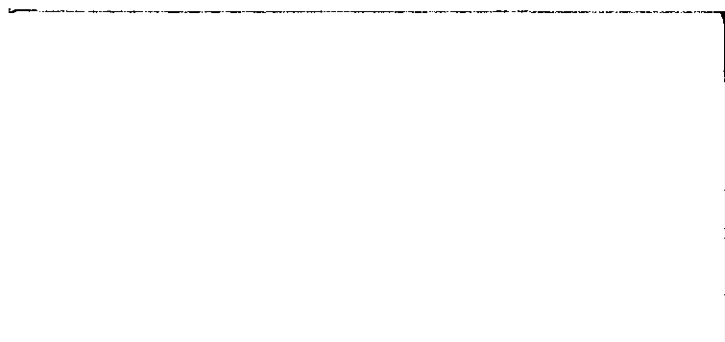


COLLEGE OF URBAN AFFAIRS AND PUBLIC POLICY

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City
NEW CASTLE, DELAWARE:
POPULATION PROFILE AND PUBLIC OPINIONS

sponsored by
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INTRODUCTION

The City of New Castle, Delaware has been and will continue to be a unique place with a set of unique problems. The historical assets of the City have created an increasing set of pressures generated by the interest of tourists from other states and from within the State. These pressures tend to strain the resources of the City in two areas at the very least and those are traffic control and parking.

In the summer and fall of 1978 the College of Urban Affairs and Public Policy undertook a public opinion survey and, in cooperation with the State Highway Department, measured traffic flows through the city. The intent of this two fold thrust was to establish the validity of complaints to City Council about traffic and parking as well as other issues of interest.

This report is a compilation and summary of the following documents which have preceded it:

- (1) Detailed survey results issued May 15, 1978.
- (2) Interim report issued June 15, 1978.
- (3) Traffic and parking analysis issued September 18, 1978.
- (4) Report on traffic signs issued November 21, 1978.

The material presented here will add detail but will not modify any conclusions or recommendations presented in the earlier presentations.

This report is divided into three sections. Following the introduction, the first section contains the results of the survey with the exception of material relating to traffic control and parking. The next section deals exclusively with all aspects of traffic control and the concluding section deals with parking. Three appendices are provided to place on the record the survey instrument employed, traffic counts for comparison in later years, and the parking survey data. All other data will be retained at the College of Urban Affairs and Public Policy indefinitely.

POPULATION PROFILE

Introduction.

The College of Urban Affairs and Public Policy with the full cooperation of City Council designed a survey instrument to capture information in four major areas:

- (1) Demographic, economic, and social characteristics of the residents of New Castle;
- (2) Attitudes toward key public policy issues such as charter revision and bond questions;
- (3) Perceptions of and solutions for problems with traffic control;
- (4) Perceptions of and solutions for problems with parking.

In this section of the report we will deal only with the first two components. The other two are reserved for a more comprehensive analysis. Prior to discussing the results, however, the procedures used in collecting the information require some explanation.

The design of the project called for a survey of 400 households in the City of New Castle.¹ The College of Urban Affairs maintains an up-to-date field listing or count of individual addresses in the City at all times. At the beginning of the survey, those records showed that New Castle consisted of 1,678 households. During the field work, however, some 34 addresses were identified which had either changed in use from residential to commercial or which had been demolished or were scheduled for demolition. As a result, the total sampling frame consisted of 1,644 households. Thus, the survey which involved 400 households represents approximately a 25 percent sample of the City.

The sampling procedure used to draw the sample of 400 households is called

¹The selection of a random sample of that size was the first order of business.

"Systematic Random Sampling." The procedure first orders all households by geographic area, that is, primarily by block. This insures that there will be an even spread of households across the entire City. A starting place in the file was randomly chosen and then every fourth household was selected. In addition, a reserve sample was drawn to cover households which refused, were vacant or simply could not be located at home by the interviewers. Each interviewer was given a list of primary addresses and a designated alternative, if for some reason an interview could not be obtained at the primary address. Instructions were to make at least three attempts to interview that particular household prior to going to the alternate. Of course, the alternate would be chosen immediately, if the house were vacant or the individual in the house refused to cooperate.

In all, a total of four experienced interviewers were used in the survey. The actual survey work lasted approximately five weeks and a total of 405 complete interviews were obtained. It is noteworthy that only 29 households refused to cooperate in the survey; a total which is sufficiently low to insure that any non-response bias is low. All interviewers, in fact, reported that there was a good deal of interest in the community, and they found that most, if not all individuals, were extremely cooperative in supplying the required information. This is especially gratifying since the survey approached thirty minutes in length.

As the surveys were completed by the field interviewers, the forms were checked for completeness and for accuracy before going into the coding process. This coding process involved transferring the information from the surveys into a form which is usable for data entry. The resulting data files were loaded onto the computer and subjected to another detailed edit to insure that all individuals responding had answered the questions in the proper fashion and that mistakes were not made either by the interviewers, the coders, or the data entry staff. The resulting data file

was loaded into the University of Delaware's computing system where the tabulations used in this paper were compiled. The detailed results were the first product supplied as part of the project. A portion of these results are presented in the next section.

Demographic, Economic, and Social Characteristics.

In 1970, the Bureau of the Census reported that the City of New Castle had a population of 4,814. These individuals resided in 1,437 homes. At that time, some 41 homes were vacant leaving a total of 1,478 housing units. In 1975, the official Bureau of Census population estimates placed the City of New Castle's population at 4,985. As was mentioned in the previous section, the College of Urban Affairs' files now show 1,644 units within the City. However, during the survey, we measured an estimated total of 107 vacancies (6.5%) yeilding a total of 1,537 occupied households or an increase of approximately 100 occupied households since 1970.

It is also interesting to note that the median age of 28.6 years in 1970 has dropped slightly to 28.4 years in 1978. This is in sharp contrast to many parts of New Castle County, and in fact to the northeast region, which have shown continuing increases in the median age. This is clearly a factor in the relatively minor decline in average household size over the eight year period. At the same time, the percentage of individuals over the age of 65 has declined from 10 percent in 1970 to approximately 8 percent during the survey period. The fact that the population has not changed in age structure and that the proportion of rental housing has declined may in fact be due to the changing composition of the population brought about by the restoration movement. Several interviewers reported concern by residents of rental units that they might be forced to move as more properties were bought for restoration.

The average household size in 1970 was 3.31 persons. The survey measured an average household size of 3.25 persons which is consistent with the general decline

in the birth rate and, thus, average family size. Combining the counts for occupied households and the average household size, 1978 population for New Castle is estimated to be 4,995 persons, a slight increase over the 1975 Census estimates. These estimates are summarized in Table 1.

TABLE 1
New Castle Population Estimates

	<u>Year</u>	
	<u>1970</u>	<u>1978</u>
Household count	1437	1644
Vacancy units	41	107
Occupied households	1478	1537
Average household size	3.31	3.25
Total population	4814	4995

The racial composition of the City has appeared to have changed little since 1970. In 1970, the Census reported that approximately 11 percent of the housing units were occupied by non-Caucasians and the survey measured approximately 12 percent in 1978. These results are found in Table 2.

TABLE 2
Racial Composition of New Castle

	<u>Count</u>	<u>Percent</u>
Caucasian	354	87.4%
Black	49	12.1
Spanish Heritage	1	0.2
Other	<u>1</u>	<u>0.2</u>
Total	405	100.0%

There does appear to have been at least some increase in the ratio of owner occupied compared to rental units during that period of time. The 1970 Census showed 73 percent of the households as being owner occupied while the survey found nearly 83 percent of the households to be owner occupied. (See Table 3.) This is probably the result of the conversion of many of the homes, and in fact, the restoration of many homes in New Castle over that period of time.

TABLE 3

Occupancy Status

	<u>Count</u>	<u>Percent</u>
Rent	67	16.5%
Own/Buying	<u>338</u>	<u>83.5</u>
	405	100.0%

Tables 4, 5, and 6 illustrate the economic condition of the residents. In Table 4 the employment status of individuals living in the 405 sample households is examined. Technically, 565 of those measured are considered to be in the labor force which results in an unemployment rate of 11.3%. However, since the unemployment rate for the State of 8.1% overlooks those who have not been in the labor force before, the survey measured rate is likely to always be overstated. Another measure is found in Table 5 which shows sources of income. Approximately 6.2% of the households reported receiving unemployment compensation payments. Finally, in Table 6 the income levels of residents are reported. The median household income for those who would answer the question was \$14,000. Since only 63% of those asked would respond, the question has substantial problems although the results appear to be of the right order of magnitude.

TABLE 4

Employment Status

	<u>Employment Count</u>	<u>Status Percent (total)</u>	<u>Percent (Labor Force)</u>
Employed, Full-time	474	53.9%	83.9%
Employed Part-time	27	3.1	4.8
Unemployed	64	7.3	11.3
Homemaker	157	17.8	-
Retired	130	14.8	-
Military	3	0.3	-
Student	25	1.9	-
NA and Refused	<u>435</u>	<u>33.1</u>	-
Total	1315	100.0%	

TABLE 5

Sources of Income

<u>Source</u>	<u>Count</u>	<u>Percent</u>
Wages and Salaries	290	71.6%
Self-Employed	31	7.7
Dividends	28	6.9
Rent	17	4.2
Interest	67	16.5
Unemployment Compensation	25	6.2
Social Security	92	22.7
Public Assistance	16	4.0
Disability	10	2.5
Other	40	9.9

TABLE 6
Family Income

<u>Income</u>	<u>Count</u>	<u>Percent</u>
Less than \$4,000	35	8.6%
\$4,000 - 7,999	36	8.9
8,000 - 9,999	15	3.7
10,000 - 12,999	31	7.7
13,000 - 14,999	21	5.2
15,000 - 19,999	39	9.6
20,000 - 24,999	33	8.1
25,000 and above	45	11.1
Refused	<u>150</u>	<u>37.1</u>
	405	100.0%

The housing and migration characteristics collected by the survey provided some additional insight about the City. The median purchase price of homes in New Castle was approximately \$15,000 (Table 7) which, of course, indicates that a large number of residents have lived in New Castle for a great number of years. When estimating the current value of their homes, the median price given was \$41,000 (Table 8). It is interesting to note that slightly less than 50% of the individuals surveyed had lived in New Castle more than 17 years, which is consistent with the purchase price of housing reported (Table 11). The picture that comes through these tables is that of a town with a highly stable population.

With respect to the condition of housing, the respondents were asked to estimate whether they needed major repairs. This is a further indication that the housing stock, while perhaps old, is in relatively good condition.

TABLE 7

Purchase Price of Current Residence

<u>Price Range</u>	<u>Count</u>	<u>Percent</u>
Less than \$10,000	57	24.6%
\$10,000 - 19,999	83	35.8
20,000 - 29,999	42	18.1
30,000 - 39,999	29	12.5
40,000 - 49,999	11	4.7
50,000 and over	10	4.3
Refused	35	-
Not applicable	74	-
Don't know	<u>64</u>	<u>-</u>
Total	405	100.0%

TABLE 8

Expected Sale Price of Current Residence

<u>Price Range</u>	<u>Count</u>	<u>Percent</u>
Less than \$10,000	6	2.7%
\$10,000 - 19,999	6	2.7
20,000 - 29,999	22	10.1
30,000 - 39,999	71	32.4
40,000 - 49,999	64	29.3
50,000 - 74,999	34	15.5
75,000 and over	16	7.3
Refused	8	-
Not applicable	67	-
Don't know	<u>111</u>	<u>-</u>
	405	100.0%

TABLE 9
Year Moved to Current Residence

<u>Year</u>	<u>Count</u>	<u>Percent</u>
Before 1940	40	9.9%
1940 - 1949	39	9.6
1950 - 1959	60	14.8
1960 - 1969	108	26.7
1970 - 1974	86	21.2
1975 - 1978	70	17.3
Unknown	<u>2</u>	<u>0.5</u>
	405	100.0%

TABLE 10
Place of Last Residence

<u>Place</u>	<u>Count</u>	<u>Percent</u>
Never Moved	62	15.3%
Wilmington	43	10.6
New Castle County	98	24.2
Kent or Sussex	4	1.2
Out of State	41	10.1
Elsewhere in New Castle	151	37.3
Don't know	<u>5</u>	<u>1.2</u>
	405	100.0%

TABLE 11
Year First Moved to New Castle

<u>Year</u>	<u>Count</u>	<u>Percent</u>
Before 1940	62	15.3%
1940 - 1949	56	13.8
1950 - 1959	66	16.3
1960 - 1969	92	22.7
1970 - 1974	73	18.0
1975 - 1978	51	12.6
Unknown	<u>5</u>	<u>1.2</u>
	405	100.0%

Citizen Opinions.

Charter Changes. A series of questions were introduced to measure support for various aspects of the proposed new charter. Nearly 53 percent of those questioned indicated that they would be in favor of a professional manager appointed by the Council and responsible to the Council. However, nearly 20 percent of those interviewed did not offer an opinion. Among those that did answer the question, 67 percent suggested that they would be in favor of the professional manager approach. This would suggest that this Charter provision is viewed positively.

Over half of those questioned would not approve a four year term for the Mayor and Council. Similarly, more than half would be opposed to replacing the Mayor's Court by a City Alderman, although 31 percent of those responding offered no opinion on the issue.

Without question, the strongest response was in reference to the provision that if four out of five members of the Council agreed, Council would have the power to borrow money and issue bonds without calling a public referendum. Seventy-two percent of those responding were opposed to this provision and only 13.6 percent failed to respond.

Overall, nearly forty percent are categorically opposed to the Charter, while 21 percent favor it and approximately 40 percent of the population offers no opinion. There are, however, some interpretational problems. First of all, households do not vote, individuals vote. These questions measure the general response of a household toward an issue. Obviously, there may be more than one registered voter within a household and quite often perhaps where there are more than one registered voter, they may vote in opposite directions. However, to the extent that one might expect a husband and wife would vote together on local issues, the results accurately reflect the outcome of a referendum. If the 40 percent "don't know", responses are interpreted as being perhaps disinterested, then the result of a referendum would be

an overwhelming defeat of approximately 66 percent to 34 percent. In any event, it is clear that a charter change would be facing a major battle, although with such a large group of citizens not answering the question, an educational process might be utilized to switch some of this group to favor the proposal. The results are summarized in Table 12.

TABLE 12
CHARTER REVISION OPINIONS

<u>Provision</u>	<u>Favor</u>	<u>Oppose</u>	<u>Undecided</u>
City Manager	214 (52.8%)	112 (27.7%)	79 (19.5%)
4-year terms	115 (28.4%)	224 (55.3%)	66 (16.3%)
City Alderman	58 (14.3%)	221 (54.6%)	126 (31.1%)
Borrow Funds	59 (14.6%)	291 (71.9%)	55 (13.6%)
New Charter	84 (20.7%)	161 (39.8%)	160 (39.5%)

City Services.

This section of the survey dealt with City services, and in particular, how satisfied residents were with the services they received. In response to the overall question, "Considering the amount of property taxes you pay, how satisfied are you with the City services you receive?", in excess of 85 percent of those responding indicated that they were satisfied. Using this 85 percent overall figure as a bench mark, we can look then at each one of the services in turn. Approximately 88 percent of those interviewed indicated that they were satisfied with police protection. Over 99 percent of those interviewed were satisfied with fire protection. A total of 96 percent were satisfied with trash collection; 84 percent with public transportation; 89 percent with park maintenance; 77 percent with the recreation programs; and 85 percent with traffic control. Approximately 78 percent were satisfied with parking.

Street repair and street cleaning are typically subject to lower levels of satisfaction where surveys of this type are done and we find, in fact, that 79 percent are satisfied with repair in their neighborhoods, while 84 percent are satisfied with the City streets in general. The lowest of all satisfaction levels was reported for street cleaning. Only 61 percent of those interviewed reported being satisfied with the quality of street cleaning. In the more detailed questions relating to the quality of water service, over 90 percent were satisfied with the various characteristics measured (i.e., odor, taste and pressure). The detailed results are summarized in Tables 13 and 14.

TABLE 13

Satisfaction with Selected City Services

<u>Service</u>	<u>Response</u>				
	<u>Very Satisfied</u>	<u>Satisfied</u>	<u>Dissatisfied</u>	<u>Very Dissatisfied</u>	<u>No Response</u>
Police Protection	60 (14.8%)	298 (73.6%)	39 (9.6%)	6 (1.5%)	2 (0.5%)
Fire Protection	129 (31.9%)	264 (65.2%)	2 (0.5%)	2 (0.5%)	8 (2.0%)
Trash Collection	125 (30.9%)	267 (65.9%)	8 (2.0%)	4 (1.0%)	1 (0.2%)
Public Transportation	33 (8.1%)	166 (41.0%)	23 (5.7%)	15 (3.7%)	168 (41.4%)
Park Maintenance	63 (15.6%)	252 (62.2%)	29 (7.2%)	10 (2.5%)	51 (12.6%)

TABLE 14

Satisfaction with Street Repair,
Street Cleaning, and Water Quality

<u>Service</u>	<u>Response</u>				
	<u>Very Satisfied</u>	<u>Satisfied</u>	<u>Dissatisfied</u>	<u>Very Dissatisfied</u>	<u>No Response</u>
Neighborhood Street Repair	40 (9.9%)	278 (68.6%)	70 (17.3%)	16 (4%)	1 (0.2%)
City Street Repair	30 (7.4%)	312 (77.0%)	50 (12.3%)	9 (2.2%)	4 (1.0%)
Street Cleaning	27 (6.7%)	221 (54.6%)	86 (21.2%)	29 (7.2%)	42 (10.3%)
Water - Odor	52 (12.8%)	326 (80.5%)	21 (5.2%)	5 (1.2%)	1 (0.2%)
Water - Taste	47 (11.6%)	315 (77.8%)	35 (8.6%)	7 (1.7%)	1 (0.2%)
Water - Pressure	55 (13.6%)	328 (81.0%)	18 (4.4%)	2 (0.5%)	2 (0.5%)

Several questions dealing with city recreation programs found that a relatively low number (14%) of households interviewed had a member involved in a recreation program (Table 15). Further, while approximately 61 percent were in favor of expanding the City recreation program, 39 percent indicated that they had no preference at all.

The most frequently suggested types of programs were in order of importance: (1) more programs for teenagers; (2) free swimming pools; (3) more playgrounds and parks; and (4) organized activities for children. While these kinds of responses are not specific, there is a general indication that of all the services provided by the City, an expanded recreation program might be one that deserves additional study and consideration.

Table 15

Participation in City Recreation Programs

<u>Question</u>	<u>Response</u>		
	<u>Yes</u>	<u>No</u>	<u>No Response</u>
Anyone participate	55 (13.6%)	347 (85.7%)	3 (0.7%)
Expand programs	199 (49.1%)	47 (11.6%)	159 (39.3%)

Proposals.

In this section of the survey, respondents were asked whether or not they would support a series of proposals. Forty-seven percent of those interviewed indicated that they would subscribe to cable TV at \$8.00/month. The residents overwhelmingly turned down the suggestion that non-residents be barred from Battery Park with 80.5 percent indicating that they would not support this proposal. Seventy seven percent of those questioned indicated that they would support a community recreation facility constructed with Federal funds and 41 percent would support a community swimming pool using Federal funds to construct it. When the question was changed to reflect the use of City rather than Federal monies support dropped to 24%. About 67 percent would favor a bond issue for improving the Delaware Street wharf and 59 percent would support spending tax money to attract retail business into the City. These results are summarized in Table 16.

In a slightly different format citizens were asked to choose their first, second and third priority for spending community development funds. The same questions were asked of the target area residents in the December survey. Nearly 30 percent of those responding suggested that their first priority would be improving the homes of needy families. The second choice would be the construction of additional playgrounds which corresponds with the recreation questions discussed earlier (23%). In addition, 22 percent identified improving sidewalks, streets and curbs; 12 percent favored grants for general improvement of housing and 6 percent recommended the improvement of street lighting as first on the priority list.

TABLE 16

Proposals on Selected Public Policy Issues

<u>Proposal</u>	<u>Response</u>		
	<u>Support</u>	<u>Don't Support</u>	<u>Don't Know</u>
Cable TV	191 (47.2%)	203 (50.1%)	11 (2.6%)
Ban Non-Residents	68 (16.8%)	326 (80.5%)	11 (2.7%)
Recreation Facility (Federal)	312 (77.0%)	78 (19.3%)	15 (3.7%)
Swimming Pool (Federal)	167 (41.2%)	219 (54.1%)	19 (4.7%)
Swimming Pool (City)	95 (23.5%)	292 (72.1%)	18 (4.4%)
Wharf Improvement	273 (67.4%)	102 (25.2%)	30 (7.4%)
Retail Business Support	239 (59.0%)	142 (35.1%)	24 (5.9%)

These results are not that dissimilar from those found in the target area survey. The first choice in that survey was also winterizing of needy family homes. Grants to improve housing were the second choice which reflect the fact that individuals within those particular areas are more concerned with improvements that they can make to their individual housing as opposed to the more collective kinds of services like playgrounds, sidewalks, or street lighting. In general, there is very little disagreement between the residents of the target areas of Buttonwood, Dobbinsville, Shawtown and the historic area and the general population of the City.

In summary then, we can make several statements based on the results of this survey. The City appears to be in good economic condition. There are few signs of urban decay and, in fact, there are some very positive signs of improving conditions in New Castle. The charter questions indicated that at the present time, it would be unlikely in a referendum that that charter would pass, however, there is considerable suggestion that an educational

program as to the benefits and costs of the charter change would perhaps be effective.

Overall, City services are seen very positively. Perhaps the single exception, and one in which there appears to be a great deal of interest, is recreation programs. This is not at all dissimilar from the results obtained in other towns in New Castle County. Recreation services are seen to be a very positive output of government and one which the individual can directly participate in, as opposed to, police service or fire service which hopefully most residents do not even come into contact with. Most of the proposals placed on the questionnaire for consideration were favorably supported. The only exception to that was barring of non-residents from Battery Park.

In the next section of this report the details of the traffic study will be presented. Questions pertaining to traffic from the survey as well as the traffic court information will be discussed.

TRAFFIC ANALYSIS

Introduction.

The work program for the traffic analysis consisted of three distinct components. The first part was an attempt to measure citizen reaction to traffic problems which had been posed to Council. Quite frequently legislative bodies are presented with a distorted view of a problem because only those who are dissatisfied complain. Thus, this first set of measurements was made to determine the extent of the complaints about traffic problems.

Even if the perceptions of citizens are carefully measured, those attitudes can be colored by a variety of factors. Among those factors are media coverage, experiences as transmitted by friends and neighbors or a recent event. For this reason, a series of traffic courts were taken to provide another set of information to which citizen attitudes can be compared.

This two pronged approach provides a more balanced view of the problem.

The third and final component involved a check of street signs in the area and a comparison of these signs with existing highway standards.

Survey Results.

A series of seven questions were introduced into the survey to measure the attitudes of the general population toward traffic in New Castle. These questions dealt first with whether or not there was a traffic problem at all, and if there was a traffic problem, what were the reasons for this problem. We were also interested in determining whether or not the major changes in traffic flows over the past few years had been noticed, and more particular, whether or not the citizens would favor continuation of those changes. Details were requested on one-way streets on Delaware, Harmony and part of Second Street and suggestions as to how one might go about reducing any traffic problems were solicited.

The most general question, of course, is whether or not there is a problem in New Castle with respect to traffic. Eighty-four and one-half percent of those interviewed indicated that there was not a problem with traffic. This result must be carefully interpreted. This does not mean that there may not be problems at certain periods of time during the year or perhaps during the day or week, but that in general, the individuals interviewed do not feel that there is a traffic problem. Secondly, there may be individuals who are more prone to be driving and experiencing traffic than others. Since the sample is oriented around individual households, the results may be different than if the sample had been centered about the driving public, including individuals from inside and outside New Castle. However, it would perhaps be difficult to expect public support for large

expenditures to reduce a problem which the average resident, perhaps does not feel exists. For those that did see that a problem existed, the most common responses dealt with the one-way streets, with narrow streets, and with the limited parking problem. To a somewhat lesser extent, tourist traffic was seen as being at the root of the problem.

There is no question that the residents of New Castle are aware of the changes in traffic flow over the past few years. Approximately 84 percent answered that question positively and 76 percent of those who had recognized the change were in favor of continuing those changes. This result tends to mitigate the responses to the previous question, which found that one-way streets like Delaware Avenue should have two-way traffic. In fact, 72 percent of those questioned liked the one-way pattern on Delaware, Harmony and Second Street. Those which did not like the pattern primarily responded that the pattern inconveniences them.

When offered the opportunity to make suggestions about reducing any traffic problems, only 25 percent of those interviewed chose to supply a suggestion. (This lack of response is in itself revealing.) Of those responding, the primary suggestions were to make Delaware Avenue and Second Street two-way traffic, to repair and re-open the Third Street Bridge, and where possible, to widen streets. The responses, especially those dealing with the one-way streets, are consistent with the responses to the other questions indicating that approximately 25 percent of the individuals surveyed did not like the one-way streets. There were a number of individuals, however, who indicated that they like Delaware Street being one-way and that perhaps the last block might be converted from a two-way to one-way street.

The final traffic question related to placing a traffic light at 6th and Chestnut. First, it should be noted that approximately 5 percent of those

responding chose this as an option for reducing traffic problems in the beginning. Overall, however, 58.4 percent of those interviewed favored placing a light at 6th and Chestnut. All responses are summarized in Table 17.

TABLE 17
Traffic Problems in New Castle

<u>Question</u>	<u>Response</u>		
	<u>Yes</u>	<u>No</u>	<u>No Response</u>
Is traffic a problem	54 (13.3%)	295 (72.8%)	56 (13.8%)
Aware of changes	316 (78.0%)	61 (15.1%)	28 (7%)
Favor changes	240 (59.3%)	78 (19.3%)	87 (21.5%)
Favor one-way	246 (60.7%)	96 (23.7%)	63 (15.5%)
Favor light	173 (42.7%)	123 (30.4%)	109 (26.9%)

At this juncture it appears that there is no clear agreement that there is in fact a traffic problem in the City of New Castle. If there is a problem at all, it seems to center around the disagreement about the one-way streets. The reason given however for this being a problem is not that there is significant amount of congestion, but rather that it is an issue of convenience.

Traffic Counts.

To measure the flow of traffic through the central business district, a series of twelve traffic counters were employed. The study area is outlined in Figure 1 and the location of these counters is described on Figure 2. Measurements were made for nine days at each station to include six weekdays and three weekends. Hourly counts for the entire twenty four hour period of each day were made although for analysis the data has been grouped. The

Figure 1

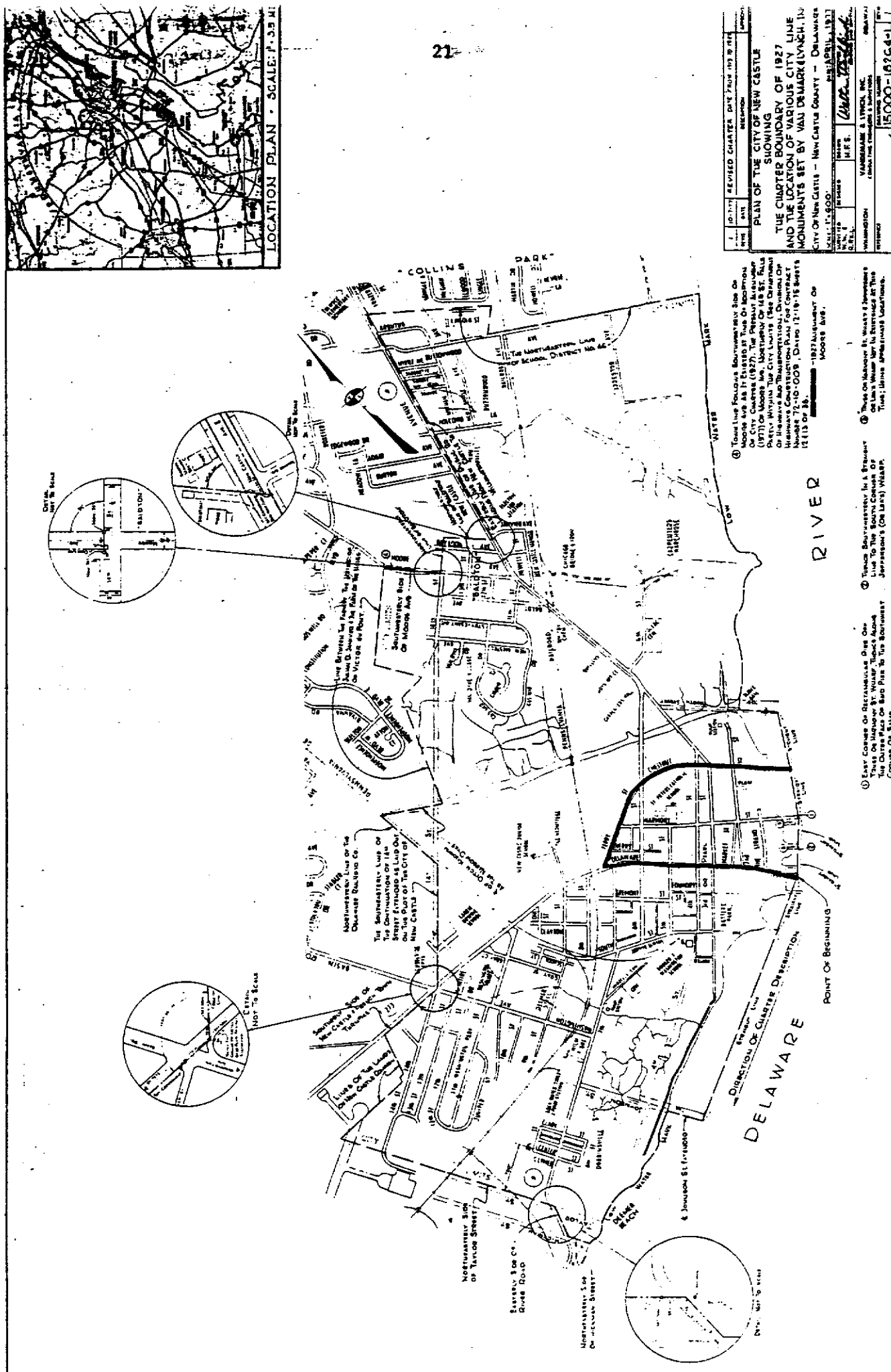
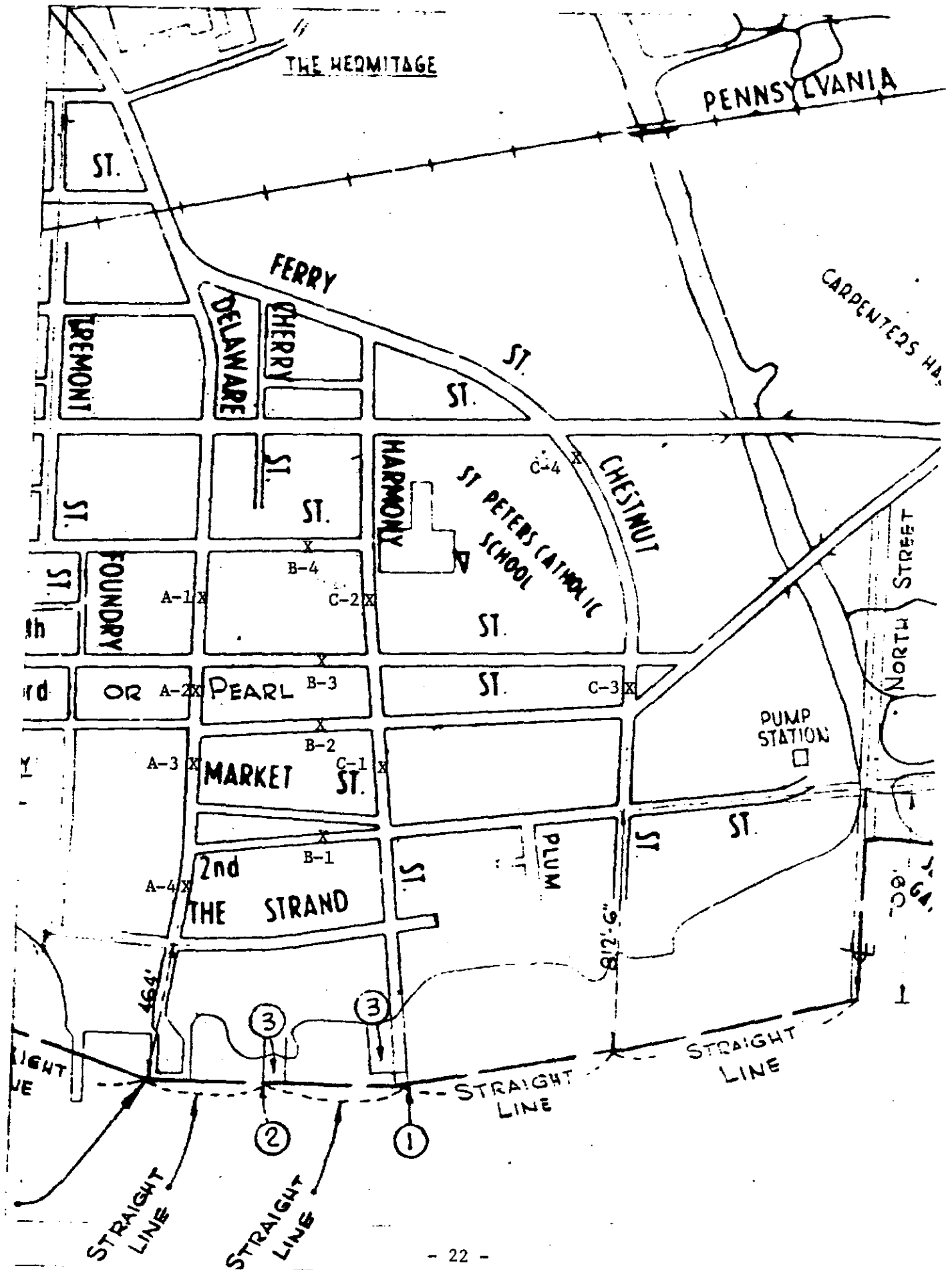


Figure 2
Location of Traffic Counters



detailed counts can be found in Appendix B. These may prove valuable for comparison purposes in the future should additional studies be undertaken.

The results can best be understood by first considering the time and space implications of the counts. All of the figures which follow are measured in terms of cars per hour. Sixty cars per hour past a point is 1 car per minute. The number of cars per minute gives some feel for the degree of congestion. Consider the following figures:

<u># cars/hour</u>	<u>Seconds between cars</u>	<u>Feet between cars</u>
60	60	1320
120	32	704
180	20	440
240	15	330
300	12	264
360	10	220

Highway engineers have mathematical models for determining the capacity of a roadway. For our purposes however, we employ the rule of thumb that safety requires a 2 second separation between cars.

The data are displayed in both graphical and tabular form for convenience of the reader. Each map represents a different time period--and each reading on the map consists of two numbers. The top number is the weekday peak flow and the lower number is the weekend peak flow. The tables also show the average flow during the time interval as well. All data is reported in cars per hour for each hour over the time interval.

Referring to Figures 3-7 and the corresponding Tables 18-22, we see that the highest peak measure on Delaware Avenue occurred between 4 and 6 p.m. in the block between 4th and 5th Streets when 340 cars were measured during a 1 hour period although on the average the traffic is fairly constant between 9 a.m. and 6 p.m. Weekend traffic is substantially less although on one

occasion 243 cars did pass the counter at the Battery end of Delaware Avenue during a single hour. The reduction from weekday to weekend traffic supports the survey in that most people did not find the tourist traffic to be a problem.

Counter B-1 located on Second Street between Delaware and Harmony carries nearly twice the volume of all other cross streets in the study area. The peak time for this artery was also between 4 and 6 p.m. when 295 cars crossed the counters. The traffic on the average is fairly stable with around 180 cars per hour using that roadway.

Counters C-1 and C-2 on Harmony show that about half the traffic measured at B-1 is moving up Harmony as a method of exiting town. The balance will use Chestnut Street or are continuing out Second Street.

The major finding is simply that there is little problem with capacity at this juncture. The one-way traffic pattern appears to be working to funnel the heaviest traffic down Delaware Avenue and then out Harmony and/or Chestnut Street.

It is interesting to compare the results from counter C-4 and A-1. The load passing these two points is quite similar giving some credence to the need for a light at 6th and Chestnut as suggested by several residents. As you may recall nearly 60% of the residents favored this suggestion. However, the need to funnel traffic to the left at that intersection probably outweighs that data.

To summarize then, the traffic counts confirm the survey results in four ways:

- (1) Traffic congestion is not really a problem even at peak periods.
- (2) Traffic problems on weekends caused by tourism are not significant.
- (3) The one-way traffic pattern appears to be justified given the volume of traffic on Delaware Avenue relative to all other streets.

Figure 3
Peak Traffic Counts during 7am-9am from Table 18
(weekday/weekend)

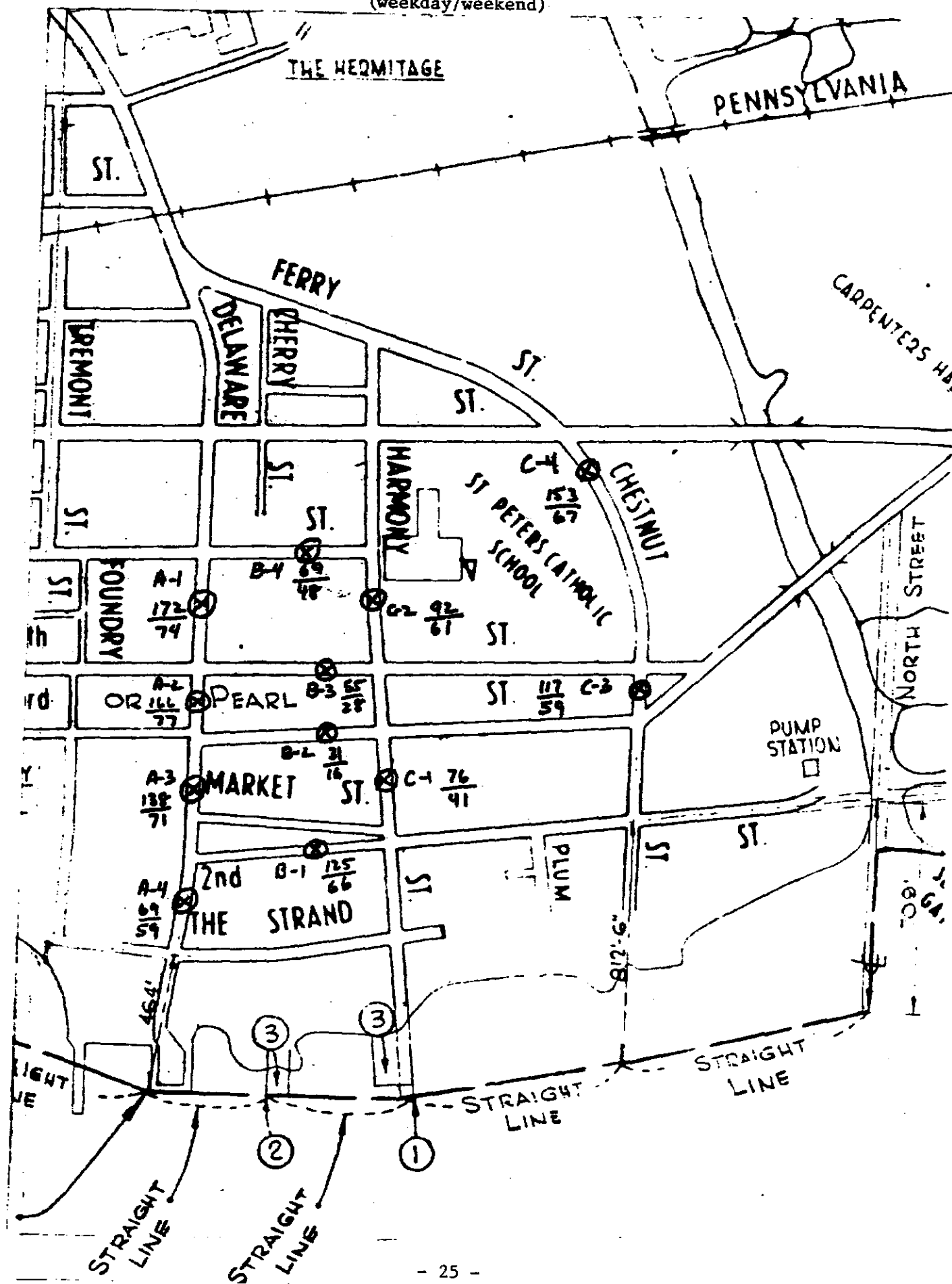


Figure 4

Peak Traffic Counts during 9am-12pm from Table 19
(weekday/weekend)

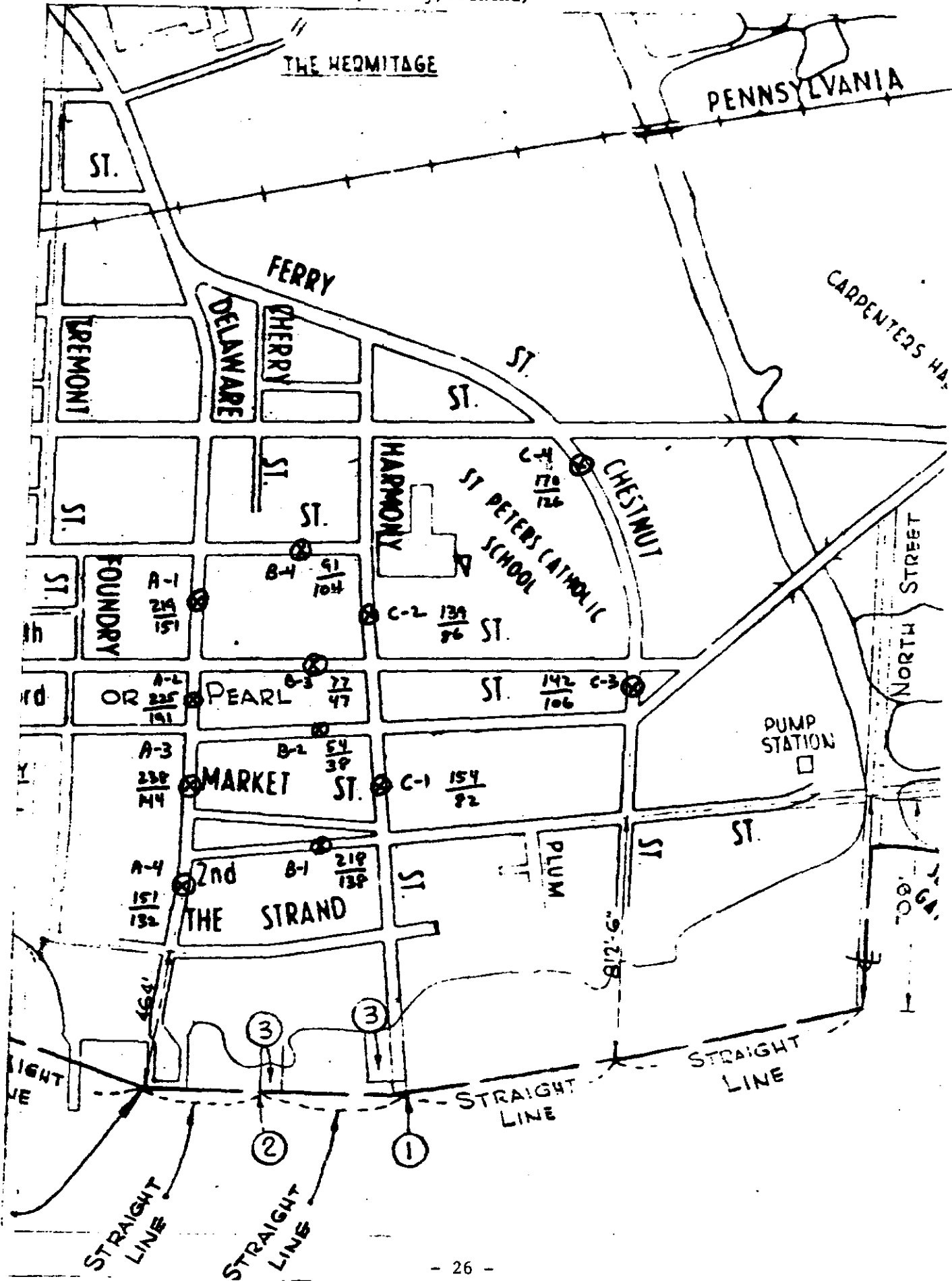


TABLE 18
Traffic Counts during 7am-9am
(cars per hour)

<u>Counters</u>	Weekday		Weekend	
	<u>Average</u>	<u>Peak</u>	<u>Average</u>	<u>Peak</u>
A1	135	172	50	74
A2	95	166	51	77
A3	84	138	39	71
A4	55	69	40	59
B1	91	125	41	66
B2	23	31	11	16
B3	45	55	17	28
B4	50	69	30	48
C1	57	76	27	41
C2	77	92	35	61
C3	89	117	38	59
C4	123	153	45	67

TABLE 19
Traffic Counts during 9am-12pm
(cars per hour)

<u>Counters</u>	Weekday		Weekend	
	<u>Average</u>	<u>Peak</u>	<u>Average</u>	<u>Peak</u>
A1	181	219	118	151
A2	174	225	124	191
A3	174	238	106	144
A4	92	151	91	132
B1	168	218	109	138
B2	36	54	27	38
B3	46	77	35	47
B4	61	91	60	104
C1	101	154	65	82
C2	112	139	75	86
C3	111	142	82	106
C4	127	120	97	126

Figure 5
Peak Traffic Counts during 12pm-4pm from Table 20
(weekday/weekend)

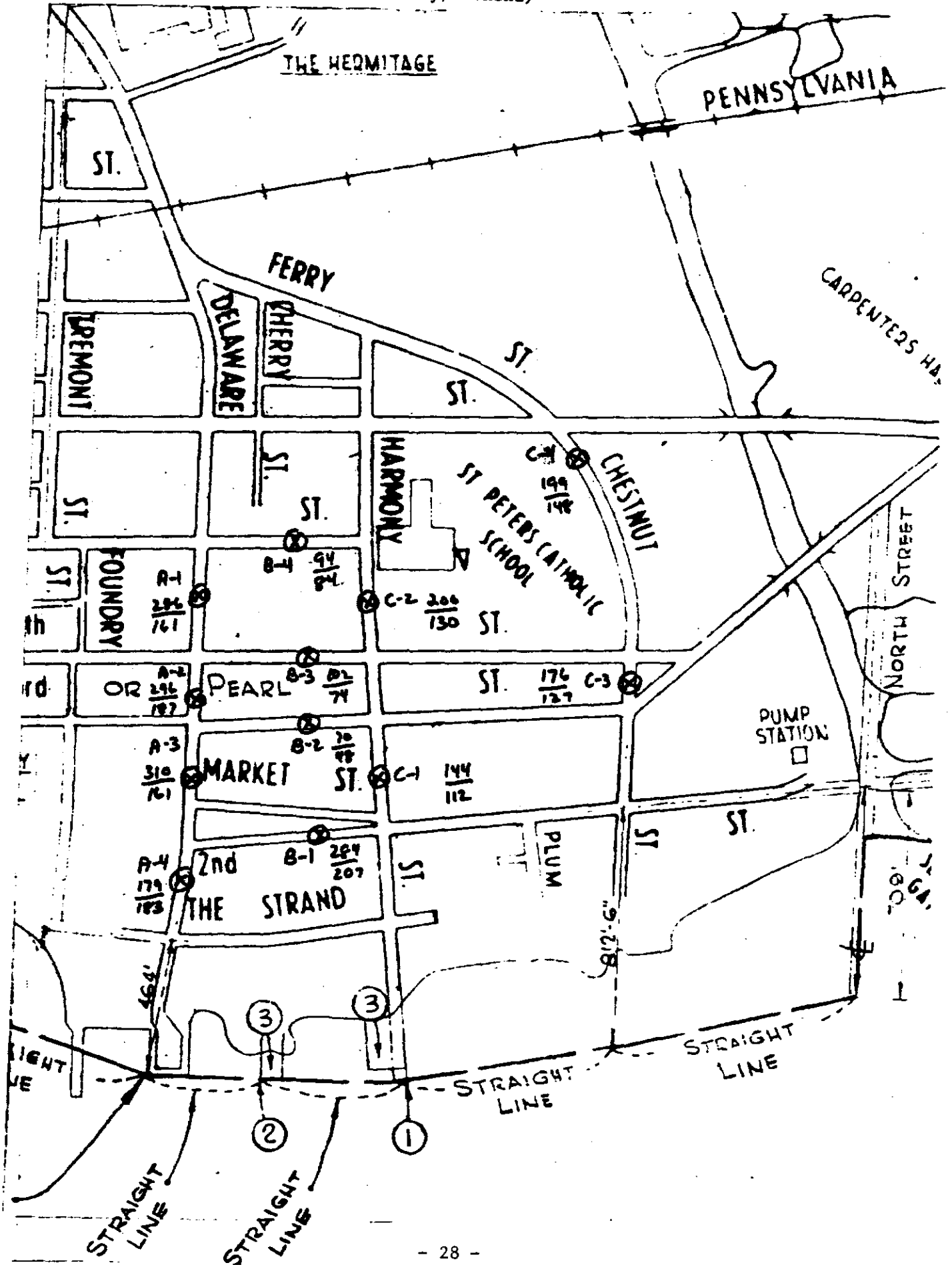


Figure 6

Peak Traffic Counts during 4pm-6pm from Table 21
(weekday/weekend)

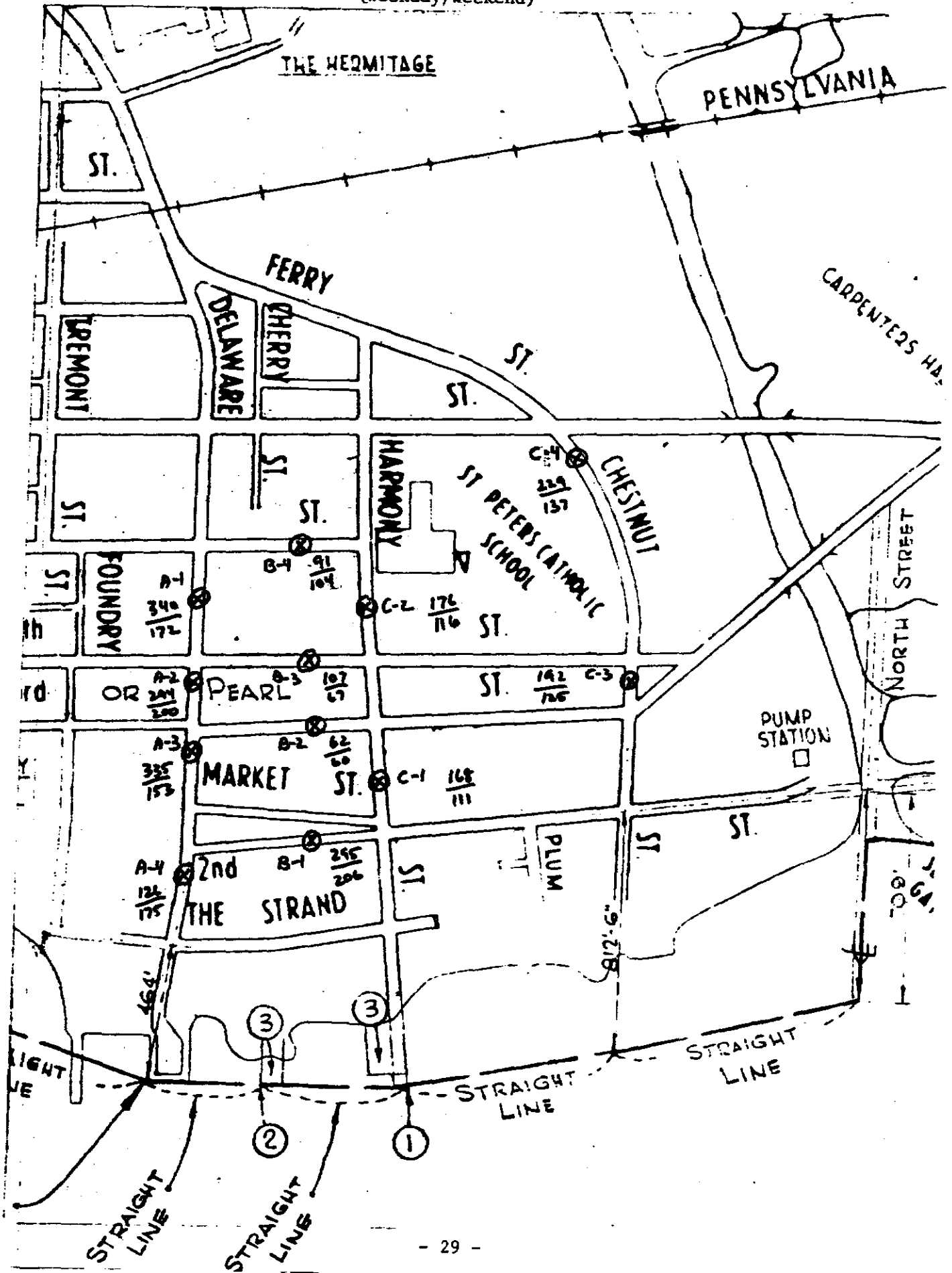


TABLE 20
Traffic Counts during 12am-4pm
(cars per hour)

<u>Counters</u>	Weekday		Weekend	
	<u>Average</u>	<u>Peak</u>	<u>Average</u>	<u>Peak</u>
A1	191	286	133	161
A2	202	296	146	187
A3	196	310	132	161
A4	180	179	140	183
B1	210	284	162	207
B2	46	70	38	48
B3	64	102	51	74
B4	73	94	54	84
C1	125	144	89	112
C2	140	200	102	130
C3	136	176	105	127
C4	156	199	125	148

TABLE 21
Traffic Counts during 4pm-6pm
(cars per hour)

<u>Counters</u>	Weekday		Weekend	
	<u>Average</u>	<u>Peak</u>	<u>Average</u>	<u>Peak</u>
A1	203	340	141	172
A2	194	294	146	200
A3	182	335	131	153
A4	102	126	146	175
B1	190	295	145	206
B2	42	62	36	60
B3	63	107	54	67
B4	66	91	57	104
C1	108	168	91	111
C2	116	176	93	116
C3	149	192	110	125
C4	175	229	118	137

Figure 7



TABLE 22

Traffic Counts during 6pm-9pm
(cars per hour)

<u>Counters</u>	Weekday		Weekend	
	<u>Average</u>	<u>Peak</u>	<u>Average</u>	<u>Peak</u>
A1	158	245	134	167
A2	187	289	156	191
A3	163	239	144	169
A4	198	324	196	243
B1	186	262	165	210
B2	43	65	39	62
B3	53	98	47	61
B4	60	75	67	128
C1	104	134	101	132
C2	111	184	99	132
C3	124	148	100	119
C4	140	165	121	142

Street Sign Survey.

The purpose of this survey was to determine the location of signs within the City which failed to meet the standards of the Department of Transportation and Highways, State of Delaware. According to their standards signs must conform to the following rules:

- a. the height of the sign must be approximately seven feet;
- b. the sign should be located between six feet and twelve feet from the roadway;
- c. the sign should not be obstructed from the driver's view.

The Department indicated that they generally take a passive role with respect to these standards. Unless a complaint is made or an accident occurs, either of which would bring the violation to light, the Department does not enforce the standards. Listed below in Table 23 are the problems noted in our survey.

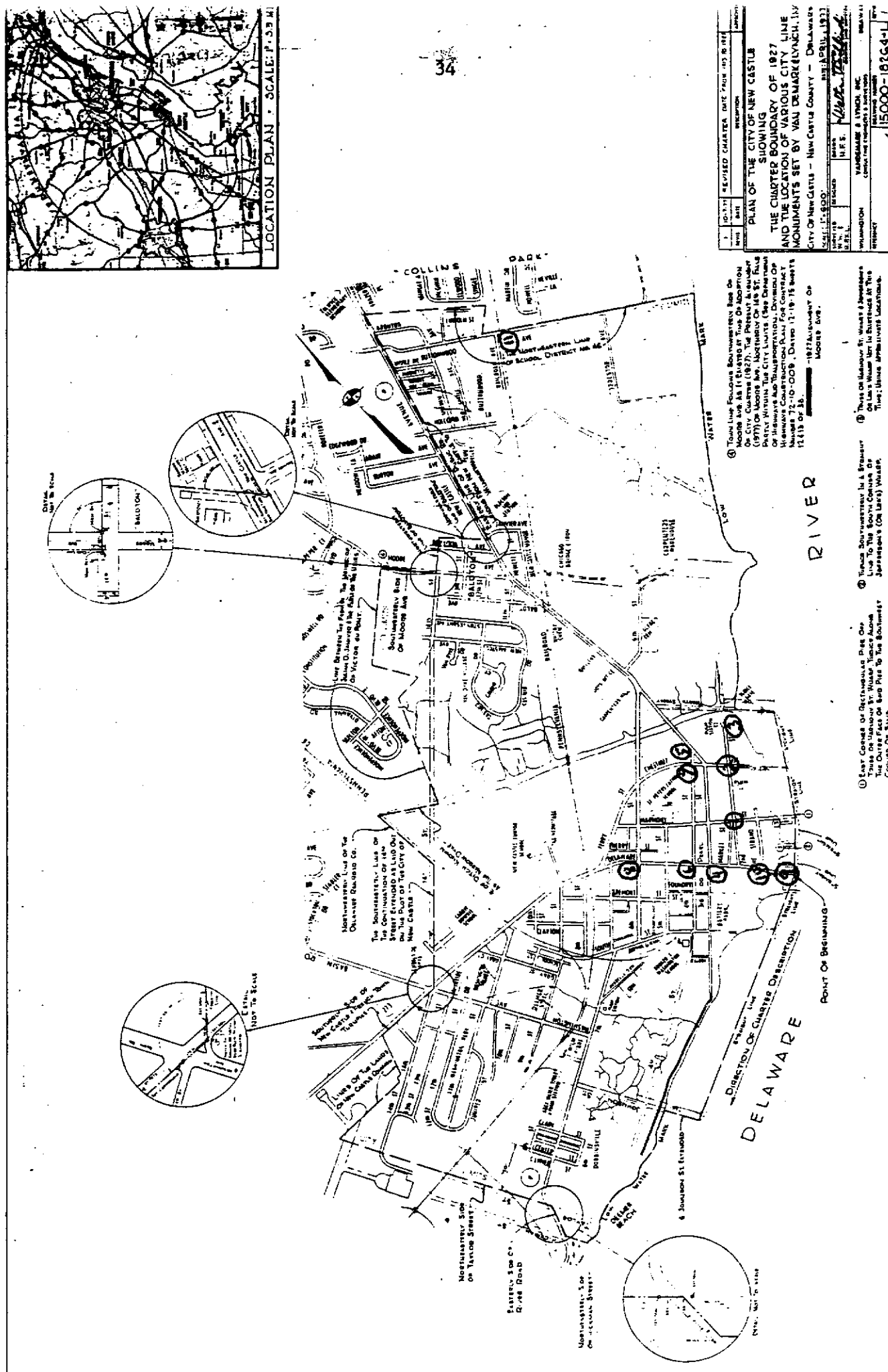
TABLE 23

Non-standard traffic signs by type,
location, and reason

<u>Type of sign</u>	<u>Location</u> [*]	<u>Reason</u>
1. Stop	2nd & Harmony	obstructed by tree
2. Stop	2nd & Chestnut	obstructed by tree branches
3. Children at Play	towards end of 2nd	obstructed by tree branches
4. SLOW	3rd, just off Delaware	obstructed by tree branches
Children at Play		
5. SLOW	end of 4th	too short
Children at Play		
6. One Way	4th & Delaware	too high, obstructed by tree
7. Stop	4th & Chestnut	obstructed by big tree trunk
8. No Parking	6th & Delaware	completely obstructed by tree
9. Stop	Delaware, near the water	falling over
10. Stop	Delaware & Strand	too high
11. Stop	Buttonwood at the RR crossing	falling over

*The location of these signs is also provided in Figure 8.

Figure 8



While in the field survey personnel noted that there was a general lack of signs in the northern portion of the City.

PARKING ANALYSIS

Introduction.

The design of the parking study closely paralleled that of the traffic analysis. The first component of the study measured citizen attitudes toward the present parking situation. Once again the purpose of this portion of the survey was to determine if there was any widespread discontent, apart from that expressed by merchants.

Further, counts of parking supply (capacity) and demand (use) were made at random times to include weekends, weekdays, mornings, afternoons, and evenings. The combination of the sample counts along with the citizen perceptions provides a good picture of the true situation.

Survey results.

A series of four complex questions were introduced to identify the magnitude, or at least the perception of the magnitude, of any parking problem in the City. Following the logic of the traffic questions, we first determined whether or not it was felt that there was a problem at all. Approximately 33 percent of those interviewed indicated that there was a problem. This is, of course, nearly twice the number that responded positively to the existence of a traffic problem. Perhaps a better measure, however, of this parking problem was the follow-up question which dealt with whether the person interviewed had personally experienced parking problems within the past 12 months. To that question more than 25 percent responded positively. Significantly, when asked to identify the day of week when the problem existed, nearly 75 percent responded that it existed every day of the week. This is

also consistent with the finding that the tourist problem was not seen as being a major factor for traffic problems in the City. When asked to describe the time of day when these parking problems existed (for those who chose to give us a response), the dominant response was "all of the time" although the secondary indicator was that "evenings and weekends" were perhaps more of a problem.

The dominant places mentioned as being a source of parking problems were, in order of importance, downtown Delaware Street, the bank on Delaware Street, the 200 block of East Second Street and on East Fourth Street. Most of these areas had been identified prior to conducting this survey as being potential problem spots but it is also useful to find that impressions can be confirmed by the experience of the broader population.

The residents were offered a series of proposals for solving any existing parking problems. These were: (1) time limit parking on Delaware Street within the business district; (2) special resident only parking areas with stickers; (3) building additional off-street parking facilities; and (4) no parking on one side of the street for one day a week for street cleaning. A total of 43.8 percent of the residents supported the first proposal for time limit parking in the business district and 47.5 percent of those interviewed were favorably disposed toward the resident only parking stickers. In addition, 44.9 percent were in favor of building off-street parking facilities and 81.6 percent of those interviewed indicated they would be in favor of special parking provisions to allow for street cleaning.

It is interesting to note that while 33 percent of the households felt that there was a noticeable parking problem, some 44 percent of those interviewed would be willing to support most of the proposals which would create additional parking space or at least restrict the use of existing

parking. However, we do see that the majority of the residents neither feel that there is a parking problem nor see that any of the three primary alternatives are warranted as a solution to the problem.

Parking Counts.

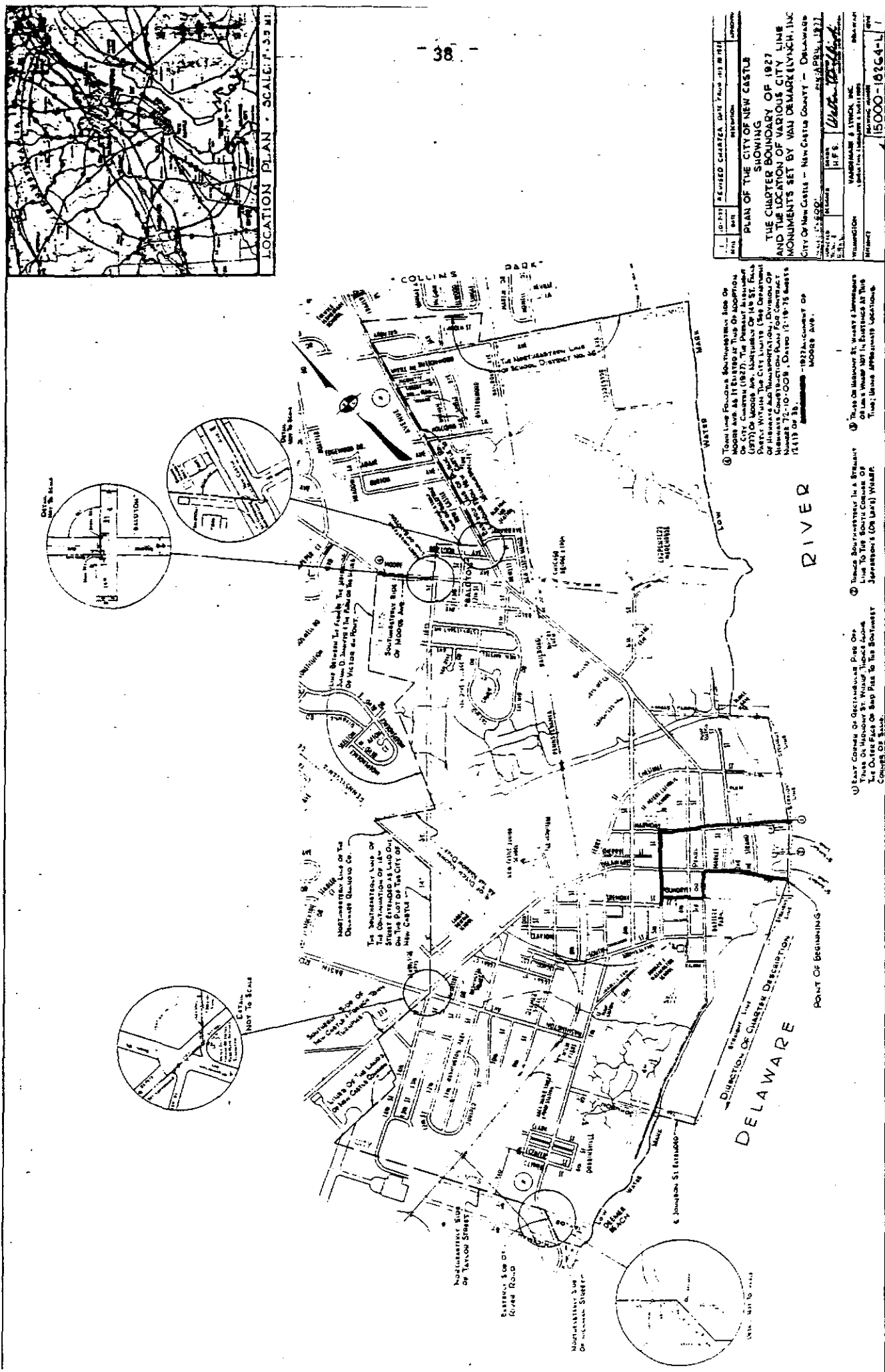
The purpose of the parking study was to determine whether or not a parking problem exists within the historical area of the city of New Castle. To meet this purpose, it was necessary to discover what percentage of the time the existing parking places are occupied. This was achieved through a utilization study based on parking supply/demand counts.

The supply of parking was first determined by simply counting the total number of available parking spaces in the designated area (see Figure 9). Since this statistic will remain virtually constant over time, the supply count was only taken once. In places where no parking lines existed, careful estimates were made by the field analyst.

The demand for parking was determined by counting the actual number of cars parked at a given time. These counts were taken at three different times of the day (10 A.M., 2 P.M., and 7 P.M.) and on four different days (2 weekdays, 2 weekend days). As also held true for the supply counts, the demand counts were broken down into small locational categories (e.g., on Delaware Street between 5th and 4th) to facilitate more specific and accurate analyses.

Once both the supply and demand counts have been determined, we are now able to specify the utilization rates. This rate is obtained by dividing the total spaces available for parking (supply) by the number of parked cars (demand); thus if 10 cars were parked in an area that possessed 20 spaces, the utilization rate for that location would be 50%. Besides location,

Figure 9



utilization rates are also presented for (1) each time of the day, both individual and aggregate, (2) day of the week, and (3) weekend and weekday.

The results of the parking study agree with those of the citizen survey and indicate that the City of New Castle does not have a critical parking problem. During only one of the twelve peak-period counts was the utilization rate in excess of 50%, and in even this single instance the rate was only 56.1% (Sunday morning at 10 A.M.). The utilization rates for the other eleven counts indicated that there existed more empty parking places than parked cars at almost any time of day. The average utilization was 46.4%.

Parking also appears to be relatively consistent during different times of the day and days of the week. The utilization rates for each day of the week, for weekdays and weekends, and for aggregate time counts all fell between 40 and 49 percent.

The utilization rates are high at a few selected locations. However, in only one location is the parking rate over 75%; this occurs on Delaware Street between 2nd and the Strand, which includes a total of nine parking spaces. Despite a high utilization rate at these relatively few locations, most drivers should not have a problem finding a parking location convenient to the business district.

Few instances of illegal parking were noted during the survey which is consistent with the availability of parking spaces.

After some discussion four additional counts were made to determine if there was a problem occurring on Thursday and Friday around five o'clock. These results are shown in Table 25. The supplemental data indicate that the overall use rate is up by 5%. Further the problem between 2nd Street

TABLE 24
Parking Study Results

Street	Weekday			Weekday			Weekend			Weekend			Use Rate
	1000	1400	1900	1000	1400	1900	1000	1400	1900	1000	1400	1900	
On Delaware (supply)													
5th-4th (12)	5	10	5	7	8	8	11	6	5	9	8	6	61.1%
4th-3rd (6)	4	8	3	5	5	3	1	4	1	4	1	0	54.1%
3rd-2nd (48)	35	41	33	31	44	26	23	26	12	23	20	26	59.0%
2nd-Strd (9)	10	8	9	7	9	10	9	9	10	8	8	9	98.1%
Strd-Rvr (33)	11	29	29	15	24	26	7	25	15	18	36	35	68.1%
On Harmony													
5th-4th (28)	11	7	10	10	9	11	9	13	11	14	10	7	36.3%
4th-3rd (15)	2	3	5	2	3	4	3	4	4	3	2	2	20.5%
3rd-2nd (27)	9	7	13	8	11	9	13	15	16	15	13	14	44.1%
2nd-Strd (27)	13	11	15	14	7	18	14	13	14	16	13	16	50.6%
Between Harmony & Delaware													
Strand (60)	26	28	29	29	26	32	30	33	27	33	32	34	49.9%
2nd (14)	11	9	6	14	9	11	11	10	7	20	8	9	74.4%
Market (42)	24	13	20	22	20	26	10	19	21	26	13	15	45.4%
3rd (50)	10	16	17	11	16	20	15	18	17	24	19	14	32.8%
4th (44)	14	16	21	14	15	19	23	16	22	25	22	20	43.0%
5th (43)	7	7	11	6	10	14	15	15	13	20	16	12	28.3%
Between Delaware & Foundary													
3rd (12)	4	5	8	5	7	6	9	9	5	6	9	6	54.8%
4th (31)	11	10	18	14	11	13	13	17	11	9	13	12	40.9%
5th (28)	7	11	11	7	10	9	9	9	7	24	9	12	37.2%
% Utilization	40.5	45.2	49.7	41.8	46.1	50.1	42.5	49.3	41.2	56.1	47.6	47.1	46.4%

TABLE 25
Supplemental Parking Study Results (4-6pm)

		<u>Thursday 9/12</u>	<u>Friday 9/13</u>	<u>Thursday 9/19</u>	<u>Friday 9/20</u>	<u>Use Rate</u>
<u>Street</u>						
On Delaware (supply						
5th-4th	(12)	10	7	9	11	77.1
4th-3rd	(6)	4	6	5	6	87.5
3rd-2nd	(48)	38	47	32	34	78.6
2nd-Strand	(9)	11	11	9	9	111.1
Strand-Rvr	(33)	13	13	9	8	32.6
On Harmony						
5th-4th	(28)	19	8	16	8	45.5
4th-3rd	(15)	4	2	2	1	15.0
3rd-2nd	(27)	15	14	11	12	48.1
2nd-Strd	(27)	12	14	12	13	47.2
Between Harmony & Delaware						
Strand	(60)	26	26	23	33	45.0
2nd	(14)	13	18	7	9	83.9
Market	(42)	24	29	14	12	47.0
3rd	(50)	29	29	19	18	47.5
4th	(44)	22	24	34	28	61.4
5th	(43)	12	11	12	14	28.5
Between Delaware & Foundary						
3rd	(12)	7	9	8	10	23.0
4th	(31)	23	18	18	16	60.5
5th	(28)	9	8	11	9	33.0
% Utilization		55.0%	55.6%	47.4%	47.4%	51.4%

and the Strand was even more severe with several illegally parked cars counted. The balance of the counts showed at least 10% excess capacity even at this peak period.

CONCLUSIONS AND RECOMMENDATIONS

The material which has been presented in this report suggest that the following conclusions can be reached.

(1) As of the time of the survey there is a need for an extensive educational process if the new charter is to be adopted. Resistance is broad to a number of the proposed changes.

(2) Traffic congestion does not appear to be a significant problem at this time. However, it is strongly suggested that the City have the State Highway Department repeat the counts provided in this report at a three year interval to track any change in the situation.

(3) Parking can be a problem at certain times of the day and week. While spaces are available within easy range of the central business district, there appears to be at least some feeling of inconvenience for users of those spaces. On the other hand, the creation of additional off-street parking at this time will generate even more excess capacity during off-peak hours. The cost of creating the capacity to satisfy the peak load demand, should be carefully balanced against that inconvenience.

(4) City services are well received by residents at the present time. We do however recommend periodic surveys to measure any changes which occur in this evaluation. Repeated measurement on a three year interval can provide valuable insight.

Overall, the problems which were studied in this project did not appear

to demand that Council take remedial action immediately. The Council should however continue to monitor these potential problems in the future.

APPENDIX A
QUESTIONNAIRE

CITY OF NEW CASTLE
COMMUNITY DEVELOPMENT SURVEY

March, 1978

- ___ 1. In what year did this household move to this address? 19__
- ___ 2. Where did your household last reside? (Circle one)
- | | |
|--|---|
| 1-Never Moved | 4-Kent or Sussex |
| 2-City of Wilmington | 5-Out of State |
| 3-New Castle County
(excluding Wilmington & Newark) | 6-City of New Castle
(different address) |
- ___ 3. In what year did this household establish its residence in New Castle? 19__
- ___ 4. When was this structure built? (Circle one)
- | |
|--------------------|
| 1. 1970 to present |
| 2. 1965 to 1969 |
| 3. 1960 to 1964 |
| 4. 1950 to 1959 |
| 5. 1940 to 1949 |
| 6. 1939 or earlier |
- ___ 5. How many rooms are in this home? (exclude bathrooms, halls, porches, and unfinished areas) ____ (Enter #)
- ___ 6. How many are bedrooms? ____ (Enter #)
- ___ 7. Do you have a basement? (Circle one)
- | |
|-------|
| 1-Yes |
| 0-No |
- ___ 8. What type of air conditioning is used? (Circle one)
- | | |
|-----------|-------------------|
| 1-None | 3-1 room unit |
| 2-Central | 4-2 or more units |
- ___ 9. How is your home heated? (Circle one)
- | | |
|------------|-------------------------|
| 1-Electric | 3-Oil |
| 2-Gas | 4-Other (specify) _____ |

___ 10. Which of the following electrically operated appliances are used in this household? (Check all that apply)

___ Hot water heater
___ Range
___ Refrigerator
___ Color TV

___ Freezer (separate)
___ Dishwasher
___ Clothes washer
___ Clothes dryer

___ 11. Is this house lacking adequate plumbing in any way? (Circle one)

1-Yes

0-No

___ 12. How would you rate the condition of the building in which you live? (Circle one)

1-Excellent
2-Pretty good
3-Fair

4-Poor
7-Refused
9-Don't know

___ 13. How would you rate this neighborhood as a place to live? (Circle one)

1-Excellent
2-Pretty good
3-Fair

4-Poor
7-Refused
9-Don't know

___ 14. Do you own or rent your home? (Circle one)

1-Rent (go to Q. 20)
2-Own

___ 15. What was the purchase price of your home? \$_____,000.

___ 16. How much would you estimate that your house would bring if you sold it today?

\$ _____,000

___ 17. What are your current monthly mortgage payments?

\$ _____ Check here if no mortgage (Go to Q. 21)

___ 18. Does that include taxes and/or insurance? (Circle one)

1-Yes (go to Q. 21)

0-No (go to Q. 21)

___ 19. What is your monthly rent? \$ _____

___ 20. Does that include electricity? (Circle one)

1-Yes

0-No

___ 21. Does your home need major repairs to any of the following? (Enter code)
Code:

a) Roof	___	1-Yes
b) Electric Wiring	___	0-No
c) Plumbing	___	9-Don't know
d) Heating System	___	
e) Other	_____	

___ 22. How many passenger cars are used at this address? (include pickups and panels used for personal transport) # ___

___ 23. Considering the amount of property taxes you pay, how satisfied are you with the city services you receive? (Circle one)

1-Very satisfied	7-Refused
2-Satisfied	9-Don't know
3-Dissatisfied	
4-Very dissatisfied	

___ 24. How satisfied are you with the following city services? (Enter code)

Code: 1-Very satisfied	___ Police protection
2-Satisfied	___ Fire protection
3-Dissatisfied	___ Trash collection
4-Very dissatisfied	___ Public transportation
	___ Park maintenance
	___ Recreation programs
	___ Traffic control
	___ Parking

___ 25. How satisfied are you with the general state of repair of the streets in your neighborhood? (Circle one)

1-Very satisfied	
2-Satisfied	
3-Dissatisfied (Name of street: _____)	
4-Very dissatisfied (Name of street: _____)	

___ 26. How satisfied are you with the general state of repairs of the streets in the rest of the city? (Circle one)

1-Very satisfied	
2-Satisfied	
3-Dissatisfied (Name of street: _____)	
4-Very dissatisfied (Name of street: _____)	

___ 27. How satisfied are you with the street cleaning in your neighborhood? (Circle one)

1-Very satisfied
2-Satisfied
3-Dissatisfied
4-Very dissatisfied

___ 28. How satisfied are you with the quality of your water? (Enter code)

Code: 1-Very satisfied
2-Satisfied
3-Dissatisfied
4-Very dissatisfied

a-with respect to odor: ___
b-with respect to taste: ___
c-with respect to pressure: ___

___ 29. In the past twelve months were you the victim of a crime or an attempted crime inside the New Castle City limits?

1-Yes
0-No (skip to Q. 31)
8-Not applicable

___ 30. Did you report the crime?

1-Yes
0-No
8-Not applicable

___ 31. Has any member of this household participated in the City recreation program during the past year?

1-Yes
0-No

___ 32. Would you favor expanding the City recreation program?

1-Yes
0-No
9-Don't Know

33. If yes, what one program would you most like to see offered?

___ 34. Ignoring for the time being the difficulties caused by heavy snows, do you feel that there is a problem with parking first in the city; and second, in your neighborhood?

1-Yes
0-No
9-Don't know

___ 35. Have you yourself experienced parking problems during the last twelve months?

1-Yes
0-No

36. If yes, please tell us the times of day, days of week, and places where these problems usually occur.

	Time	Day	Place
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____

37. Please tell us which of the following proposals you would support.
(1-Support, 0-No support)

- ___ 1. Time limit parking on Delaware Street within the business district.
- ___ 2. Special resident only parking areas with stickers.
- ___ 3. Building additional off-street parking facilities.
- ___ 4. No parking on one side of the street one day each week for street cleaning.

___ 38. Do you feel that there is a traffic problem in the City of New Castle?

1-Yes
0-No
9-Don't know

___ 39. If yes, what are the reasons for these problems, in your opinion?

1 _____
2 _____
3 _____

___ 40. During the past few years, several major changes in traffic flows have been made. Were you aware of these changes?

1-Yes
0-No
8-Not applicable
9-Don't know

___ 41. Would you in general favor a continuation of the changes you have noticed?

1-Yes
0-No
8-Not applicable
9-Don't know

___ 42. Delaware, Harmony and part of 2nd Street are now one way. Do you like this pattern?

1-Yes
0-No
9-Don't know

If not, why not? _____

___ 43. What suggestions would you make to reduce traffic problems?

___ 44. Would you favor placing a traffic light at 6th and Chestnut?

1-Yes
0-No
9-Don't know

___ 45. A new charter has been recommended to Council by a Charter Committee. Please indicate your feelings about its provisions. Should the offices and departments of the city be directed and supervised by a professional manager who is appointed by the City Council and is responsible to the Council?

1-Yes
0-No
9-Don't Know

___ 46. Should the terms of office of the Mayor and members of Council be extended from two to four years?

1-Yes
0-No
9-Don't know

___ 47. Should the Mayor's Council be replaced by a City Alderman who would be appointed by the Council?

1-Yes
0-No
9-Don't know

___ 48. If four out of five members of Council agree should the Council have the power to borrow money and issue bonds without calling for a public referendum?

1-Yes
0-No
9-Don't know

___ 49. If you were to vote in a referendum to adopt this new charter, would you favor or oppose it?

1-Favor
0-Oppose
9-Don't know

___ 50. Currently, all members of Council are elected at the same time. Would you favor staggering terms so that only a portion of Council members are elected during each election?

1-Yes
0-No
9-Don't know

___ 51. The City will receive federal funds in the near future. From the list provided choose your first, second and third choices for spending these funds.

1 ___
2 ___
3 ___

___ 52. Listed below are a series of proposals. Please indicate whether or not you support each one. (1-Support, 0-No support)

- ___ 1. Would you subscribe to cable TV if it were available for a price of around \$8 per month?
- ___ 2. Would you favor barring all non-city residents from using Battery Park?
- ___ 3. Would you favor building a community recreation facility if federal funds were used to pay for it?
- ___ 4. Would you favor building a community swimming pool with City tax dollars?
___ With non-city funds?
- ___ 5. Would you support a bond issue to make improvements to the Delaware Street Wharf?
- ___ 6. Should the City spend tax dollars to encourage retail business in the City?

___ 53. Which of the following categories best describes your total family income in 1977?

(show card)

___ 54. Which of the following sources of income did this household have in 1977? (Check all that apply) Show card.

___ Wages & salaries

___ Unemployment compensation

___ Self-employed

___ Social Security

___ Dividends, capital gains

___ Public assistance

___ Property income

___ Disability income

___ Interest

___ Other: Retirement

Other: _____

55. For each member of the family, starting with the head of household, please provide the following information.

[illegible]

APPENDIX B

TRAFFIC COUNTS

Counter A-1

BUREAU OF PLANNING AND DESIGN MACHINE COUNT TRAFFIC DATA HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY 17	TUESDAY 18	WEDNESDAY 19	THURSDAY 20	FRIDAY 14	AVERAGE WEEKDAY	SATURDAY 15	SUNDAY 16	AVERAGE DAY OF W
12-1	9	21	15	9	37		43	57	
1-2	6	16	16	4	13		25	32	
2-3	5	9	4	1	9		10	8	
3-4	2	5	4	2	3		9	8	
4-5	2	2	7	18	4		4	1	
5-6	11	6	23	38	7		6	6	
6-7	26	71	66	71	30		21	10	
7-8	78	131	125	149	83		34	43	
8-9	140	131	147	161	144		74	51	
9-10	172	181	155	157	171		77	107	
10-11	158	157	175	211	181		132	133	
11-12	180	187	171	215	210		151	108	
12-1	209	169	176	179	286		161	113	
1-2	204	170	169	168	273		147	137	
2-3	208	147	133	139	249		157	111	
3-4	153	143	150	162	242		129	117	
4-5	161	179	159	168	340		172	118	
5-6	144	205	165	190	229		162	133	
6-7	190	245	189	186	143		154	127	
7-8	163	183	174	150	136		140	106	
8-9	159	132	116	127	98		124	98	
9-10	114	73	76	84	120		119	97	
10-11	94	49	50	59	110		98	55	
11-12	50	26	16	27	66		66	27	
TOTAL									

PERIOD TOTAL (D) ---

AVERAGE WEEK DAY (A) ---

AVG. DAY OF WK. SX(A) ---

SATURDAY ---

SUNDAY ---

TOTAL /7 ---

PEAK HOUR ---

DATE: ---

STATION NO. ---

ROAD NO. ---

TYPE STATION ---

COUNTY ---

DIRECTION FROM STA. ---

SYSTEM CLASS ---

TYPE OPERATION ---

MONTH ---

YEAR ---

REMARKS: START 7/14/78 EAST BOUND

DeL. St. Below 5th STATION # 1

A-1

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	AVERAGE WEEKDAY	SATURDAY	SUNDAY	AVER. DAY OF
12-1					23		53		
1-2					5		22		
2-3					3		17		
3-4					2		10		
4-5					10		5		
5-6					40		7		
6-7					76		17		
7-8					164		41		
8-9					172		61		
9-10					174		90		
10-11					189		121		
11-12					219		144		
12-1					251		136		
1-2					210		134		
2-3					193		138		
3-4					212		118		
4-5					272		144		
5-6					226		117		
6-7					146		144		
7-8					163		167		
8-9					141		144		
9-10					134		129		
10-11					87		77		
11-12					73		79		
TOTAL									

PERIOD TOTAL (D) ---

AVERAGE WEEK DAY (A) ---

AVG. DAY OF WK. 5X(A) ---

SATURDAY ---

SUNDAY ---

TOTAL /7 ---

PEAK HOUR ---

DATE: ---

STATION NO. ---

ROAD NO. ---

TYPE STATION ---

COUNTY ---

DIRECTION FROM STA. ---

SYSTEM CLASS ---

TYPE OPERATION ---

MONTH ---

YEAR ---

REMARKS:

station 1

A-2

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY 17	TUESDAY 18	WEDNESDAY 19	THURSDAY 20	FRIDAY 21	AVERAGE WEEKDAY	SATURDAY 15	SUNDAY 16	AVERAGE DAY OF WK
12-1	9	22	27	15	37		39	62	
1-2	5	13	24	10	16		36	33	
2-3	7	13	13	5	8		14	14	
3-4	2	5	5	1	5		8	9	
4-5	2	4	4	2	4		7	5	
5-6	10	5	7	14	5		6	6	
6-7	22	27	28	34	29		16	11	
7-8	58	60	64	69	68		34	31	
8-9	114	104	106	157	115		77	58	
9-10	171	139	156	165	171		79	107	
10-11	124	225	157	175	179		124	140	
11-12	170	162	189	220	208		191	110	
12-1	241	197	179	223	296		187	160	
1-2	200	188	185	185	295		154	130	
2-3	200	168	171	170	248		171	151	
3-4	161	148	153	141	244		127	134	
4-5	160	145	157	166	294		160	103	
5-6	147	177	186	159	239		200	131	
6-7	173	187	177	202	159		176	142	
7-8	182	289	217	200	150		164	114	
8-9	185	223	213	166	135		182	99	
9-10	125	142	123	141	121		139	97	
10-11	97	87	78	98	118		104	54	
11-12	53	59	62	66	153		81	26	
TOTAL									

PERIOD TOTAL (D) - - - - -

AVERAGE WEEK DAY (A) - - - - -

AVG. DAY OF WK. 5X(A) - - - - -

SATURDAY - - - - -

SUNDAY - - - - -

TOTAL /7 - - - - -

PEAK HOUR - - - - -

DATE: - - - - -

STATION NO. - - - - -

ROAD NO. - - - - -

TYPE STATION - - - - -

COUNTY - - - - -

DIRECTION FROM STA. - - - - -

SYSTEM CLASS - - - - -

TYPE OPERATION - - - - -

MONTH - - - - -

YEAR - - - - -

REMARKS: START 7/14/78 EAST BOUND

DEL. ST. BELOW 4th STATION #2

100

A-2

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	AVERAGE WEEKDAY	SATURDAY	SUNDAY	AVERAGE DAY OF
12-1					37		63		
1-2					26		30		
2-3					8		18		
3-4					3		9		
4-5					3		6		
5-6					11		8		
6-7					44		21		
7-8					63		40		
8-9					166		64		
9-10					176		86		
10-11					170		121		
11-12					178		154		
12-1					246		146		
1-2					207		139		
2-3					206		137		
3-4					216		113		
4-5					279		144		
5-6					217		135		
6-7					164		170		
7-8					187		191		
8-9					163		168		
9-10					130		133		
10-11					98		86		
11-12					75		93		
TOTAL									

PERIOD TOTAL (D) ---
AVERAGE WEEK DAY (A) ---

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STATION NO. ---
ROAD NO. ---
TYPE STATION ---
COUNTY ---

AVG. DAY OF WK. 5X(A) ---
SATURDAY ---
SUNDAY ---
TOTAL /7 ---

--	--	--	--	--	--

DIRECTION FROM STA. ---
SYSTEM CLASS ---
TYPE OPERATION ---
MONTH ---
YEAR ---

PEAK HOUR ---
DATE: ---

--	--

REMARKS: START 7/14/78 EASTBOUND
Del. St. Below 4th STATION #2

A-3

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY 17	TUESDAY 18	WEDNESDAY 19	THURSDAY 20	FRIDAY 21	AVERAGE WEEKDAY	SATURDAY 15	SUNDAY 16	AVERAGE DAY OF WK
12-1	7	22	29	17	31		41	60	
1-2	5	14	16	11	30		31	26	
2-3	5	9	15	6	13		10	10	
3-4	2	3	4	2	4		9	17	
4-5	3	3	2	2	4		5	6	
5-6	11	9	10	13	4		9	7	
6-7	25	20	21	26	28		16	16	
7-8	56	59	62	69	61		31	25	
8-9	84	90	99	133	96		71	42	
9-10	181	133	148	153	171		73	104	
10-11	115	175	168	169	192		107	109	
11-12	195	160	171	200	238		144	109	
12-1	209	183	190	209	260		161	125	
1-2	181	169	184	164	310		132	136	
2-3	200	160	174	159	263		140	157	
3-4	147	127	138	129	274		126	135	
4-5	144	133	144	143	335		147	112	
5-6	127	153	150	137	212		153	137	
6-7	143	153	148	173	154		155	141	
7-8	160	239	201	193	141		163	118	
8-9	151	208	172	154	110		143	98	
9-10	139	143	129	132	119		112	93	
10-11	52	82	62	73	107		104	53	
11-12	50	60	67	57	73		78	23	
TOTAL									

PERIOD TOTAL (D) ---

AVERAGE WEEK DAY (A) ---

AVG. DAY OF WK. 5X(A) ---

SATURDAY ---

SUNDAY ---

TOTAL /7 ---

PEAK HOUR ---

DATE: ---

STATION NO. ---

ROAD NO. ---

TYPE STATION ---

COUNTY ---

DIRECTION FROM STA. ---

SYSTEM CLASS ---

TYPE OPERATION ---

MONTH ---

YEAR ---

REMARKS: START 7/14/78 EASTBOUND
Del. St. Below 3rd station #3

A-3

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	AVERAGE WEEKDAY	SATURDAY	SUNDAY	AVERAGE DAY OF
A. M.									
12-1					32		34		
1-2					34		28		
2-3					8		16		
3-4					3		8		
4-5					3		6		
5-6					14		8		
6-7					31		24		
7-8					60		37		
8-9					138		58		
9-10					182		72		
10-11					159		97		
11-12					228		137		
P. M.									
12-1					233		133		
1-2					204		123		
2-3					232		125		
3-4					200		87		
4-5					279		121		
5-6					228		115		
6-7					139		148		
7-8					140		169		
8-9					156		163		
9-10					106		120		
10-11					97		87		
11-12					57		80		
TOTAL									

PERIOD TOTAL (D) — — — — —
AVERAGE WEEK DAY (A) — — — — —

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STATION NO. — — — — —
ROAD NO. — — — — —
TYPE STATION — — — — —
COUNTY — — — — —

AVG. DAY OF WK. 5X(A) — — — — —
SATURDAY — — — — —
SUNDAY — — — — —
TOTAL /7 — — — — —

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DIRECTION FROM STA. — — — — —
SYSTEM CLASS — — — — —
TYPE OPERATION — — — — —
MONTH — — — — —
YEAR — — — — —

PEAK HOUR — — — — —
DATE: — — — — —

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REMARKS: STATION # 3

A-4

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY 17	TUESDAY 18	WEDNESDAY 19	THURSDAY 20	FRIDAY 14	AVERAGE WEEKDAY	SATURDAY 15	SUNDAY 16	AVERAGE DAY OF WK
12-1	8	23	26	19	23		46	58	
1-2	10	17	16	13	11		36	32	
2-3	4	8	11	3	4		17	15	
3-4	3	4	3	0	4		5	8	
4-5	2	0	1	0	1		6	0	
5-6	7	8	5	12	3		7	6	
6-7	32	25	24	41	31		13	12	
7-8	52	61	49	68	52		28	32	
8-9	40	59	57	69	59		54	36	
9-10	62	63	82	67	57		66	84	
10-11	89	96	86	104	91		91	117	
11-12	113	105	138	151	107		113	132	
12-1	154	133	139	165	144		149	143	
1-2	130	141	145	128	179		130	183	
2-3	136	137	119	140	141		160	150	
3-4	131	139	120	101	137		131	156	
4-5	106	89	113	100	76		130	138	
5-6	90	126	120	98	100		175	157	
6-7	174	173	164	172	131		162	232	
7-8	231	324	256	221	155		243	177	
8-9	208	274	222	184	147		218	152	
9-10	130	164	139	118	107		139	127	
10-11	100	102	69	77	102		125	58	
11-12	44	53	64	78	73		80	37	
TOTAL									

PERIOD TOTAL (D) ---

AVERAGE WEEK DAY (A) ---

AVG. DAY OF WK. 5X(A) ---

SATURDAY ---

SUNDAY ---

TOTAL /7 ---

PEAK HOUR ---

DATE: ---

STATION NO. ---

ROAD NO. ---

TYPE STATION ---

COUNTY ---

DIRECTION FROM STA. ---

SYSTEM CLASS ---

TYPE OPERATION ---

MONTH ---

YEAR ---

REMARKS:

START 7/14/78

DeL. St. Below 2nd station #4

A-4

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	AVERAGE WEEKDAY	SATURDAY	SUNDAY	AVERAGE DAY OF WK
12-1					21		76		
1-2					18		25		
2-3					6		18		
3-4					5		12		
4-5					3		5		
5-6					11		11		
6-7					37		14		
7-8					49		33		
8-9					44		59		
9-10					89		59		
10-11					85		80		
11-12					70		76		
12-1					129		128		
1-2					123		134		
2-3					102		124		
3-4					122		98		
4-5					110		106		
5-6					97		167		
6-7					131		147		
7-8					177		209		
8-9					224		222		
9-10					139		209		
10-11					119		121		
11-12					73		103		
TOTAL									

PERIOD TOTAL (D) ---

AVERAGE WEEK DAY (A) ---

AVG. DAY OF WK. 5X(A) ---

SATURDAY ---

SUNDAY ---

TOTAL /7 ---

PEAK HOUR ---

DATE: ---

REMARKS:

STATION NO. ---

ROAD NO. ---

TYPE STATION ---

COUNTY ---

DIRECTION FROM STA. ---

SYSTEM CLASS ---

TYPE OPERATION ---

MONTH ---

YEAR ---

Station #4

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY 17	TUESDAY 18	WEDNESDAY 19	THURSDAY 20	FRIDAY 14	AVERAGE WEEKDAY	SATURDAY 15	SUNDAY 16	AVERAGE DAY OF WK
12-1	10	19	31	21	41		48	61	
1-2	3	16	17	17	39		34	31	
2-3	3	11	16	3	10		17	16	
3-4	2	3	5	1	5		5	19	
4-5	0	0	2	0	1		8	4	
5-6	8	7	9	10	5		6	3	
6-7	22	27	26	28	31		9	11	
7-8	72	78	82	85	80		30	26	
8-9	80	93	96	123	90		66	38	
9-10	160	133	154	139	162		80	102	
10-11	177	172	147	178	195		113	126	
11-12	168	146	168	199	218		127	138	
12-1	222	218	197	246	235		207	139	
1-2	207	197	196	221	218		140	171	
2-3	241	184	207	181	284		172	159	
3-4	180	162	169	136	283		158	175	
4-5	165	153	170	159	295		138	136	
5-6	138	161	150	134	260		206	137	
6-7	153	175	164	189	158		147	174	
7-8	182	262	223	214	137		194	147	
8-9	202	234	218	190	135		210	130	
9-10	126	152	139	147	122		122	105	
10-11	92	106	68	140	115		120	55	
11-12	64	69	65	70	79		82	33	
TOTAL									

PERIOD TOTAL (D) — — — — —

AVERAGE WEEK DAY (A) — — — — —

AVG. DAY OF WK. 5X(A) — — — — —

SATURDAY — — — — —

SUNDAY — — — — —

TOTAL /7 — — — — —

PEAK HOUR — — — — —

DATE: — — — — —

STATION NO. — — — — —

ROAD NO. — — — — —

TYPE STATION — — — — —

COUNTY — — — — —

DIRECTION FROM STA. — — — — —

SYSTEM CLASS — — — — —

TYPE OPERATION — — — — —

MONTH — — — — —

YEAR — — — — —

REMARKS: START 7/14/78 NORTHBOUND
2nd st between Del. & Harmony STATION # 8

B-1

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	AVERAGE WEEKDAY	SATURDAY	SUNDAY	AVERAGE DAY OF WK
12-1					51		67		
1-2					37		37		
2-3					8		24		
3-4					4		9		
4-5					1		4		
5-6					13		6		
6-7					31		14		
7-8					88		29		
8-9					125		57		
9-10					166		68		
10-11					214		110		
11-12					129		117		
12-1					226		163		
1-2					200		160		
2-3					206		123		
3-4					220		127		
4-5					270		114		
5-6					230		137		
6-7					169		128		
7-8					156		167		
8-9					195		188		
9-10					132		176		
10-11					103		98		
11-12					73		113		
TOTAL									

PERIOD TOTAL (D) ---
AVERAGE WEEK DAY (A) ---

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STATION NO. ---
ROAD NO. ---
TYPE STATION ---
COUNTY ---

AVG. DAY OF WK. 5X(A) ---
SATURDAY ---
SUNDAY ---
TOTAL /7 ---

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DIRECTION FROM STA. ---
SYSTEM CLASS ---
TYPE OPERATION ---

--	--

PEAK HOUR ---

--	--	--	--	--

--	--

MONTH ---
YEAR ---

REMARKS:

STATION # 8

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY 17	TUESDAY 18	WEDNESDAY 19	THURSDAY 20	FRIDAY 14	AVERAGE WEEKDAY	SATURDAY 15	SUNDAY 16	AVERAGE DAY OF WK
12-1	4	4	12	9	10		18	8	
1-2	1	1	5	3	8		11	6	
2-3	2	0	4	0	1		2	3	
3-4	1	0	2	1	0		2	4	
4-5	0	0	2	0	0		1	3	
5-6	2	1	3	1	0		1	1	
6-7	4	7	9	14	6		2	1	
7-8	25	31	25	28	15		4	7	
8-9	20	17	21	28	20		15	16	
9-10	41	29	41	31	43		27	17	
10-11	38	30	31	32	39		24	24	
11-12	42	35	32	36	54		38	36	
12-1	59	37	44	47	62		48	26	
1-2	41	35	44	44	70		36	36	
2-3	48	36	48	37	63		38	32	
3-4	37	33	39	24	58		37	66	
4-5	33	30	45	28	62		32	28	
5-6	40	43	34	32	50		60	34	
6-7	27	51	48	44	30		32	37	
7-8	45	65	50	55	29		62	23	
8-9	38	52	45	53	22		42	18	
9-10	24	33	32	47	35		25	26	
10-11	45	25	17	31	26		29	20	
11-12	11	17	14	23	19		26	9	
TOTAL									

PERIOD TOTAL (D) ---

AVERAGE WEEK DAY (A) ---

AVG. DAY OF WK. 5X(A) ---

S TUESDAY ---

S WEDNESDAY ---

TOTAL /7 ---

PEAK HOUR ---

DATE: ---

STATION NO. ---

ROAD NO. ---

TYPE STATION ---

COUNTY ---

DIRECTION FROM STA. ---

SYSTEM CLASS ---

TYPE OPERATION ---

MONTH ---

YEAR ---

REMARKS: START 7/14/78 South Bound
3rd St. Between Del. & Harmony Station # 7

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	AVERAGE WEEKDAY	SATURDAY	SUNDAY	AVERAGE DAY OF WK
A. M.	12-1				8		13		
	1-2				6		3		
	2-3				1		1		
	3-4				3		2		
	4-5				0		2		
	5-6				1		1		
	6-7				12		6		
	7-8				22		6		
	8-9				26		16		
	9-10				38		17		
	10-11				35		30		
	11-12				26		31		
P. M.	12-1				43		45		
	1-2				48		25		
	2-3				60		30		
	3-4				51		33		
	4-5				60		28		
	5-6				52		31		
	6-7				40		55		
	7-8				45		44		
	8-9				31		34		
	9-10				25		26		
	10-11				29		20		
	11-12				13		26		
TOTAL									

PERIOD TOTAL (D) ---
AVERAGE WEEK DAY (A) ---

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STATION NO. ---
ROAD NO. ---
TYPE STATION ---
COUNTY ---

AVG. DAY OF WK. 5X(A) ---
SATURDAY ---
SUNDAY ---
TOTAL /7 ---

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DIRECTION FROM STA. ---
SYSTEM CLASS ---
TYPE OPERATION ---
MONTH ---
YEAR ---

PEAK HOUR ---
DATE: ---

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REMARKS:

STATION #7

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY 17	TUESDAY 18	WEDNESDAY 19	THURSDAY 20	FRIDAY 14	AVERAGE WEEKDAY	SATURDAY 15	SUNDAY 16	AVERAGE DAY OF WK
12-1	2	3	6	5	6		15	7	
1-2	4	2	2	1	10		8	9	
2-3	0	2	0	3	3		9	4	
3-4	0	0	1	0	0		2	2	
4-5	0	0	0	0	0		1	0	
5-6	3	0	0	2	1		0	2	
6-7	23	17	11	9	7		5	2	
7-8	50	40	43	39	40		9	16	
8-9	51	51	51	41	55		28	17	
9-10	49	48	45	38	45		25	15	
10-11	28	41	44	49	45		47	38	
11-12	40	47	39	43	57		45	36	
12-1	73	54	66	51	69		52	40	
1-2	60	45	53	55	75		40	68	
2-3	49	58	47	93	102		50	32	
3-4	76	73	59	66	64		74	65	
4-5	67	49	56	57	107		60	46	
5-6	46	52	52	58	80		49	67	
6-7	62	74	59	48	49		52	50	
7-8	54	67	52	59	35		61	32	
8-9	26	98	59	52	36		37	24	
9-10	77	47	26	28	31		26	30	
10-11	27	12	27	28	39		29	33	
11-12	31	16	12	18	9		23	8	
TOTAL									

PERIOD TOTAL (D) ---

AVERAGE WEEK DAY (A) ---

AVG. DAY OF WK. 5X(A) ---

TUESDAY ---

SUNDAY ---

TOTAL /7 ---

PEAK HOUR ---

SITE: ---

STATION NO. ---

ROAD NO. ---

TYPE STATION ---

COUNTY ---

DIRECTION FROM STA. ---

SYSTEM CLASS ---

TYPE OPERATION ---

MONTH ---

YEAR ---

MARKS: START 7/14/78 North Bound

4th St. Between Del. & Harmony Station #6

B-3

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	AVERAGE WEEKDAY	SATURDAY	SUNDAY	AVERAGE DAY OF WK
12-1					3		15		
1-2					5		6		
2-3					4		0		
3-4					2		0		
4-5					0		2		
5-6					0		0		
6-7					6		2		
7-8					31		13		
8-9					47		19		
9-10					42		36		
10-11					46		28		
11-12					77		48		
A.M.									
12-1					57		42		
1-2					69		37		
2-3					67		66		
3-4					60		50		
4-5					71		53		
5-6					58		48		
6-7					45		56		
7-8					39		60		
8-9					47		54		
9-10					38		35		
10-11					14		21		
11-12					22		10		
P.M.									
TOTAL									

PERIOD TOTAL (D) ---
AVERAGE WEEK DAY (A) ---

AVG. DAY OF WK. 5X(A) ---
SATURDAY ---
SUNDAY ---
TOTAL /7 ---

PEAK HOUR ---
DATE: ---

STATION NO. ---
ROAD NO. ---
TYPE STATION ---
COUNTY ---

DIRECTION FROM STA. ---
SYSTEM CLASS ---
TYPE OPERATION ---
MONTH ---
YEAR ---

REMARKS:

STATION #6

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY 17	TUESDAY 18	WEDNESDAY 19	THURSDAY 20	FRIDAY 14	AVERAGE WEEKDAY	SATURDAY 15	SUNDAY 16	AVERAGE DAY OF W
12-1	4	3	1	8	11		13	18	
1-2	2	4	4	5	5		3	9	
2-3	2	2	3	1	2		5	4	
3-4	1	1	3	1	1		2	0	
4-5	1	1	2	3	0		3	3	
5-6	4	3	1	2	4		1	5	
6-7	13	14	11	12	13		8	1	
7-8	41	29	51	38	41		15	11	
8-9	66	57	52	61	69		37	48	
9-10	73	49	59	56	54		48	57	
10-11	77	58	45	66	58		37	94	
11-12	91	39	54	58	72		56	104	
12-1	66	71	85	77	75		69	69	
1-2	84	77	69	74	94		51	54	
2-3	77	75	60	79	91		48	37	
3-4	72	83	55	46	89		38	38	
4-5	70	55	52	62	91		52	91	
5-6	51	63	75	55	80		104	47	
6-7	57	63	64	57	59		128	45	
7-8	70	59	50	57	54		80	45	
8-9	63	75	60	49	73		69	45	
9-10	34	53	42	42	28		38	35	
10-11	29	22	16	23	25		30	24	
11-12	13	15	22	18	19		25	9	
TOTAL									

PERIOD TOTAL (D) ---

AVERAGE WEEK DAY (A) ---

AVG. DAY OF WK. 5X(A) ---

SATURDAY ---

SUNDAY ---

TOTAL /7 ---

PEAK HOUR ---

DATE: ---

STATION NO. ---

ROAD NO. ---

TYPE STATION ---

COUNTY ---

DIRECTION FROM STA. ---

SYSTEM CLASS ---

TYPE OPERATION ---

MONTH ---

YEAR ---

REMARKS: START 7/14/78 South Bound
5th St. Between Del. & Harmony Station # 5

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	AVERAGE WEEKDAY	SATURDAY	SUNDAY	AVERAGE DAY OF
12-1					8		17		
1-2					4		3		
2-3					3		6		
3-4					2		2		
4-5					1		3		
5-6					4		6		
6-7					17		5		
7-8					36		19		
8-9					60		48		
9-10					65		38		
10-11					47		62		
11-12					77		48		
12-1					77		59		
1-2					62		50		
2-3					66		47		
3-4					58		84		
4-5					78		59		
5-6					63		41		
6-7					72		52		
7-8					54		88		
8-9					50		47		
9-10					36		21		
10-11					14		14		
11-12					18		17		
TOTAL									

PERIOD TOTAL (D) ---
AVERAGE WEEK DAY (A) ---

AVG. DAY OF WK. 5X(A) ---
SATURDAY ---
SUNDAY ---
TOTAL /7 ---

PEAK HOUR ---
DATE: ---

STATION NO. ---
ROAD NO. ---
TYPE STATION ---
COUNTY ---

DIRECTION FROM STA. ---
SYSTEM CLASS ---
TYPE OPERATION ---
MONTH ---
YEAR ---

REMARKS:

station # 5

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY 17	TUESDAY 18	WEDNESDAY 19	THURSDAY 20	FRIDAY 14	AVERAGE WEEKDAY	SATURDAY 15	SUNDAY 16	AVERAGE DAY OF WK
12-1	2	10	23	11	32		29	43	
1-2	2	9	14	8	32		28	22	
2-3	1	6	8	2	9		10	9	
3-4	2	1	5	1	1		5	12	
4-5	0	1	1	1	0		3	1	
5-6	4	4	5	5	3		7	4	
6-7	21	15	13	17	13		4	6	
7-8	40	51	57	53	50		22	27	
8-9	55	69	61	76	54		41	30	
9-10	99	82	100	86	90		40	51	
10-11	90	96	90	98	106		72	82	
11-12	101	98	96	126	154		82	70	
12-1	130	125	115	137	152		109	58	
1-2	133	125	124	139	131		84	94	
2-3	133	119	107	94	141		109	57	
3-4	110	100	90	103	169		93	91	
4-5	96	95	97	92	144		89	90	
5-6	71	101	83	73	150		111	101	
6-7	91	93	90	84	87		81	86	
7-8	110	129	125	118	83		120	98	
8-9	121	134	124	129	69		132	129	
9-10	77	87	81	103	73		66	92	
10-11	57	69	45	69	70		72	49	
11-12	47	39	39	46	48		41	33	
TOTAL									

PERIOD TOTAL (D) ---

AVERAGE WEEK DAY (A) ---

AVG. DAY OF WK. 5X(A) ---

SATURDAY ---

SUNDAY ---

TOTAL /7 ---

PEAK HOUR ---

DATE: ---

STATION NO. ---

ROAD NO. ---

TYPE STATION ---

COUNTY ---

DIRECTION FROM STA. ---

SYSTEM CLASS ---

TYPE OPERATION ---

MONTH ---

YEAR ---

REMARKS: START 7/14/78 WestBound
HARMONY St. Below 3rd STATION #10

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	AVERAGE WEEKDAY	SATURDAY	SUNDAY	AVERAGE DAY OF
A. M.									
12-1					27		41		
1-2					26		23		
2-3					4		10		
3-4					3		6		
4-5					0		1		
5-6					7		5		
6-7					17		9		
7-8					50		16		
8-9					68		26		
9-10					104		44		
10-11					120		65		
11-12					82		25		
P. M.									
12-1					133		112		
1-2					129		89		
2-3					144		108		
3-4					120		67		
4-5					168		70		
5-6					128		83		
6-7					88		70		
7-8					76		92		
8-9					124		101		
9-10					67		86		
10-11					75		52		
11-12					40		72		
TOTAL									

PERIOD TOTAL (D) — — —

AVERAGE WEEK DAY (A) — — —

AVG. DAY OF WK. 5X(A) —

SATURDAY — — — — —

SUNDAY — — — — —

TOTAL /7 — — — — —

PEAK HOUR — — — — —

DATE: — — — — —

STATION NO. — — — — —

ROAD NO. — — — — —

TYPE STATION — — — — —

COUNTY — — — — —

DIRECTION FROM STA. — — — — —

SYSTEM CLASS — — — — —

TYPE OPERATION — — — — —

MONTH — — — — —

YEAR — — — — —

REMARKS:

STATION #10

1-2

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY 17	TUESDAY 18	WEDNESDAY 19	THURSDAY 20	FRIDAY 14	AVERAGE WEEKDAY	SATURDAY 15	SUNDAY 16	AVERAGE DAY OF WK
12-1	5	11	10	10	29		25	47	
1-2	3	9	13	9	32		21	15	
2-3	2	6	7	3	10		17	12	
3-4	1	2	4	1	2		6	10	
4-5	2	2	2	2	1		4	0	
5-6	7	9	6	10	5		8	7	
6-7	26	25	19	19	11		8	9	
7-8	61	56	73	70	72		19	29	
8-9	82	85	91	92	80		54	28	
9-10	108	103	99	110	97		49	71	
10-11	104	101	104	116	111		80	84	
11-12	110	103	107	133	136		77	86	
12-1	127	153	123	145	142		113	95	
1-2	137	129	132	151	200		95	85	
2-3	157	128	107	134	176		121	94	
3-4	92	117	90	82	174		103	90	
4-5	101	95	94	95	173		116	75	
5-6	100	84	79	84	159		95	77	
6-7	106	108	90	91	103		99	90	
7-8	120	130	112	117	79		118	73	
8-9	123	184	128	135	95		132	68	
9-10	70	98	78	69	58		71	62	
10-11	59	51	39	62	60		69	30	
11-12	40	40	32	42	44		45	18	
TOTAL									

PERIOD TOTAL (D) - - - - -

AVERAGE WEEK DAY (A) - - - - -

AVG. DAY OF WK. SX(A) - - - - -

SATURDAY - - - - -

SUNDAY - - - - -

TOTAL /7 - - - - -

PEAK HOUR - - - - -

DATE: - - - - -

STATION NO. - - - - -

ROAD NO. - - - - -

TYPE STATION - - - - -

COUNTY - - - - -

DIRECTION FROM STA. - - - - -

SYSTEM CLASS - - - - -

TYPE OPERATION - - - - -

MONTH - - - - -

YEAR - - - - -

REMARKS: START 7/14/78 WestBound
Harmony St. Below 5th STATION #9

02

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	AVERAGE WEEKDAY	SATURDAY	SUNDAY	AVERAGE DAY OF WK
A.M.	12-1				21		21		
	1-2				27		16		
	2-3				4		14		
	3-4				1		8		
	4-5				2		7		
	5-6				7		8		
	6-7				25		6		
	7-8				70		20		
	8-9				90		61		
	9-10				112		78		
	10-11				139		71		
	11-12				122		79		
P.M.	12-1				141		126		
	1-2				193		87		
	2-3				169		130		
	3-4				171		84		
	4-5				176		94		
	5-6				149		102		
	6-7				113		92		
	7-8				78		100		
	8-9				91		117		
	9-10				62		76		
	10-11				59		59		
	11-12				41		55		
TOTAL									

PERIOD TOTAL (D) ---
AVERAGE WEEK DAY (A) ---

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STATION NO. ---
ROAD NO. ---
TYPE STATION ---
COUNTY ---

AVG. DAY OF WK. 5X(A) ---
SATURDAY ---
SUNDAY ---
TOTAL /7 ---

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DIRECTION FROM STA. ---
SYSTEM CLASS ---
TYPE OPERATION ---
MONTH ---
YEAR ---

PEAK HOUR ---
DATE: ---

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REMARKS: STATION #9

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY 17	TUESDAY 18	WEDNESDAY 19	THURSDAY 20	FRIDAY 21	AVERAGE WEEKDAY	SATURDAY 13	SUNDAY 12	AVERAGE DAY OF WK
12-1	16	18	28	20	23		35	19	
1-2	5	13	13	14	12		20	22	
2-3	3	9	11	8	2		12	16	
3-4	2	6	1	1	5		9	6	
4-5	3	0	3	1	2		9	5	
5-6	12	10	13	15	3		5	10	
6-7	36	32	35	42	36		12	16	
7-8	83	94	80	93	80		30	25	
8-9	72	96	80	98	77		57	21	
9-10	117	98	106	102	112		74	48	
10-11	90	98	105	123	142		77	90	
11-12	114	90	119	123	126		96	95	
12-1	119	150	110	143	176		105	95	
1-2	128	121	105	119	172		117	108	
2-3	149	115	118	148	170		115	87	
3-4	119	117	135	113	195		107	119	
4-5	128	147	153	124	166		117	120	
5-6	128	104	135	140	192		125	101	
6-7	126	145	108	148	133		119	117	
7-8	122	117	145	114	103		84	95	
8-9	154	138	132	104	91		108	79	
9-10	80	99	80	84	82		83	67	
10-11	52	61	44	68	85		68	49	
11-12	53	48	27	44	46		41	27	
TOTAL									

PERIOD TOTAL (D) ---
AVERAGE WEEK DAY (A) ---

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STATION NO. ---
ROAD NO. ---
TYPE STATION ---
COUNTY ---

AVG. DAY OF WK. 5X(A) ---

TURSDAY ---
SUNDAY ---
TOTAL /7 ---

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DIRECTION FROM STA. ---

SYSTEM CLASS ---

TYPE OPERATION ---

PEAK HOUR ---

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MONTH ---

YEAR ---

MARKS: START 7/14/78

Chestnut St. Below 4th STATION #11

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	AVERAGE WEEKDAY	SATURDAY	SUNDAY	AVERAGE DAY OF
12-1					18		37		
1-2					14		23		
2-3					13		11		
3-4					3		11		
4-5					6		3		
5-6					20		13		
6-7					47		12		
7-8					117		35		
8-9					93		59		
9-10					126		65		
10-11					137		90		
11-12					78		106		
12-1					138		127		
1-2					130		113		
2-3					126		89		
3-4					143		80		
4-5					181		103		
5-6					188		93		
6-7					129		100		
7-8					100		109		
8-9					124		99		
9-10					97		100		
10-11					56		64		
11-12					57		50		
TOTAL									

PERIOD TOTAL (D) ---
AVERAGE WEEK DAY (A) ---

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STATION NO. ---
ROAD NO. ---
TYPE STATION ---
COUNTY ---

AVG. DAY OF WK. 5X(A) ---
SATURDAY ---
SUNDAY ---
TOTAL /7 ---

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DIRECTION FROM STA. ---
SYSTEM CLASS ---
TYPE OPERATION ---
MONTH ---
YEAR ---

PEAK HOUR ---
DATE: ---

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REMARKS:

Station # 11

C-4

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY 17	TUESDAY 18	WEDNESDAY 19	THURSDAY 20	FRIDAY 14	AVERAGE WEEKDAY	SATURDAY 15	SUNDAY 16	AVERAGE DAY OF WK
12-1	15	18	31	17	24		44	20	
1-2	7	14	11	15	11		20	27	
2-3	2	10	11	5	1		18	18	
3-4	0	6	1	3	4		10	6	
4-5	2	6	3	2	1		6	4	
5-6	17	11	17	18	4		7	10	
6-7	67	52	60	74	54		16	19	
7-8	132	144	140	126	127		45	24	
8-9	94	124	104	116	99		67	29	
9-10	133	107	113	103	125		84	52	
10-11	103	111	116	140	170		94	108	
11-12	124	109	148	152	148		112	107	
12-1	150	176	141	148	196		131	123	
1-2	151	137	132	139	196		135	122	
2-3	162	130	143	158	198		129	83	
3-4	134	144	145	135	199		135	132	
4-5	160	164	173	147	229		126	103	
5-6	141	133	151	169	211		137	104	
6-7	132	149	134	165	157		131	139	
7-8	129	160	154	131	113		114	109	
8-9	143	161	137	127	105		123	76	
9-10	93	101	94	100	84		73	73	
10-11	63	75	60	72	90		74	53	
11-12	48	53	24	54	44		46	30	
TOTAL									

PERIOD TOTAL (D) ---

AVERAGE WEEK DAY (A) ---

AVG. DAY OF WK. 5X(A) ---

S TUESDAY ---

SUNDAY ---

TOTAL /7 ---

PEAK HOUR ---

DATE: ---

STATION NO. ---

ROAD NO. ---

TYPE STATION ---

COUNTY ---

DIRECTION FROM STA. ---

SYSTEM CLASS ---

TYPE OPERATION ---

MONTH ---

YEAR ---

REMARKS: START 7/14/78

Chestnut St. Below 6th STATION #12

100

C-4

BUREAU OF PLANNING AND DESIGN
MACHINE COUNT TRAFFIC DATA
HOURLY RECORDED TRAFFIC DATA

HOURS	WEEK DAYS					A	B	C	X
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	AVERAGE WEEKDAY	SATURDAY	SUNDAY	AVERAGE DAY OF
12-1					15		39		
1-2					18		28		
2-3					10		11		
3-4					2		12		
4-5					5		6		
5-6					23		11		
6-7					75		17		
7-8					153		39		
8-9					114		67		
9-10					140		80		
10-11					148		108		
11-12					92		126		
12-1					163		148		
1-2					153		137		
2-3					131		112		
3-4					171		108		
4-5					206		126		
5-6					212		112		
6-7					150		127		
7-8					132		142		
8-9					145		129		
9-10					102		115		
10-11					65		67		
11-12					63		57		
TOTAL									

PERIOD TOTAL (D) ---
AVERAGE WEEK DAY (A) ---

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STATION NO. ---
ROAD NO. ---
TYPE STATION ---
COUNTY ---

AVG. DAY OF WK. 5X(A) ---
SATURDAY ---
SUNDAY ---
TOTAL /7 ---

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DIRECTION FROM STA. ---
SYSTEM CLASS ---
TYPE OPERATION ---
MONTH ---
YEAR ---

PEAK HOUR ---
DATE: ---

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REMARKS: STATION # 12