207	98.02	1.0005	0.981
FEB	1219	99.07	0.9125	0.991
MAR	1206	98.03	0.9996	0.980
APR	1296	105.37	1.0398	1.054
MAY	1215	98.80	1.0075	0.988
JUN	1238	100.67	0.9935	1.007
JUL	1213	98.62	1.0056	0.986
AUG	1164	94.60	0.9646	0.946
SEP	1138	92.54	0.9132	0.925
OCT	1214	98.69	1.0064	0.987
NOV	1321	107.38	1.0597	1.074
DEC	1323	107.56	1.0971	1.076

M.M.F = Monthly Multiplying Factor
C.M.S.V = Co-efficient of Monthly Seasonal Variation

Average Daily Traffic By Month , Percentage Of AADT , Monthly Multiplying Factor And Coefficient Of Monthly Seasonal Variation

Overall Result

All Station

Month	% Of AADT	* M.M.F	* C.M.S.V
JAN	98.37	0.9974	0.984
FEB	99.34	1.0935	0.993
MAR	100.05	0.9808	0.999
APR	104.41	0.9711	1.032
MAY	96.52	1.0165	0.950
JUN	101.20	1.0019	0.990
JUL	102.67	0.9557	0.999
AUG	98.67	0.9943	0.968
SEP	100.02	1.0137	0.977
OCT	100.60	0.9753	0.988
NOV	100.25	1.0113	0.992
DEC	98.03	1.0010	0.976

* M.M.F = Monthly Multiplying Factor
C.M.S.V = Co-efficient Of Monthly Seasonal Variation.

Monthly Percentages Of Yearly And Mean Monthly Flow

Attock Bridge

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.06	96.71
February	7.43	89.12
March	8.62	103.42
April	9.02	108.27
May	8.55	102.65
June	8.45	101.37
July	8.87	106.44
August	9.07	108.85
September	8.09	97.14
October	8.16	97.95
November	7.76	93.11
December	7.91	94.95

Jhari Kass

Months	% of Yearly Flow	% of Mean Monthly Flow
January	7.89	94.64
February	7.31	87.74
March	8.71	104.50
April	9.47	113.62
May	7.64	91.64
June	8.53	102.37
July	9.15	109.74
August	8.82	105.88
September	8.37	100.50
October	8.41	100.88
November	8.01	96.17
December	7.69	92.32

Jhelum Bridge

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.43	101.11
February	7.65	91.74
March	8.59	103.02
April	8.59	103.09
May	8.56	102.68
June	8.29	99.50
July	8.69	104.34
August	8.39	100.73
September	8.21	98.47
October	8.25	99.03
November	8.02	96.18
December	8.34	100.11

Pattoki Station

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.46	101.57
February	7.91	94.93
March	9.12	109.39
April	8.50	101.97
May	8.67	104.08
June	8.03	96.31
July	8.45	101.40
August	8.08	97.00
September	7.53	90.89
October	8.11	97.33
November	8.51	102.11
December	8.58	103.01

Satlaj Bridge

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.39	100.73
February	7.73	92.75
March	8.94	107.26
April	8.72	104.62
May	8.26	99.16
June	7.99	95.89
July	8.28	99.42
August	7.93	95.15
September	8.29	99.50
October	8.46	101.50
November	8.45	101.42
December	8.55	102.62

Sadiqabad Station

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.81	105.75
February	7.75	93.00
March	8.81	105.67
April	8.62	103.42
May	8.28	99.41
June	7.84	94.10
July	8.10	97.20
August	7.66	91.88
September	7.67	91.98
October	8.72	104.69
November	8.84	106.12
December	8.90	106.78

Khairpur Station

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.72	104.59
February	7.80	93.55
March	8.28	99.31
April	8.22	98.63
May	8.38	100.51
June	8.46	101.51
July	8.63	103.54
August	7.81	93.77
September	7.61	91.38
October	8.61	103.36
November	8.65	103.80
December	8.84	106.06

Super High way

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.84	106.08
February	8.10	97.21
March	8.85	106.25
April	8.30	99.62
May	8.20	98.37
June	8.06	96.69
July	7.99	95.94
August	8.39	100.74
September	8.02	96.28
October	8.14	97.66
November	8.29	99.50
December	8.80	105.65

Gaddani Station

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.33	100.01
February	7.33	88.02
March	8.33	100.02
April	8.51	102.06
May	7.96	95.56
June	7.78	93.38
July	8.95	107.35
August	8.64	103.63
September	8.96	107.47
October	8.90	106.82
November	8.26	99.17
December	8.04	96.51

Quetta Station

Months	% of Yearly Flow	% of Mean Monthly Flow
January	6.33	75.95
February	5.75	68.98
March	6.61	79.30
April	8.04	96.48
May	8.90	106.78
June	9.69	116.32
July	10.95	131.38
August	9.58	114.97
September	10.00	119.99
October	9.41	112.94
November	7.78	93.36
December	6.96	83.55

Kohala Station

Months	% of Yearly Flow	% of Mean Monthly Flow
January	7.71	92.48
February	6.68	80.16
March	8.03	96.86
April	9.01	108.11
May	7.91	94.88
June	9.06	108.67
July	10.22	122.66
August	8.02	96.30
September	9.03	108.32
October	8.59	103.07
November	8.40	100.86
December	7.34	88.13

Mattani Station

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.30	99.60
February	7.50	90.02
March	8.34	100.14
April	8.55	102.57
May	8.11	97.35
June	8.42	101.00
July	8.50	101.96
August	8.68	104.18
September	8.29	99.49
October	8.64	103.71
November	8.31	99.69
December	8.36	100.30

Sakha Kot

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.30	99.54
February	7.52	90.18
March	8.56	102.70
April	8.61	103.29
May	8.00	96.03
June	8.55	102.56
July	8.54	102.53
August	8.82	105.80
September	8.26	99.15
October	8.57	102.89
November	8.01	95.13
December	8.27	99.19

Fathehpur Station

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.49	101.84
February	7.62	91.84
March	7.87	94.38
April	8.24	98.93
May	8.76	105.17
June	8.69	104.33
July	8.77	105.23
August	8.02	96.18
September	8.02	96.27
October	8.76	105.12
November	8.37	100.48
December	8.39	100.69

Kamonki Station

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.49	101.83
February	7.68	92.10
March	8.55	102.58
April	8.47	101.62
May	8.33	100.00
June	8.28	99.34
July	8.54	102.45
August	8.47	101.66
September	8.13	97.56
October	8.45	101.45
November	8.19	98.32
December	8.43	101.11

Skhswr Station

Months	% of Yearly Flow	% of Mean Monthly Flow
January	9.15	109.78
February	8.08	96.93
March	8.57	102.85
April	8.51	102.12
May	7.57	90.89
June	7.40	88.74
July	8.23	98.70
August	8.43	101.12
September	8.22	98.59
October	8.77	105.21
November	8.22	98.62
December	8.87	106.44

Shikarpur Station

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.53	102.34
February	8.28	99.35
March	8.87	106.40
April	8.72	104.66
May	8.41	100.89
June	7.99	95.87
July	7.90	94.74
August	8.03	96.32
September	7.70	92.41
October	8.77	105.30
November	8.52	102.20
December	8.29	99.51

Hyderabad Station

Months	% of Yearly Flow	% of Mean Monthly Flow
January	9.49	113.83
February	9.26	111.11
March	9.89	118.66
April	8.18	98.19
May	7.35	88.16
June	7.53	90.41
July	7.54	90.43
August	7.19	86.31
September	7.40	88.76
October	8.87	106.42
November	8.15	97.78
December	9.16	109.95

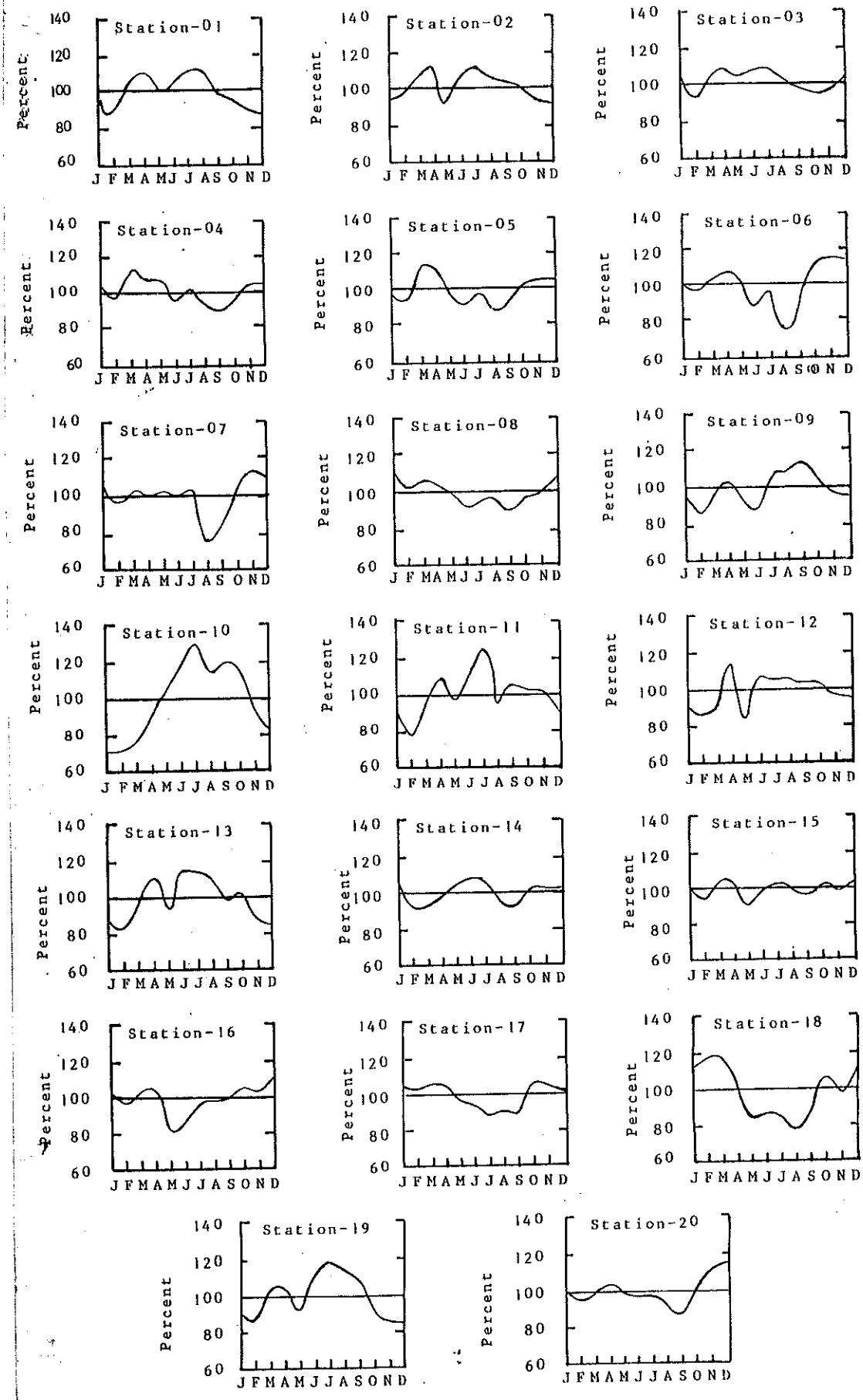
Besham Station

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.07	96.86
February	7.45	89.43
March	8.09	97.10
April	8.70	104.35
May	7.71	92.55
June	9.05	108.56
July	9.73	116.73
August	9.53	114.39
September	8.96	107.55
October	7.89	94.63
November	7.21	86.50
December	7.61	91.35

Pezu Station

Months	% of Yearly Flow	% of Mean Monthly Flow
January	8.34	100.05
February	7.60	91.25
March	8.33	99.96
April	8.66	103.98
May	8.40	100.75
June	8.28	99.35
July	8.38	100.56
August	8.04	96.46
September	7.61	91.32
October	8.39	100.64
November	8.83	105.97
December	9.14	109.71

MONTHLY FLOW PATTERN AT 20 STATIONS
PERCENTAGE OF MEAN MONTHLY FLOW



Annex: B-8c

Average Daily Traffic By Month
(1986)

Station	Jan	Feb	Mar	Apr	May	Jun
Attock	4624	4718	4945	5350	4908	5009
Jhari Kass	2075	2129	2291	2574	2009	2319
Jhelum	9287	9330	9463	9784	9431	9443
Patoki	5636	5832	6070	5847	5775	5522
Satlaj	5598	5708	5962	6009	5512	5508
Sadiqabad	5082	4949	5079	5137	4778	4674
Khairpur	4540	4496	4310	4424	4363	4553
Sup.Hghway	6246	6337	6256	6061	5792	5883
Gaddani	876	853	876	924	837	845
Quetta	4880	4907	5095	6405	6861	7723

Jul	Aug	Sep	Oct	Nov	Dec	Avrg
5089	5205	5449	5285	5203	5123	5076
2406	2321	2369	2280	2235	2240	2271
9584	9252	9624	9716	9809	9539	9522
5626	5382	5757	6337	6731	6521	5920
5526	5289	5613	6135	6330	6020	5768
4671	4416	5825	5038	4595	5155	4867
4494	4070	4099	4486	4981	4966	4482
5649	5931	5858	5750	6056	7017	6070
940	908	973	1255	813	874	914
8441	7387	7967	7256	6198	4269	6449

Average Daily Traffic By Month
(1987)

Station	Jan	Feb	Mar	Apr	May	Jun
Attock	5170	5300	5390	6310	4786	5966
Jhari Kass	2345	2351	2307	2410	2411	2376
Jhelum	9667	9659	10120	11317	9110	10694
Patoki	6328	6587	6859	7289	6277	6234
Satiaj	6293	6374	5737	5949	5673	5662
Sadiqabad	5562	5388	5207	5067	5009	4933
Khairpur	4951	4927	5147	4934	4412	4336
Sup.Hghway	7500	7672	7353	6828	6022	7251
Gaddani	871	913	936	991	792	914
Quetta	5515	5755	5648	5376	5316	5403
Kohala	544	522	566	657	558	660
Matann	4259	4261	4282	4532	4162	4462
Sakhakot	3403	3413	3511	3648	3283	3623
Fatehpur	2074	2061	1922	2082	2142	2196
Kamonke	12820	12838	12915	13220	12590	12923
Sakhi sarwar	989	967	927	951	819	826
Shikarpur	1688	1815	1755	1784	1664	1634
Thatta	1467	1586	1530	1308	1136	1204
Besham	649	663	650	722	620	751
Pezu	1207	1219	1206	1296	1215	1238

Jul	Aug	Sep	Oct	Nov	Dec	Avrg
5954	5932	5597	5525	5373	5485	5566
2374	2430	2342	2345	2373	2359	2369
10605	10263	10194	10142	10250	10271	10191
5741	5656	6062	6440	6301	5623	6283
5531	5798	5891	6115	6189	6512	5977
4701	4909	4713	5043	5345	5558	5119
4958	4120	4473	4435	4646	5248	4716
6522	6145	5676	6122	5158	6898	6595
954	945	1027	1028	953	1026	946
5258	5448	5056	4957	4292	3444	5122
721	692	638	608	652	600	618
4359	4530	4538	4482	4468	4367	4392
3621	3916	3721	3710	3494	3420	3564
2144	1959	1976	2165	2370	2388	2123
12898	12799	12692	13143	13117	12962	12910
889	911	918	948	918	959	919
1563	1589	2058	2271	2136	2254	1851
1166	1112	1151	1464	1535	1718	1365
781	766	744	633	706	733	701
1213	1164	1138	1214	1321	1323	1229

Average Daily Traffic By Month
(1988)

Station	Jan	Feb	Mar	Apr	May	Jun
Attock	5433	5781	5899	6083	5585	6185
Jhari Kass	2543	2515	2525	2556	2532	2502
Jhelum	10512	10594	10713	10594	10452	10789
Patoki	6537	7099	7074	6931	6615	6520
Satlaj	6217	6281	6332	6354	6059	5971
Sadiqabad	5361	5378	5402	5419	5048	4997
Khairpur	5231	5203	5176	4974	4947	5619
Sup.Hghway	6800	7003	7230	7007	6557	6597
Gaddani	972	956	1057	1084	887	1093
Quetta	3862	4193	4472	4810	4648	5116
Kohala	607	610	575	739	706	738
Matann	4572	4358	4613	4573	4377	4597
Sakhakot	3443	3572	3650	3729	3552	4135
Fatehpur	2356	2234	2189	2208	2451	2634
Kamonke	13001	13457	13752	14436	13391	13384
Sakhi sarwar	982	1125	1074	1146	987	1138
Shikarpur	2238	2253	2274	2390	2322	2305
Thatta	1604	1556	1492	1334	1258	1226
Besham	716	734	782	840	772	914
Pezu	1354	1314	1234	1394	1430	1441

Jul	Aug	Sep	Oct	Nov	Dec	Avrg
6454	5864	6060	5316	5493	5686	5820
2549	2411	2492	2418	2499	2495	2503
10528	10160	10499	10153	10492	10477	10497
6290	5873	6068	6461	6676	6228	6531
6016	5855	6050	6422	6636	6720	6243
4735	5193	5367	5318	5495	5750	5281
4705	4625	4779	4813	4974	5367	5034
6564	6482	6698	6249	6457	6954	6716
904	1024	1058	949	981	1025	999
4121	6912	7142	4624	4779	4169	4904
677	603	623	642	664	613	650
4778	4520	4670	4199	4339	4433	4502
3950	3807	3934	3289	3398	3435	3658
1992	2136	2207	2187	2260	2297	2263
12921	12354	12766	12486	12902	13223	13173
1158	1177	1216	1084	1120	1046	1104
2184	2204	2277	2071	2140	2414	2256
1330	1207	1247	1313	1357	1594	1377
835	821	848	712	736	724	786
1221	1212	1253	1382	1428	1544	1351

Average Daily Traffic By Month
(1989)

Station	Jan	Feb	Mar	Apr	May	Jun
Attock	5660	6141	6446	5768	6576	6354
Jhari Kass	2699	2689	2668	2723	2683	2648
Jhelum	10215	11018	11910	11338	11999	12813
Patoki	6789	6943	6855	6452	6560	6766
Satlaj	6443	6702	6938	6816	6417	6344
Sadiqabad	5725	5939	6114	5879	5288	5233
Khairpur	5656	5382	5773	5587	4847	5304
Sup.Hghway	7368	7188	7168	6719	6389	6476
Gaddani	920	964	1130	973	975	1052
Quetta	3669	3783	5264	5090	4868	5145
Kohala	558	582	624	640	734	746
Matani	4542	4502	4805	4442	4750	4767
Sakhakot	3465	3619	3913	3385	4208	4374
Fatehpur	2260	2436	2694	2742	2781	2544
Kamonke	13334	13715	14051	13767	13709	13616
Sakhi Sarwar	1012	1137	1349	1306	1002	1213
Shikarpur	2230	2324	2338	2347	2279	2321
Thatta	1637	1675	1727	1454	1271	1343
Besham	750	784	929	819	797	874
Pezu	1527	1621	1742	1437	1347	1082

Jul	Aug	Sep	Oct	Nov	Dec	Avrg
6584	6359	6216	6130	6203	6043	6207
2708	2693	2675	2656	2649	2645	2678
11632	11099	9135	9237	9217	9057	10722
6856	6961	6928	6523	5841	6735	6684
6467	6322	5454	5778	6196	6161	6337
5184	5036	4744	6656	4871	5024	5474
4364	4493	4697	5209	5661	5616	5216
6550	6868	7251	7034	6579	7248	6903
1022	1110	1111	1144	1054	1007	1039
4751	4667	5107	5503	4831	3731	4701
796	756	720	724	730	639	687
4911	4912	4645	4327	4323	4235	4597
4185	4623	4375	4239	4131	3730	4021
2421	2385	2261	2588	2838	2947	2575
13645	13876	12999	13257	13601	13607	13598
1043	1155	2020	1504	1480	1267	1291
2103	1816	2660	2032	2137	1933	2210
1365	1364	1445	1288	1268	1360	1433
860	937	908	834	788	767	837
1086	965	1087	1404	1592	1547	1370

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