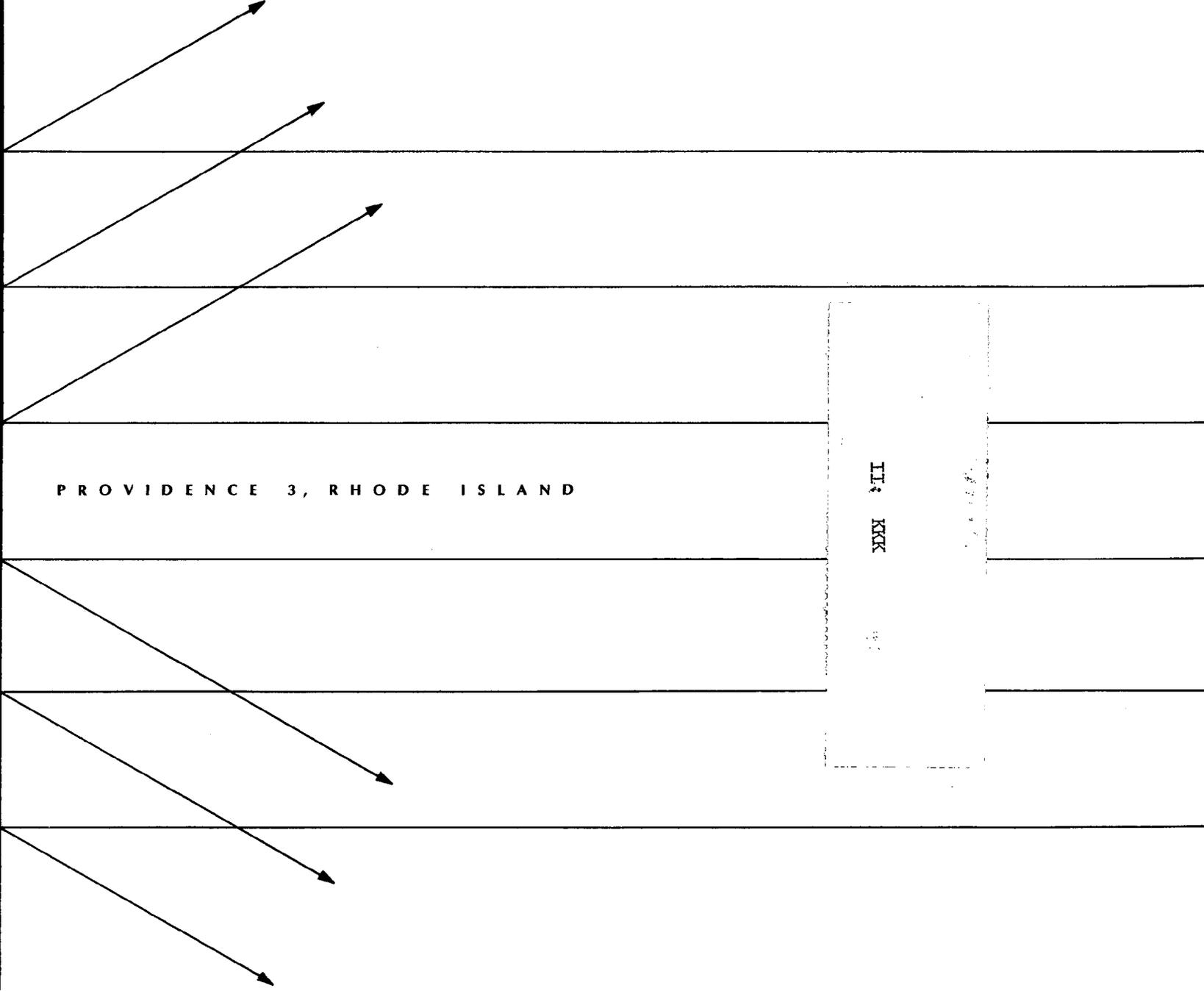


**COMMUNITY SHELTER PLAN**

PROVIDENCE 3, RHODE ISLAND

II: KKK



COMMUNITY SHELTER PLAN

Prepared for

PROVIDENCE CIVILIAN DEFENSE COUNCIL

by

CITY PLAN COMMISSION

under the direction of

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project manager

under contract with

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conducted under resolution

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## Foreword

### DEVELOPMENT OF A SHELTER ALLOCATION PLAN

This Community Shelter Plan for Providence, Rhode Island was developed in six phases in accordance with planning techniques developed by Stanford Research Institute of California. This report represents a summary of the detailed analysis that has gone into the development of this Community Shelter Plan for Providence.

Six detailed reports involving six phases were prepared within a four month period, in accordance with the contract executed between Stanford Research Institute and Providence City Plan Commission. In the first three phases (reports), preliminary assignments of people to shelter locations were made utilizing data from the 1960 U. S. Census and the National Fallout Shelter Survey.

In Phase Four the population of Providence was assigned to specific shelter locations. Those specific assignments were based on the most recent resurvey of shelter spaces (fall of 1964) and post-censal population estimates. Since estimating techniques are vital elements in the development of a community shelter plan, and since one of the basic objectives of the "50-city" Community Shelter Program is to assist other communities, a special technical report on estimating population from current data series has been prepared. This technical report will be made available upon request to the Providence City Plan Commission, City Hall, Providence, Rhode Island.

Phase Five involved population projecting to 1970 by census tracts and recommendations for future development of shelter space based on the size and location of this population. In Phase Six, procedures for updating the Community Shelter Program were developed.

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## Chapter 1

### COMMUNITY SHELTER PLAN FOR PROVIDENCE, RHODE ISLAND

#### Introduction

This plan was prepared as part of the "50-City" Community Shelter Program, currently being undertaken for the Office of Civil Defense by Stanford Research Institute. The purposes of this program were the preparation of at least one Community Shelter Plan (CSP) in each state and the refinement of the planning and administrative techniques required for a Nationwide CSP effort.

Providence was chosen as the city to be studied in Rhode Island. Stanford Research Institute contracted with the City Plan Commission of Providence which subcontracted with Myron K. Nalbandian, a consultant familiar both with civil defense and population estimates and projections. A principal planner and an associate planner were assigned by the Commission to the project.

#### Summary and Conclusions of Study

##### 1. Purpose

The purpose of this plan is to save lives against the harmful effects of radioactive fallout in the event of a nuclear attack. This CSP is part of the total operational civil defense plan of Providence which provides for the continuation of government and the provision of emergency services in the event of attack or disaster.

##### 2. Basics of Protection Against Fallout

Since the objective of this study is protection from fallout, it is necessary to understand the characteristics of the problem.

When a nuclear explosion occurs at or near ground level, a mushroom shaped cloud is formed which may rise as high as 15 miles above the earth. The cloud consists of radioactive dust and dirt particles drawn up into the cloud by the explosion. As the cloud cools the heavier dust and dirt particles begin falling back to earth. These radioactive particles of dust and dirt constitute what is known as local fallout. The particles continue to fall for a period of up to twelve hours. At the end of this time, most of the local fallout has ceased. During this period the cloud will move according to the direction and speed of the wind in the upper atmosphere. Local fallout is spread along the paths of the cloud. It usually falls only within a few hundred miles of the explosion, sometimes within 100 miles or less.

A community in the path of the cloud is subjected to a rain of local fallout settling on the roof tops, streets, yards or any other surface. Fallout is like snow or dust as it settles out, but it is not like a gas. It will not penetrate into a shelter any more than dust or snow would. The radioactivity of the particles decreases rapidly, but may remain somewhat dangerous for a week or more. During this time an unprotected person could easily absorb a sufficient amount of radiation to cause serious illness or death.

The way to stop radiation from fallout is to put some dense material in its path. As the rays pass through any matter their intensity is reduced. Heavy, dense materials such as iron or concrete will stop radiation more effectively than light materials such as wood or glass. The heavier and denser the material, the greater the degree of protection afforded.

The main function of a fallout shelter is to keep radiation from reaching the people inside. The deep basements under multi-story concrete buildings are excellent fallout shelters due to the fact that several feet of concrete and earth is situated between the gamma radiation outside the building and the people inside. Such a mass of concrete and earth will effectively reduce the intensity of the gamma rays reaching the people inside to the point where it would be relatively harmless. Persons inside such a shelter would survive, whereas those without such protection might die as the result of exposure to gamma radiation.

The length of time that a person must remain shielded from the source of gamma radiation depends upon the original intensity of the radiation, the degree of protection achieved by the shelter and the physical condition of the individual involved. Persons can leave a shelter when the radiation intensity has fallen to a tolerable level. The radiation intensity of each fallout particle goes down rapidly at first, and then more slowly, but always down. A safe level may be reached in a matter of hours or may take several days depending upon the original intensity. Fallout shelters are stocked with supplies for a maximum of two weeks occupancy.

Fallout shelters in Providence were identified by trained architects and engineers under contract with the U. S. Army Corps of Engineers during the last few years.

The normal protection from fallout in the home, even with basement shelters, is somewhere between four and ten times the protection of unprotected people. In the present community shelter plan, all assigned shelter locations have at least 40 times the protection which one would have in the open. This degree of protection is sufficient to insure the savings of lives in any but the most extreme fallout conditions. About 70 percent of the shelters used in this plan have a protected factor of 100 or better, the remaining 30 percent have a protection factor of 40-99.

### 3. Planning Factors and Policies

- A. This plan is limited geographically to the City of Providence. However, the political boundaries of Providence are artificial insofar as the protection of people in emergencies is concerned. Future planning should encompass all the people in the Providence community area.
- B. The time available for movement to shelter is 45 minutes of which 15 minutes would be used for reaction before movement to shelter began and in entering shelters and 30 minutes for actual travel time.
- C. Travel would be by walking since traffic congestion would make automobile traffic slow and difficult.
- D. During the 30 minutes time a maximum distance of one and one-half miles can be travelled to shelter.
- E. Some bypassing of shelters will be necessary to shelter all people.
- F. Only identified shelters with a protection factor of 40 or more and a capacity of 50 persons or more will be used. Limited overcrowding in selected shelters will be necessary.
- G. The shelter assignment plan will have six components in order to provide shelter for everyone expected to be in Providence at the time of emergency. The components are:
  - nighttime population
  - at home population
  - at work population

- on street population
- shopping and services populations
- in school population

#### 4. Shelter Situation

Using the planning factors, policies, and assumptions in the previous section, there is adequate shelter for all persons in Providence. There are a total of 408,344 shelter spaces of protection factor of 40 or more in Providence. During the daytime there is a peak population of 296,280 which includes workers and travellers from outside the city who may be in Providence at the time of an attack. The nighttime peak population estimate is 254,129. However, the population and shelter space are not equally and evenly distributed throughout the community making movement to shelter difficult to plan for.

The results of this specific allocation process are that all the inhabitants of Providence have an assigned shelter location no matter where they are found by day or by night. Also all the population of other communities who are in Providence during the daytime have an assigned shelter. Various maps are given with the plan to insure that all the people know the assigned shelter location, and the relevant authorities will be briefed as to the optimum method of directing shelter movement to shelter location areas in Providence. The details of the different shelter movement patterns are contained in the main body of this report.

#### 5. Public Information Documents and Methods of Dissemination of the Plan

Two maps will be presented as the key elements in public information of this community shelter plan. One map will consist of shelter districts which will be used for residential or nighttime population and for at-home daytime population. The second map will consist of census tracts, and will be used by the daytime population components of at-work, on-street, and shopping and services populations. A separate school plan has been drawn up and is now operational within the school system of Providence. Details of this plan have been presented in previous phase reports and have been approved by the Providence school system authorities. The school plan acts as a closed system and will not be used by the general public, so there is no need to make this school plan a part of the public information program except to assure the parents of school children that such a plan actually exists.

Adequate newspaper publicity should be given to the adoption and implementation of this community shelter program, and a household bulk mailing of the two documents should be undertaken. Thus, there will be some assurance that the shelter use plan is in the hands of every household in Providence. (See Chapter 4 for the maps and further detail.)

The information is summarized in the following table:

#### CSP INFORMATION PROGRAM

Population Component	Map No.	Distributed To
1. Nighttime	1	All households
2. At home daytime	1	All households
3. At work	2	Places of employment
4. On street	2	Police Department
5. Shopping & services	2	Retail and service establishments
6. In school	-	All schools (public and private)

## 6. Shelter Development Proposals of the Plan

Although it is theoretically possible to shelter all the population of Providence within the given planning assumptions, too many people must travel long distances to reach the assigned shelters. Moreover, some people must bypass certain shelters to leave them open for other people who would otherwise have no shelter at all. Both these conditions are undesirable. The development of new shelter locations, as set forth in Chapter 5, will not only reduce travel time to shelters and eliminate bypassing but also will increase the quality of shelter protection.

In the school shelter plan, the development of suggested school shelters would considerably decrease the movement time of school children to assigned shelter locations, and would eliminate most of the overcrowding which is now necessary in some instances. Once again, the quality of shelter protection would be improved.

In this report both existing and optimum shelter assignment plans are developed: Chapter 4 presents a plan based on existing shelter locations, and Chapter 5 presents a plan based on proposed shelter development. Also contained in Chapter 5 are the specific recommendations for shelter development.

## 7. Recommendations

### A. Local

- (1) Review and approval by Civilian Defense Council
- (2) Review and approval by the Providence City Council
- (3) Dissemination of the shelter assignment plan
- (4) Development of additional shelter space in proper locations as recommended in Chapter 5
- (5) Maintenance and revision of this CSP by the Providence Civilian Defense Council and the City Plan Commission

### B. State

- (1) Coordination and transmission of federal programs and guidance to localities

### C. Federal

- (1) Provision of updated population data by the Bureau of Census
- (2) Allocation of funds to localities for shelter development in public structures--the cost component of \$25 or less per shelter space should be counted as an average cost for all school buildings in the community rather than as an individual cost per building. If average rather than individual building costs were used as a criterion, modifications in needed individual buildings might be made even though the individual building costs might exceed \$25 per space, so long as the average cost to the community was not more than the \$25 limit per space. Shelter planning for school children could be improved using the average definition since shelter development could be better related to shelter deficient areas regardless of the individual cost of developing a particular building.
- (3) Federal funding for multi-purpose private structures--Federal action in shelter development should be addressed to multi-purpose shelter development. The school and hospital plans

for such development are fairly clear. These could be extended to private industrial construction in shelter deficient areas, to underground garages, to sports arenas and gymnasiums, even to central offices in outdoor recreational development such as pamping sites and beach areas. Highway construction might also be oriented to providing shelter locations in tunnels and underpasses.

### Preliminary Analysis

All of the data in the preliminary analysis of this Community Shelter Plan was obtained from the National Fallout Shelter Survey and the 1960 U. S. Census for Providence, Rhode Island.

In the National Fallout Shelter Survey, shelters were rated according to the amount of protection they afford. If a shelter reduced by one tenth the amount of radiation an individual would receive if he had no protection, the shelter would be classified as Pf10 (protection factor ten times greater than no protection). The higher the Pf rating, the greater the protection. While Pf40 will protect most people, except in the most extreme fallout conditions, a community shelter plan that would provide a Pf100 or more for the total population would be more functional.

A quick comparison will reveal that the number of shelter spaces in Providence with Pf100 (248,795) is not sufficient to shelter the peak daytime and peak nighttime population, even if such spaces were ideally located.

During the daytime there is a peak population of about 296,000 which includes workers and travellers from outside the city who may be in Providence at the time of an attack. The peak nighttime population estimate is about 254,000. Therefore, shelters with a Pf of 40-99 must also be used in the Providence CSP. There are a total of 408,344 shelter spaces of protection factor of 40 or more in Providence.

#### Fallout Shelter Spaces

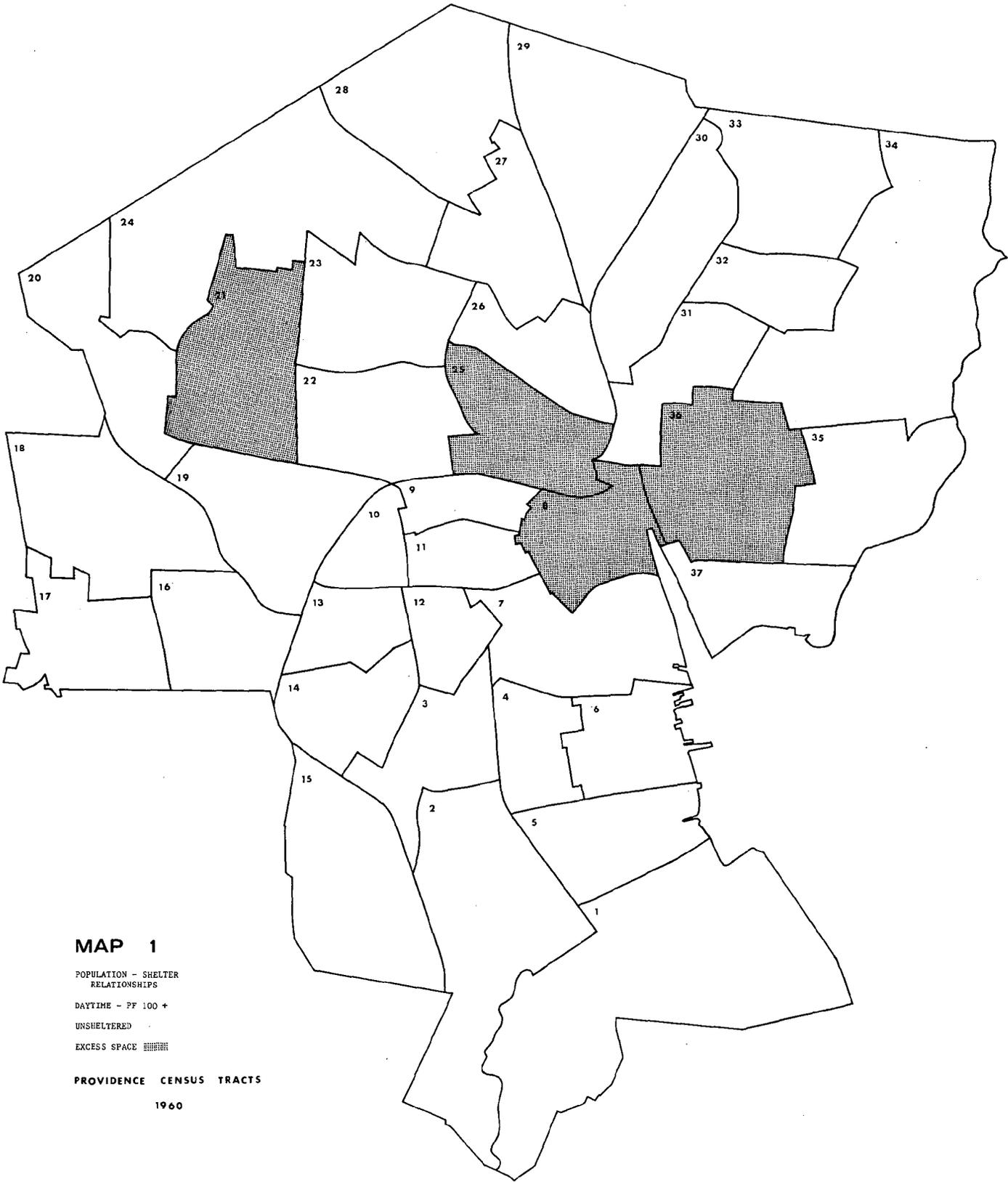
The number of fallout shelter spaces listed by the National Fallout Shelter Survey in Providence is as follows:

1	Number of spaces with Pf 40-69.....	104,789
	Number of spaces with Pf 70-99.....	54,760
	Number of spaces with Pf 100 and over.....	248,795
	Total number of spaces with Pf 40 and over.....	408,344

If the peak daytime and peak nighttime populations in each census tract were assigned only the shelters with Pf 100 or more, most of the city would be unprotected. Maps 1 and 2 illustrate this point whether we are dealing with the peak daytime and/or peak nighttime population. The inclusion of shelter spaces with Pf 40-69 would not materially change the picture portrayed in maps 1 and 2 if the people were assigned only the shelters in their own neighborhood (census tracts). Thus a more sophisticated shelter allocation scheme is needed if the maximum number of lives are to be protected from dangerous fallout during a national emergency.

A more sophisticated scheme requires the careful development of planning factors and policies. Physical barriers to the free movement of the population must be pinpointed. The time available for movement to shelters, method of travel, distance for shelter movement, and the likely composition of the nighttime and daytime population are a few of the interrelated factors that must be simultaneously considered. Simplicity of administration is also an important consideration when developing the most efficient community shelter program.

Using the planning factors, policies, and assumptions set forth in Chapter 3, there are no specific shelter deficient areas in Providence. This means that if the specific Community Shelter Program proposed in Chapter 4 of this report is implemented, both the daytime and the nighttime population can be theoretically protected against radioactive fallout in a nuclear attack on this country.



**MAP 1**

POPULATION - SHELTER  
RELATIONSHIPS

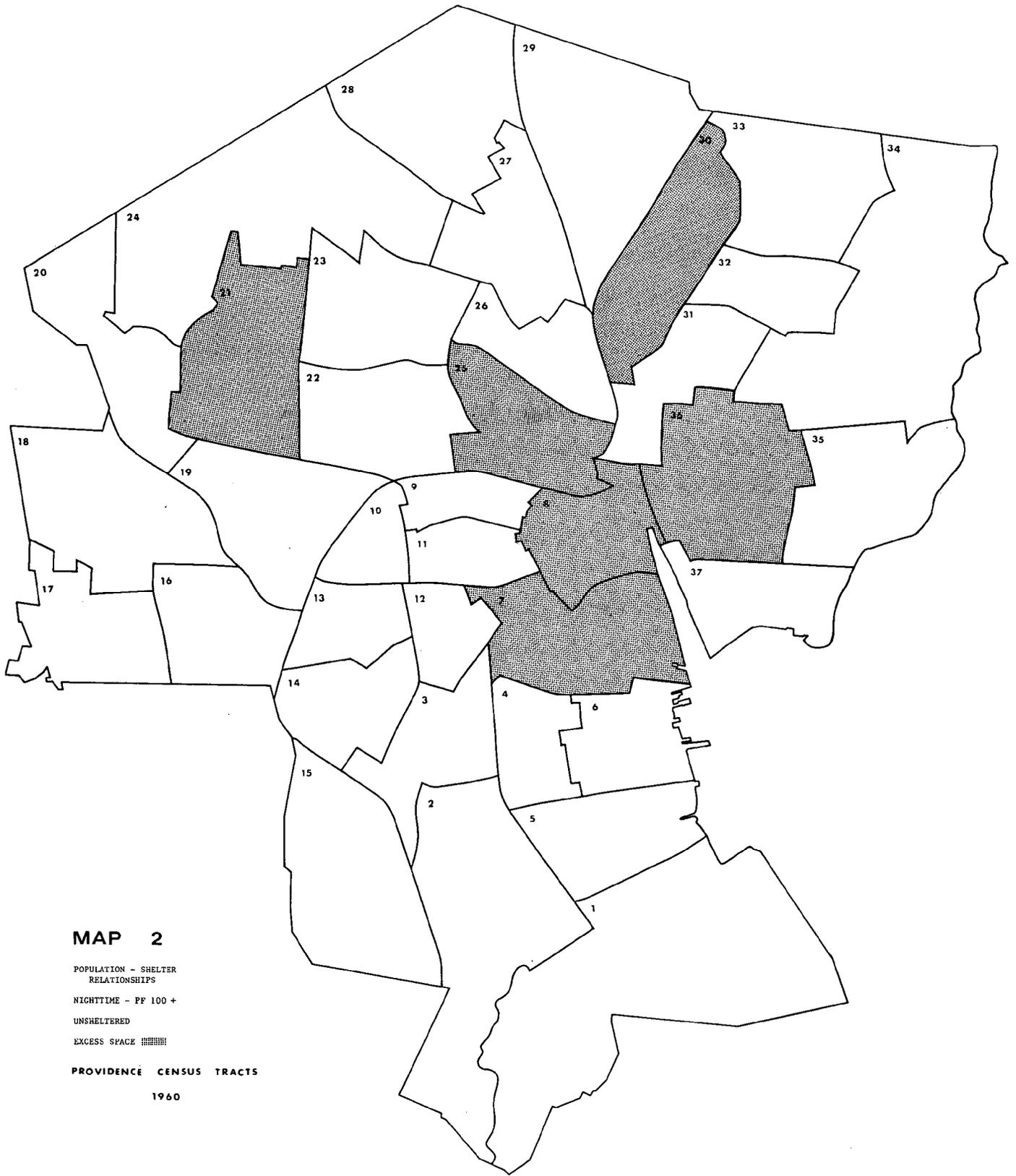
DAYTIME - PF 100 +

UNSHELTERED

EXCESS SPACE

PROVIDENCE CENSUS TRACTS

1960



**MAP 2**

POPULATION - SHELTER  
RELATIONSHIPS

NIGHTTIME - PF 100 +  
UNSHelterED

EXCESS SPACE |||||

PROVIDENCE CENSUS TRACTS

1960

POPULATION ESTIMATES JANUARY 1, 1964, PROVIDENCE, R. I.

7.

Census Tract	Nighttime Population			Daytime Population				
	Resident Population	Nighttime Work, Shopping & Services	Peak Nighttime Population	At Home Daytime	In School Daytime	At Work Daytime	On Street Shopping & Services, Days	Peak Daytime Population
1	7542		7542	3017	645	3420	700	7782
2	8710		8710	3484	975	2563	600	7622
3	6933		6933	2773	1985	1627	700	7085
4	6420		6420	2568	835	598	100	4101
5	6388		6388	2555	1905	684	300	5444
6	3390		3390	1356	1265	1454	400	4475
7	6867	2100	8967	2747	2715	9403	1600	16465
8	774	28000	28774	310	770	35000	20000	56080
9	4500	800	5300	1800		2736	800	5336
10	4527		4527	1811	1919	425	200	4355
11		4876	4876	1950	815	1109	400	4274
12	4329		4329	1732	585	1440	400	4157
13	5467		5467	2187	650	338	200	3375
14	6582		6582	2633	290	1541	300	4764
15	3096		3096	1238	175	4500	250	6163
16	6802		6802	2721	775	511	300	4307
17	3953		3953	1581	330	259	300	2470
18	6145		6145	2458	1755	173	200	4586
19	6440	2100	8540	2576	1695	4190	1800	10261
20	3739		3739	1496	510	338	200	2544
21	9122		9122	3649	3872	259	200	7980
22	5287		5287	2115	1125	5983	800	10023
23	6029		6029	2411	915	770	600	4696
24	7076		7076	2830	3135	943	500	7408
25	3221		3221	1288	398	3000	1700	6386
26	5650		5650	2260	1605	1109	350	5324
27	5177		5177	2071	490	943	100	3604
28	5676		5676	2270	1105	1109	100	4584
29	6662		6662	2665	1510	425	250	4850

Nighttime Population				Daytime Population				
Census Tract	Resident Population	Nighttime Work, Shopping & Services	Peak Nighttime Population	At Home Daytime	In School Daytime	At Work Daytime	On Street Shopping & Services, Days	Peak Daytime Population
30	378		378	151		2500	1000	3651
31	3812	1000	4812	1525	1033	1706	1000	5264
32	4376	100	4476	1750		173	100	2023
33	5577	2340	7917	2231	935	1109	2000	6275
34	5684		5684	2274	1565	684	300	4823
35	5909		5909	2364	640	1282	1000	5286
36	7395	1400	8795	2958	2889	2736	1400	9983
37	5495		5495	2198	945	943	500	4586
Total	200006	37840	<u>237846</u>	80003	42756	97983	41650	<u>262392</u>

Before proceeding to an analysis of the planning factors, policies, and assumptions, detailed up to date neighborhood population estimates must be generated as a preliminary step in any community shelter program. In this preliminary analysis, estimates will be developed for six different components of the daytime and nighttime populations.

#### Six Population Components

The specific shelter assignment plan presented in Chapter 4 will be based on six population components. These six components consist of the residential or nighttime population and five components of the daytime population. The shelter assignment plan for these six population components will provide shelter for everyone expected to be in Providence at the time of an emergency. The components are:

- nighttime (or residential population)
- at home population
- at work population
- on street population
- shopping and services populations
- in school population

#### Post-Censal Residential Estimates

Post-censal estimates were made by Census tracts for the City of Providence. Up to date and highly reliable population estimates are vital elements in the development of any community shelter plan. Four post-censal estimating techniques, all using annually published data, were developed: two vital rates methods, a school populations method, and a composite method. These four techniques were first applied to the aggregate data for the City of Providence and then to the individual census tracts. Since one of the basic objectives of the "50-city" Community Shelter Program is to assist other communities, a special technical report on estimating population from current data series has been prepared and will be made available upon request to the Providence City Plan Commission.

Two of the post-censal estimates of residential population are for July 1, 1963 and two for January 1, 1964. Averaging the two estimate methods which use vital rates as the key variable gives a residential estimate for July 1, 1963 of approximately 200,000 people. Similarly, estimates gives an estimate of residential population for January 1, 1964 of approximately 199,000 people. In 1960 the population for the City of Providence was 207,000.

A word should be said here concerning the distribution and allocation of the population decrease since 1960 among the various census tracts of Providence. Data concerning inter-census tract migration in Providence during the post-censal estimate years was obtained from the school department. Vital rates estimates by census tracts were also made using special runs compiled under the present contract. These data were used to determine how the population decrease was to be allocated. Demolition and building data were also examined for the post-censal years, especially in those tracts which showed substantial increases or decreases of population. Specialists in the City Plan Commission were asked to examine and approve the final allocation of population. Some slight adjustments were made based on the advice of the Commission experts but the estimate parameter was maintained. Given the available data, it is difficult to see how the present population estimates can be improved.

### Daytime Population Estimates

It must be remembered that much needed data are simply not available for daytime population estimates. At best, such estimates are a synthesis of several data series as they are known and manipulated. In fact, the Providence data are probably better than available data for most cities. However, the somewhat tortuous manipulation of these data which is necessary for a cogent estimate points up the requirements for much further research in daytime population. The present daytime estimate is divided into the component parts of at-home population, in-school population, at-work population, on-street population and shopping and services population. The basic methods of obtaining each component estimate will be discussed briefly.

### At-home Population

The at-home population is in a sense an estimate of the residual population after the other population components have been estimated. That is, independent estimates of the in-school, at-work, and other components are made first. Assumptions are then made concerning the place of origin and the distribution of these component populations. The result is then subtracted from the residential population to obtain an estimate of the population left at home. In the present estimates the assumption was that the origin of the component populations was equally distributed in Providence, thus permitting the application of a constant factor to the residential population by census tracts. This residential population is of course the estimated residential population of Providence as of January 1, 1964. As a matter of interest, two independent component daytime population estimates for Providence made by the present contractor for April 1, 1960 and October 1, 1964 showed that for the earlier time period about 38 percent of the residential population remained at home during the daytime hours; for the later time period, about 41 percent remained at home. The regression equation for estimating the at home population suggested by Stanford Research Institute in the Montgomery County report as applied to Providence for this later time period gives a constant of about 40 percent for the at home population of Providence. In the interest of consistency, this 40 percent figure was actually used in the present population estimate.

### At-work Population

The at-work series was obtained by census tracts from a series made for the Bureau of the Census by the Rhode Island Department of Employment Security in the late 1950s. Adjustments to this series were made on the basis of data compiled for the Community Renewal Plan for Providence in 1963. Expert advice was also obtained from the Zoning Study staff which is now engaged in an economic area analysis of Providence. The Rhode Island Department of Employment Security is now running a series of employment by census tracts for Providence, but this series will probably not become available in time to be included in this CSP. However, as soon as the series is finished, the present daytime estimate of this component can be revised.

### In-school Population

The in-school population was obtained for census tracts by actual enrollment figures for all schools through Grade 12 for the fall term of 1964. The data were supplied for schools by street address, and were then coded into census tracts. The college students which were not counted as part of the residential population were estimated by census tracts from data supplied by the colleges. The in-school population is the easiest of the daytime components to estimate accurately.

### On-street population

The on-street population component is relatively small, and was estimated from data supplied by the Division of Traffic Engineering of Providence. It should be remembered that this on-street component is the population either in automobiles or walking to shopping and service centers, and should not be confused with the shopping and services component itself, even though this component has been combined with the shopping and services component for shelter purposes.

### Shopping Population

The shopping and services component of daytime population is one of the most difficult to assess. A combination of public transportation data, traffic count data, origin and destination data, and actual downtown count data was used here. Details are contained in the cited Appendix. In brief, the proportion of total bus passengers who are shoppers was known. The working population riding buses was subtracted from the total passengers, and a peak population of bus shoppers was obtained. The same proportions were then applied to population reaching downtown by private automobile or by walking.

### City Divided into Six Planning Areas

The City of Providence was divided into several planning areas on the basis of physical barriers, both natural and man-made. In some of these planning areas little or no movement of people can be expected to occur between areas; in others, the areas were established to permit the handling of populations in the easiest manner, even though some inter-area movement can be expected.

The initial planning area breakdown shows six natural planning areas for Providence. Number one is the East Side of the city; number two is usually called the North End; number three is called the Olneyville section; number 4 is the Mashpaug Pond area; number five is South Providence; and number six is the Field's Point area.

It should be stated here that the administrative boundaries of Providence are essentially arbitrary boundaries. In any realistic shelter use plan, these administrative boundaries must be treated as the artificial boundaries which they really are, but for the present purposes the shelter allocation plan will not consider the areas outside the City limits.

### Water Availability in Providence Shelter Locations

The existing water supply system of the City of Providence contains a distribution system which has as its key element three underground storage reservoirs constructed of reinforced concrete. These reservoirs are earthen covered on the sides as well as the roof and provide a protection factor of at least 1,000. They are for all practical purposes completely protected from radioactive fallout. Water contamination will thus be kept at a minimum, both in the initial storage state and in the distribution of this water to shelter areas since the terminal water pipes in the distribution system are far enough underground to prevent radioactive contamination as the water is being distributed to individual shelter locations.

The total storage capacity of potable water in the underground reservoirs in Providence is more than 90,000,000 gallons even if no further water is supplied to these storage reservoirs in the event of a nuclear attack. With a maximum of about 300,000 persons to be sheltered, the available water is

more than 300 gallons per person in shelter locations, or more than 20 gallons per person/day for the anticipated two-week shelter period. This is aside from any trapped water which may be present in the shelter location.

All but one of the major shelter locations is served by gravity feed, and that single shelter location has been completely stocked with water containers. Therefore, even though all the pumping stations have automatic installations, no pumping facilities will in fact be necessary to insure water supplies to shelter locations.

## PLANNING FACTORS AND POLICIES

As a first step in the development of a more sophisticated shelter scheme to protect the maximum number of lives, the planning factors and policies must be carefully developed. Since public acceptance of this Community Shelter Plan for Providence (and in turn perhaps future lives) may well depend upon a clear understanding, these planning factors and policies are rather extensively defined below.

Re-Evaluation of Planning Factors

The original planning factors for the general allocation shelter plan were a time parameter of one-half hour and a walking distance of one mile from assigned shelter locations. All shelter movement was to be a walking movement. Shelter priorities were established on the time-distance basis with the quality of the shelters as one of the key variables. The size of the individual shelter and the fact of stockage vs. non-stockage were also considered as significant variables.

A review of the general allocation plan showed that an appreciable part of the population of Providence could not be sheltered in public shelter areas with strict adherence to the planning factors specified. This was especially true for the residential or nighttime population. Therefore, the following modifications in planning factors were made for this specific allocation plan:

- a. The time allowed to begin shelter movement and to reach shelter areas was increased from one-half hour to three-quarters of an hour. This assumes a 15 minute warning time, and allows one-half hour for the heaviest fallout particles to reach the ground. These assumptions seem tenable on the basis of the newer radar and warning systems and information from testing by the Atomic Energy Commission.
- b. The walking distance to shelter areas can thus be increased from one mile to one mile and one-half. In fact, the maximum distance necessary for travel to assigned shelters in this specific allocation is one mile and one-half only for about 10% of the population of Providence. However, the extending of the given distance permits the use of much higher quality shelter for something over 20% of the residential population.
- c. The method of travel to shelters remains the same as for the general allocation plan. All movement to shelters will be a walking movement.
- d. The treatment of the downtown shelter complex and two other shelter complexes as a single shelter area insofar as the general public is concerned will be maintained in this allocation plan. The basis for this definition will be explained later in this Phase.
- e. Movement to shelters has been assigned in terms of the natural planning areas defined by the physical barriers of Providence. Less than 10% of the total population will have to cross these barriers, and the necessary crossings have been planned at given crossing points. These crossing points are all underpasses to freeways with the exception of one railroad bridge.
- f. All shelter movement districts have been defined in the same manner for both daytime at-home and nighttime population. Some differences in shelter assignments have been made for these two populations since they are differentially distributed, and since some school shelter areas will be closed to the public during school hours as they are needed for the shelter of school children.

### Survey for Space in Deficit Areas

Using the above planning assumptions, there are no specific shelter deficient areas in Providence. This does not necessarily mean that there will be no overcrowding in any of the shelter areas of the City. This means simply that all the population to be sheltered can be accommodated in shelters with Pf 40 or more within the 45-minute, one and one-half mile distance of the given planning assumptions.

### Facilities to be Overloaded

The principal benefit from using the new set of planning assumptions lies in the allocation of population to shelters within the capacity of these shelters using 10 square feet per person and 250 cubic feet per person in basement space as capacity figures. In the one-mile distance definition, serious overcrowding problems existed for about 20% of the total residential population of Providence. Using the one and one-half mile definition, there is very little overcrowding of shelters. However, given the difficulty of traveling one and one-half miles during the half-hour period of walking time--the remaining 15 minutes will probably have to be used for beginning the shelter movement and for shelter entry--some overcrowding of shelters will be permitted for late starters and arrivals. The thesis here is that it is better to overcrowd some shelters rather than to leave the late starters without any shelter protection whatever.

### Corollary Assumptions

Two assumptions must now be made. The first is that people will use the best shelters available to them within the given travel time. This means that if people know that high quality shelters are available to them within the downtown area, and that they can reach such shelters within the given travel time, they will in fact pass shelter areas closer to their homes and leave such shelter areas open to people from shelter-deficient areas. The position usually taken that people will not pass by shelter locations near their homes to reach better shelter areas further away even though such further areas have better protection does not seem to be a tenable position. The two factors involved (1. better protection for the individual and 2. a chance to help other people who could not otherwise reach shelters) would induce people to go to shelter areas which have been assigned to them even though such assigned areas are not the closest to their homes or to the location in which they are found at the time of an alert. The entire body of knowledge which constitutes disaster research bears out this assumption; the first ones at the scene of a disaster are the people who are closest to such a disaster, and who are willing and anxious to help their neighbors. Therefore, shelter assignments will be made in this general allocation not on the basis of the shelter nearest to the given individual or neighborhood group, but on the basis of the optimum return of shelter movement to the saving of lives of the totality of the members of the community.

The second basic assumption is that the use of unstocked and unlicensed shelters is preferable to the use of home shelters which do not have a comparable protection factor. The availability of water supplies in these unstocked shelters has been discussed. At this point the assumption is made that it is better to be alive and hungry in a good shelter location than to remain at home and undergo the risk of death by nuclear radiation. In the order of priority of shelter use in this general allocation, the first shelters to be used will be those which are marked and stocked and which have a protection factor of 40 or better. The next group of shelters to be used will be those which are not stocked, but which have a protection factor of 100 or better. Finally, shelters with a protection factor of 40-99 will be used, even though they are not stocked. Only a very few of this latter group will be needed in Providence.

## SPECIFIC COMMUNITY SHELTER PLAN

Using the planning factors, policies, and assumptions in the previous section, there are no specific shelter deficient areas in Providence. This means that if the present shelter use plan is implemented, both for daytime and nighttime population, theoretically all the people of Providence can be protected against radioactive fallout in a nuclear attack on this country.

However, in order to insure this degree and quality of protection, the plan must be implemented in all its aspects. In practice, theoretical models can only be approached, not completely carried out. Some people will have difficulty in travelling one and one-half miles in 30 minutes walking time. Weather conditions and the difficulty in moving large masses of people will be a factor. There is no question that some over crowding of shelters will result in an actual attack situation since some late starters and late arrivers must be anticipated. However, it is better to overcrowd some shelters than to leave late arrivers without any protection whatever.

The results of this specific allocation process are that all the inhabitants of Providence have an assigned shelter location no matter where they are found by day or by night. Also all the population of other communities who are in Providence during the daytime have an assigned shelter. Various maps were developed to insure that all the people would have assigned shelter location, and the relevant authorities have been briefed as to the optimum method of directing shelter movement to shelter location areas in Providence.

Two maps will be presented as the key elements in public information of this community shelter plan. One map will consist of shelter districts which will be used for residential or nighttime population and for at-home daytime population. The second map will consist of census tracts, and will be used by the daytime population components of at-work, on-street, and shopping and services populations. A separate school plan has been drawn up and is now operational within the school system of Providence. Details of this plan have been approved by the Providence school system authorities. The school plan acts as a closed system and will not be used by the general public, so there appears to be no real need to make this school plan a part of the public information program except to assure the parents of school children that such a plan actually exists.

The method of dissemination of the basic public information documents is also the subject of Chapter 1 of this report. In brief, adequate newspaper publicity should be given to the adoption and implementation of this community shelter program, and a household bulk mailing of the two documents should be undertaken. Thus, there will be some assurance that the shelter use plan is in the hands of every household in Providence.

Shelter Development Proposals of the Plan

In Chapter 5 of this report, specific recommendations will be made for shelter development in Providence. Here, it should be stated that although it is theoretically possible to shelter all the population of Providence within the given planning assumptions, too many people must travel long distances to reach the assigned shelters. Moreover, some people must bypass certain shelters to leave them open for other people who would otherwise have no shelter at all. The assumption is that people will bypass a certain shelter to reach another shelter of higher quality protection, and that people who know that if they occupy a certain shelter which is not assigned to them will be preventing other people from being sheltered will voluntarily take a little more time to reach the assigned shelter location. Nevertheless, both these conditions are undesirable ones. The development of new shelter locations will not only cut down the travel time to shelters and eliminate the bypassing of shelter areas, but will also increase the quality of shelter protection.

Also, in the school shelter plan, the development of suggested school shelters would considerably decrease the movement time of school children to assigned shelter locations, and would eliminate most of the overcrowding which is now necessary in some instances. Once again, the quality of shelter protection would be improved. In the main body of this report, both existing and optimum shelter assignment plans are indicated; the first using existing shelter locations, and the second showing the improvement resulting from shelter development.

#### Specific Shelter Utilization Plan for Providence, Rhode Island

The purpose of this shelter utilization plan is to inform the people of the City of Providence of the shelter locations to which they are assigned both during the daytime and the nighttime hours. A separate plan has been drawn up for the nighttime population and for the daytime population to assist the reader. The separate plans are printed on different color paper.

Since the nighttime shelter plan and the daytime at-home shelter plan are keyed to the same shelter districts, they will be presented together. The daytime at-work, on-street, and shopping and service shelter plans will be presented as a second package. A special breakdown (including a special map) for downtown Providence has been developed for this report but will not be part of the public dissemination plan. The school shelter program is also presented here but will not be part of the public dissemination plan.

<u>Specific Shelter Plan</u>	<u>Color of pages</u>
Nighttime Shelter Plan	blue
Daytime at-home Shelter Plan	pink
Daytime at-work Shelter Plan	buff
Daytime on-street Shelter Plan	buff
Daytime Shopping and Service Shelter Plan	buff
A Special breakdown for daytime downtown Providence	green
A Special in-school Plan	yellow

NIGHTTIME SHELTER PLAN

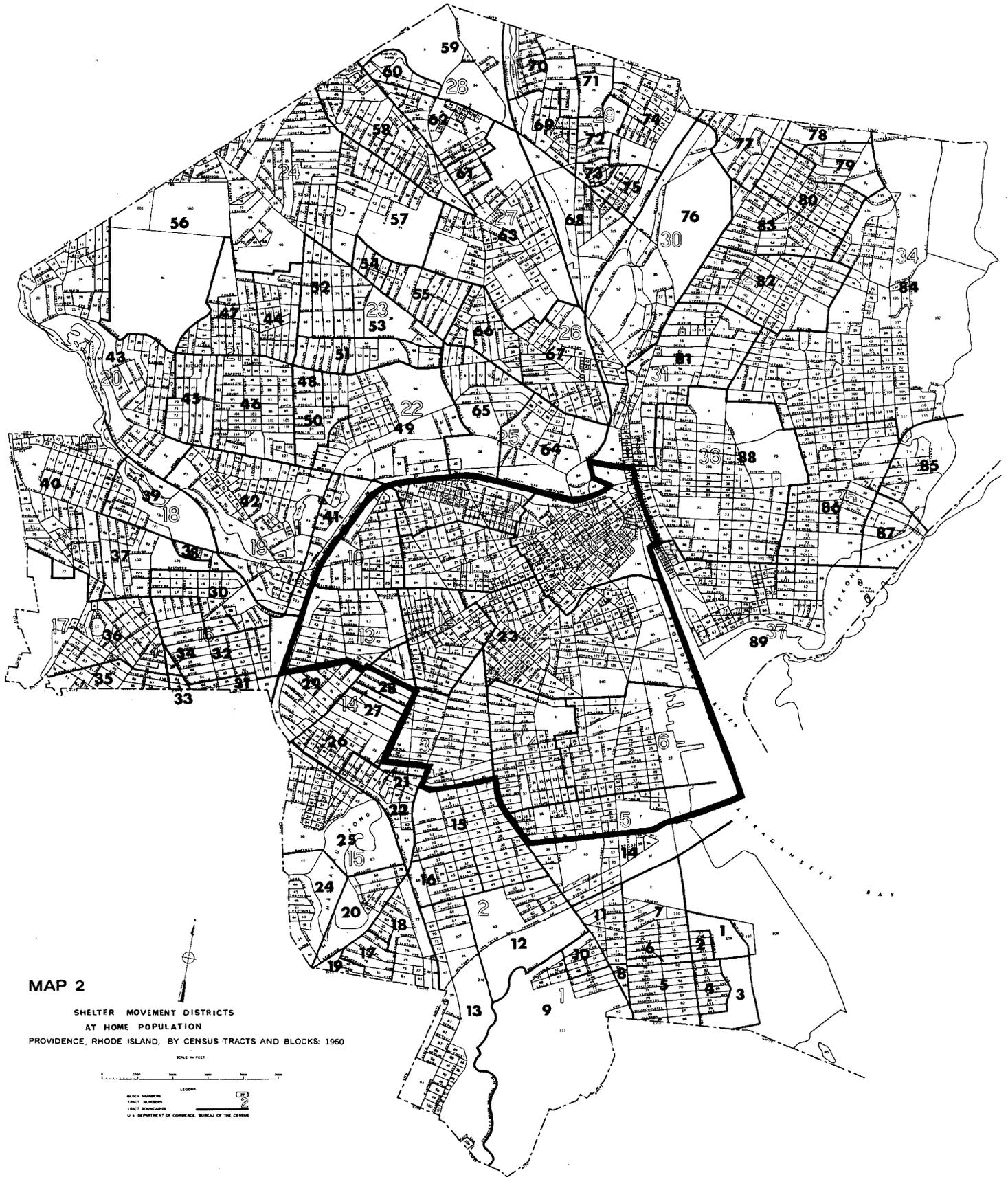
- (a) Nighttime Shelter Plan
- (b) Shelter Movement Districts
- (c) District, Principal Shelter and Shelter Number
- (d) District, Population, Principal Shelter, Shelter Number and Capacity
- (e) Nighttime Shelter Plan Map

## NIGHTTIME SHELTER PLAN

All the people of Providence have been assigned to a specific shelter location during the nighttime hours. In order to find the assigned shelter, the individual should first look at the master map 1 which shows the City of Providence divided into 89 different shelter districts. There is also a list which defines the various districts by street boundaries.

Once the individual or family determines the district in which it resides, the list of principal shelter locations for each district shows the shelter to which the people of that district are assigned.

For example, assuming that the individual lives on Camden Avenue, he looks at the master map and finds that he lives in Shelter District 66. Looking at the shelter list and finding District 66, he sees that he has been assigned to the State Capitol complex. Likewise, if the person lived on Arnold Street, he would find that he was located in Shelter District 89, and finds that he is assigned to the Providence County Court House.



## NIGHTTIME SHELTER USE

## SPECIFIC ALLOCATION PLAN: SHELTER MOVEMENT DISTRICTS.

- DISTRICT 1 Northern corner at Ernest St. and Allens Ave., East on Ernest to shipyard, South to New York Ave., West to Tennessee Ave., North to Chapman St., West to Allens Ave., North to Ernest.
- DISTRICT 2 Northern corner at Allens Ave. and Chapman St., East to Tennessee Ave., South to New York Ave., North to Chapman St.
- DISTRICT 3 Northern corner at Michigan Ave. and New York Ave., East to Shipyard, South to Montgomery Ave., West to Alabama Ave., East to Michigan Ave., North to New York Ave.
- DISTRICT 4 Northern corner at New York Ave. and Allens Ave., East to Michigan Ave., South to Alabama Ave., West to end of Mississippi Ave., South to Montgomery Ave., West to Allens Ave., North to New York Ave.
- DISTRICT 5 Northern corner at Eddy St. and New York Ave., East to Allens Ave., South to Montgomery Ave., West to Eddy St., North to New York Ave.
- DISTRICT 6 Northern corner at Eddy St. and Carolina Ave., East to Allens Ave., South to New York Ave., West to Eddy St., North to Carolina Ave.
- DISTRICT 7 Northern corner at New York, New Haven & Hartford R.R. and Eddy St., Northeast to Allens Ave., South to Carolina, West to Eddy St., North to R. R.
- DISTRICT 8 Northern corner at Broad St. and Calla St., East to Eddy St., South to Broad St., Northwest to Calla St.
- DISTRICT 9 Northern corner at Miller and Cactus Sts., South to Calla St., East to Broad St., Southeast to Montgomery, West to Roger Williams Park, South following the outer limits of Park, North through Park following Frederick Green Memorial Blvd., Northeast to Cactus St.
- DISTRICT 10 Northern corner at Cactus St. and Miller Ave., Northeast to Broad St., Southeast to Calla St., West to Cactus St., North to Miller.
- DISTRICT 11 Northern corner at N. Y., New Haven & Hartford R.R. and Broad St., Northeast to Eddy St., South to Calla St., West to Broad St., Northwest to R. R.
- DISTRICT 12 Northern corner at Sackett St. and Melrose St., Northeast to Broad St., Southeast to Miller St., Southwest to Memorial Blvd., North along Melrose St. to Sackett St.
- DISTRICT 13 Northern corner at Sackett St. and Shore Railroad, Northeast to Melrose St., Southeast to Memorial Blvd., South to city limits of Providence, Northwest along limits of Providence, Northeast to Shore Division Railroad, North to Sackett St.

- 20.
- DISTRICT 14 Northern corner at Broad St. and Thurbers Ave., Northeast to Allens Ave., Southeast to New York, New Haven & Hartford R.R., Southwest to Broad St., Northwest to Thurbers Ave.
- DISTRICT 15 Northern corner at Elmwood Ave. and Potters Ave., Northeast to Broad St., Southeast to Sackett St., Southwest to Hamilton St., Northwest to Adelaide Ave., Southwest to Elmwood Ave., North to Potters Ave.
- DISTRICT 16 Northern corner at Adelaide Ave. and Hamilton St., South to Sackett St., Southwest to Shore Division Railroad, Northwest to Reservoir Ave., North to Adelaide Ave., Northeast to Hamilton St.
- DISTRICT 17 Northern corner at Reservoir Ave. and Ansel Ave., Southeast to Louis Ave., South to Roger Williams Ave., East to Alexander St., South to city line, West to Parkman St., North to Rutherglen, Northwest to Pontiac Ave., North to Reservoir Ave.
- DISTRICT 18 Northern corner at Reservoir Ave. and Shore Line Railroad, Southeast to city line, West to Alexander St., North to Roger Williams Ave., West to Louis Ave., North to Ansel Ave., Northwest to Reservoir Ave., Northeast to Shore Line Railroad.
- DISTRICT 19 Northern corner at Reservoir Ave. and Pontiac Ave., South to Rutherglen Ave., Southeast to Parkman St., South to city line, West to Reservoir Ave.
- DISTRICT 20 Northern corner at Adelaide Ave. and Shore Division Railroad, South to Reservoir Ave., Southwest to city line, North through Mashapaug Pond to Adelaide Ave.
- DISTRICT 21 Northern corner at Dexter and Burnett Sts., East to Elmwood Ave., South to Greenwich, West to Dexter St., North to Burnett St.
- DISTRICT 22 Northern corner at Chambers St. and Potters Ave., Southeast to Greenwich St., East to Elmwood Ave., Southwest to Adelaide Ave., Northwest on New York, New Haven & Hartford Railroad to Chambers St.
- DISTRICT 23 (Downtown) Northern corner at Francis and Smith Sts., Southeast to No. Main St., South to Williams St., Southwest to West bank of Providence River on Fox Point Blvd., South along Harbor Line to Thurber St. extended out, West to Broad St., Northwest to Potters Ave., Southwest to Elmwood Ave., North to Burnett St., West to Dexter St., Northeast to Ford St., Northwest to Cranston St., Southwest to Messer St., Northwest to Union Ave., Southwest to railroad, North to Harris Ave., Northeast to Gaapee St., Northeast to Francis St., North to Smith St.
- DISTRICT 24 Northern corner at Niantic Ave. and northern tip of playground, West to adelaide Ave., Southwest to Reservoir Ave., North to northern tip of playground.
- DISTRICT 25 Northern corner at Niantic Ave. and Shore Division Railroad, Southeast to Adelaide Ave., Southwest to Mashapaug Pond, West through pond and north of the playground to Niantic Ave., North to Shore Division Railroad.

- DISTRICT 26 Northern corner at Cranston and Waverly Sts., Southeast to Dexter St., South to Potters Ave., Northwest to Chambers St., South to New York, New Haven & Hartford Railroad, Northwest to Cranston St., Northeast to Waverly St.
- DISTRICT 27 Northern corner at Cranston St. and Bellevue Ave., Southeast to Dexter St., South to Waverly St., Northwest to Cranston St., Northeast to Bellevue Ave.
- DISTRICT 28 Northern corner at Cranston and Ford Sts., Southwest to Dexter St., South to Bellevue Ave., Northwest to Cranston St., Northeast to Ford St.
- DISTRICT 29 Northern corner at Union Ave. and Messer St., Southeast to Cranston St., Southwest to New York, New Haven & Hartford Railroad, following the railroad North to Union Ave., Northeast to Messer St.
- DISTRICT 30 Northern corner at Laurel Hill Ave. and Eastwood Ave., East to Pascoag Railroad, Southeast to Pilsudski St., Southwest to Atwood St., South to Sterling Ave., West to Webster Ave., North to Plainfield, West to Laurel Hill Ave., North to Eastwood Ave.
- DISTRICT 31 Northern corner at Terrace Ave. and Elmdale Ave., East to Whit-chall St., South to Union Ave., East to New York, New Haven & Hartford Railroad, Southwest to city line, Northwest to Terrace Ave., North to Elmdale Ave.
- DISTRICT 32 Northern corner at Laurel Hill Ave. and Plainfield St., East to Webster Ave., South to Sterling Ave., East to Atwood St., North to Pilsudski St., Northeast to Railroad, Southeast to Railroad, Southwest to Union Ave., West to Whitchall, North to Elmdale Ave., West to Terrace Ave., Northwest to Laurel Hill Ave., North to Plainfield St.
- DISTRICT 33 Northern corner at Laurel Hill Ave. and Shafter St., Southeast to Terrace Ave., Southeast to city line, West to Laurel Hill Ave., North to Shafter St.
- DISTRICT 34 Northern corner at Laurel Hill Ave. and Terrace Ave., Southeast to Shafter St., Northwest to Laurel Hill Ave., North to Terrace Ave.
- DISTRICT 35 Northern corner at Hillhurst St. and Laurel Hill Ave., Southeast to city line, West to Silver Lake Ave., Northeast to Hillhurst St., East to Laurel Hill Ave.
- DISTRICT 36 Northern corner at city line and Sunse~~f~~ Ave.-Killingly St., Southeast to Plainfield St., East to Laurel Hill Ave., Southeast to Hillhurst St., West to Silver Lake Ave., Southwest to city line, North to Sunset Ave.
- DISTRICT 37 Northern corner at Petteys and Hartford Aves., Southeast to Bodell St., Southeast to Heath Ave., South to Eastwood Ave., West to Laurel Hill Ave., South to Plainfield St., West to Jewell St., Northeast to Petteys Ave., North to Hartford Ave.

- DISTRICT 38 Northern corner at Bodell St. and Hartford Ave., Southeast to Pascoag Railroad, Southeast to Eastwood Ave., West to Heath St., North to Bodell St., Northwest to Hartford Ave.
- DISTRICT 39 Northern corner at Glenbridge Ave. and Pascoag Railroad, Southeast to Hartford Ave., Northwest to Glenbridge Ave., North to Pascoag Railroad.
- DISTRICT 40 Northern corner at City line and Pascoag Railroad, Southeast to Glenbridge Ave., South to Petteys Ave., Southeast to Killingly St., Northwest to city line, North to city line, East along city line to Pascoag Railroad.
- DISTRICT 41 Northern corner at Valley St. and Atwells Ave., East to Harris Ave., South to Pascoag Railroad, West to Valley St., North to Atwells Ave.
- DISTRICT 42 Northern corner at Salmon St. and Atwells Ave., East to Valley St. to Pascoag Railroad, Northwest to Salmon St., Northeast to Atwells Ave.
- DISTRICT 43 Northern corner city line at Northern corner of Manton Pond, Northeast along city line to Bullock Ave., South to Dunbar around to Chalkstone Ave. and Imera Ave. to Actinia St., West to Rushmore Ave., South to Manton Ave., East to Salmon St., Southwest to Pascoag Railroad, Northwest to city line, Northwest along the city line to Manton Pond.
- DISTRICT 44 Northern corner at Kimball St. and Whitford Ave., East to Academy Ave., South to Chalkstone Ave., Northwest to Kimball St., North to Whitford Ave.
- DISTRICT 45 Northern corner at Imera Ave. and Chalkstone Ave., East to Lynch St., South to Atwells Ave., Northwest to Rushmore Ave., North to Actinia St., East to Imera Ave., North to Chalkstone Ave.
- DISTRICT 46 Northern corner at Lynch St. and Chalkstone Ave., East to Academy Ave., Northwest to Lynch St., North to Chalkstone Ave.
- DISTRICT 47 Northern corner at Mt. Pleasant Ave. and Whitford Ave., East to Kimball St., South to Chalkstone Ave., West to Imera Ave., Northeast along Triggs Memorial Park to Rialto St., Northeast to Mt. Pleasant Ave., South to Whitford Ave.
- DISTRICT 48 Northern corner at Academy Ave. and Chalkstone Ave., Northeast to Berlin St., South to Andem St., West to Academy Ave., North to Chalkstone Ave.
- DISTRICT 49 Northern corner at Berlin St. and Chalkstone Ave., Northeast to Raymond St., Southeast to Kinsley Ave., West to Acorn St., Southeast to Harris Ave., Southwest to Atwells Ave., West to Cutler St., Northeast to Cliff St., East to Allston St., Northeast to Harold St., North to Regent Ave., West to Berlin St., North to Chalkstone Ave.

- DISTRICT 50 Northern corner at Academy Ave. and Andam St., East to Berlin St., South to Regent Ave., East to Harold St., South to Allston St., Southwest to Cliff, West to Cutler St., South to Atwells Ave., West to Academy Ave.
- DISTRICT 51 Northern corner at Academy Ave. and Justice St.--Pleasant Valley Parkway, East to Oakland Ave., South to Chalkstone Ave., West to Academy Ave., North to Justice St.
- DISTRICT 52 Northern corner at Academy Ave. and Wabun Ave., East to River Ave., South to Moorland Ave., West to Sharon St., South to Pleasant Valley Parkway, West to Academy Ave.
- DISTRICT 53 Northern corner at River Ave. and Smith St., Southeast to Pleasant Valley Parkway, West to Sharon St., North to Moorland Ave., East to River Ave., North to Smith St.
- DISTRICT 54 Northern corner at River Ave. and Eaton St., East to Elmhurst Ave., South to Smith St., Northwest to River Ave., North to Eaton St.
- DISTRICT 55 Northern corner at Elmhurst Ave. and Eaton St., Northeast to Oakland Ave., South to Smith St., Northwest to Elmhurst Ave., North to Eaton St.
- DISTRICT 56 Northern corner at the city line and Admiral St., Southeast to Sharon St., South to Wabun Ave., West to Academy Ave., South to Whitford Ave., West to Mount Pleasant Ave., Southeast to Rialto St., Southwest to Standish St., Southwest following Triggs Memorial Park to Imera Ave., West on Chalkstone Ave. to Rowley, North to Dunbar St., East to Bullock Ave., North to city line, Northeast along city line to Admiral St.
- DISTRICT 57 Northern corner at Sharon St. and Admiral St., Southeast to Huxley Ave., South to Eaton St., West to River Ave., South to Wabun Ave., West to Sharon St., North to Admiral St.
- DISTRICT 58 Northern corner at Admiral St. and city line, Northeast along city line to Douglas Ave., Southeast to Admiral St., West to city line.
- DISTRICT 59 Northern corner at Douglas Ave. and city line, Northeast then East along city line to Canada Pond, Southeast along Canada Pond to Branch Ave., West to Veazie St., North to the river, West to Douglas Ave., Northwest to city line.
- DISTRICT 60 Northern corner at Douglas Ave. and Whipples Pond, Southeast along the water to Veazie St., South to Branch Ave., West to Douglas Ave., North to Whipples Pond.
- DISTRICT 61 Northern corner at Douglas Ave. and Sherwood St., Northeast to Cornwall, South to Lancashire St., Southwest to Glasgow St., Southeast to Vespucci St., Southwest to Douglas Ave., Northwest to Sherwood St.

- DISTRICT 62 Northern corner at Douglas Ave. and Branch Ave., East to Vandewater St., Southwest to Cornwall St., Southeast to Sherwood St., Southwest to Douglas Ave., Northwest to Branch Ave.
- DISTRICT 63 Northern corner at Vandewater St. and Branch Ave., East to Charles St., Southeast to Admiral St., West to Fillmore, Southwest to Douglas Ave., Northwest to Eaton St., West to Huxley Ave., North to Admiral St., East to Douglas Ave., Northwest to Vespucci St., Northeast to Lancashire St., Northeast to Cornwall St., Northwest to Vandewater St., Northeast to Branch Ave.
- DISTRICT 64 Northern corner at Calverly and Smith Sts., Southeast to Francis St., East to Gaspee St., Southwest to Harris Ave., Southwest to Terminal St., North to Batt St. and Calverly St., Northeast to Smith St.
- DISTRICT 65 Northern corner at Oakland Ave. and Smith St., Southeast to Calverly St., Southwest to Batt St., South to Harris Ave., Southwest to Acorn St., Northwest to Kinsley Ave., Northeast up Valley Parkway-Raymond St. and Oakland Ave. to Smith St.
- DISTRICT 66 Northern corner at Oakland Ave. and Eaton St., East to Douglas Ave., Southeast to Candace St., South to Smith St., Northwest to Oakland Ave., Northeast to Eaton St.
- DISTRICT 67 Northern corner at Fillmore and Admiral Sts., Southeast to Charles St., Southeast to Railroad, East to Smith St., West to Candace St., North to Douglas Ave., Southeast to Fillmore St., Northeast to Admiral St.
- DISTRICT 68 Northern corner at Charles St. and Branch Ave., Southeast to Railroad, Southwest to Charles St., North to Branch Ave.
- DISTRICT 69 Northern corner at Highway and a line extending through Canada Pond from Newberry St., Northeast to Langdon St., North to Hagan St., East to Mendon St., South to Paul St., East to Charles St., South to Branch Ave., Northwest to Highway.
- DISTRICT 70 Northern corner at Canada Pond and city line, East to Charles St., South to Paul St., West to Mendon St., North to Hagan St., West to Langdon St., South to Newberry St., Southwest to Highway across Canada Pond.
- DISTRICT 71 Northern corner at Charles St. and city line, East along city line to Windmill St., South to Paul St., West to Charles St., North to city line.
- DISTRICT 72 Northern corner at Charles St. and Paul St., East to Windmill St., North to De Pinedo, Southeast to Job St., South to Ridge St., West to Hall St., South to Hawkins St., Southwest to Charles St., North to Paul St.
- DISTRICT 73 Northern corner at Charles and Hawkins Sts., Northeast to Hall St., South to Northrup Ave., East to Luna St., Southwest to Branch Ave., Northwest to Charles St., North to Hawkins St.

- DISTRICT 74 Northern corner at Windmill St. and City line, East along city line to Bland St., Southwest along Railroad to Northrup Ave., West to Hall St., North to Ledge St., East to Job St., North to De Pinedo, Northwest to Windmill St., North to city line.
- DISTRICT 75 Northern corner at Luna St. and Northrup Ave., Northeast to New York, New Haven & Hartford Railroad, Southwest along railroad to Branch Ave., Northwest to Luna St., Northeast to Northrup Ave.
- DISTRICT 76 Northern corner at Bland St. and city line, Northeast to Moshassuck River, Southwest to Cemetery St., Southeast to No. Main St., Southwest to Randall St., South to Orms St., West to Railroad, Northeast along railroad to city line.
- DISTRICT 77 Northern corner at Moshassuck River and city line, Northeast along city line to No. Main St., South to Frost St., West to Cemetery St., Northwest to Moshassuck River, Northeast to city line.
- DISTRICT 78 Northern corner at No. Main St. and city line, Northeast along city line to Blackstone Blvd., Southeast to Chase Ave., Southwest to Tenth St., Northwest to No. Main St., Northeast to city line.
- DISTRICT 79 Northern corner at Chase St. and Blackstone Blvd., Southeast to Lorimer Ave., Southwest to Eighth St., Southwest to Summit Ave., Northeast to Tenth St., West to Highland Ave., Northeast to Chase.
- DISTRICT 80 Northern corner at No. Main St. and Tenth St., Southeast to Summit Ave., Southwest to Eighth St., Northeast to Lorimer Ave., South to Fourth St., West to No. Main St., North to Tenth St.
- DISTRICT 81 Northern corner at No. Main and Cypress Sts., East to Hope St., South to Olney St., West to Brown St., South to Halsey St., West to Pratt St., South to So. Court St., West to No. Main St., North to Smith St., West to Railroad, West to Orms St., East to Charles St., North to Randall St., Northeast to No. Main St., Northeast to Cypress St.
- DISTRICT 82 Northern corner of No. Main St. and Rochambeau Ave., East to Elmgrove Ave., East to Sessions St., West to Morris Ave., Southwest to Cypress St., West to No. Main St., Northeast to Rochambeau Ave.
- DISTRICT 83 Northern corner at No. Main St. and Frost St., East to No. Main St., Northeast to Fourth St., East to Lorimer Ave., South to Rochambeau Ave., Southwest to No. Main St., Northwest to Frost St.
- DISTRICT 84 Northern corner at Blackstone Blvd. and city line, along city line to eastern city line, Southeast to Irving Ave., Southwest to Blackstone Blvd., North to Lloyd Ave., West to Weymouth St., Northwest to Alumni Ave., West to Hope St., Northeast to Cypress St., East to Morris Ave., Northeast to Sessions St., East to Elmgrove Ave., Northeast to Rochambeau Ave., West to Lorimer Ave., Northeast to Blackstone Blvd., Northwest to city line.

- DISTRICT 85 Western corner at South Angell St. and Butler Ave., Northeast to Blackstone Blvd., follow Irving Ave. to city line, South to South Angell St., West to Butler Ave.
- DISTRICT 86 Northern corner at Arlington and Lloyd Aves., Northeast to Blackstone Blvd., South to Butler Ave., Southwest to River, West along Williams St. to Park St., North to Angell St., East to Arlington Ave., North to Lloyd Ave.
- DISTRICT 87 Northern corner at Butler Ave. and South Angell St., East to city limit, Southwest to Butler Ave., Northeast to South Angell St.
- DISTRICT 88 Northern corner at Brown and Olney Sts., East to Hope St., South to Alumni Ave., East to Weymouth St., Southeast to Lloyd Ave., East to Arlington Ave., South to Angell St., West to Governor St., South to Williams St., West to No. Main St., North to So. Court St., East to Wheaton-Pratt Sts., North to Halsey St., East to Brown St., West to Olney St.
- DISTRICT 89 Northern corner at the West bank of Providence River on the Fox Point Blvd., Northeast to Williams St., East along Williams St. to the Seekonk River, Northeast to Red Bridge and city limits, Southwest to Black Bridge, Southwest along the shore and across the Providence River at Fox Point to Harbor Line, Northwest on West bank of Providence River to Fox Point Blvd.

## NIGHTTIME SHELTER USE

District	Principal Shelter	Shelter No.
1	Circular Tool, 765 Allens Ave.	6
2	Federal Product, 1144 Eddy St.	3
3	70 Ernest St.	4
4	Federal Products, 1144 Eddy St.	3
5	Roger Williams Jr. High	13
6	Federal Products, 1144 Eddy St.	3
7	Hopkins Williams Exc., 1096 Broad St.	12
8	Roger Williams Jr. High	13
9	Broad Street School, 1450 Broad St.	5
10	Roger Williams Jr. High	13
11	Roger Williams Jr. High	13
12	Rhode Island Hospital	16
13	Sackett St. School, 159 Sackett St.	8
14	Rhode Island Hospital	16
15	Rhode Island Hospital	16
16	St. Joseph's Hospital, Peace St.	10
17	St. Joseph's Hospital, Peace St.	10
18	Nurses Home, 44 Peace St.	9
19	Internal Revenue Ser. Bldg., 544 Elmwood Ave.	58
20	Providence Gas Co., 477 Dexter St.	21
21	Gilbert Stuart Jr. High	59
22	Gilbert Stuart Jr. High	59
23	Downtown Shelters	1
24	Hi-Hat Food Products, 176 Narragansett St.	22
25	Providence Gas Co., 477 Dexter St.	21
26	Jones Warehouse	20
27	YMCA, 160-166 Broad St.	15
28	YMCA, 160-166 Broad St.	15
29	Samuel Bridgman Jr. High School	18
30	U. S. Rubber Co., 10 Eagle St.	32 & 33
31	General Electric, Atwells Ave.	28
32	Greens Warehouse Corp, 431 Harris Ave.	48
33	Wales Bldg., 30 Olneyville Square	27
34	St. Bartholomews School, 315 Laurel Hill Ave.	24
35	Oliver H. Perry Jr. High	25
36	Hartford Housing	26
37	Oliver H. Perry Jr. High	25
38	Oliver H. Perry Jr. High	25
39	Hartford Housing	26
40	George J. West Jr. High School	30
41	U. S. Rubber Co., 10 Eagle St.	32 & 33
42	Brown & Sharpe	41
43	Mt. Pleasant High School	29
44	Nathaniel Green Jr. High School	36
45	Roger Williams General Hospital	35
46	Veterans Hospital, Calkstone Ave.	31
47	Mt. Pleasant High School	29
48	Smith Street School, 396 Smith St.	40
49	Capitol Complex	2
50	State Garage, 30 Arlene St.	50

## 2.

District	Principal Shelter	Shelter No.
51	Capitol Complex	2
52	Nathaniel Green Jr. High School	36
53	St. Patricks School, 244 Smith St.	39
54	Nathaniel Green Jr. High School	36
55	Capitol Complex	2
56	Mt. Pleasant High School	29
57	Mt. Pleasant High School	29
58	LaSalle Academy, Academy Ave.	38
59	Loiler House, 725 Branch Ave.	44
60	Veazie St. School, 211 Veazie St.	43
61	Chad Brown Training Station	42
62	Prov. Lying-In Hospital, Maude St.	34
63	Capitol Complex	2
64	Capitol Complex	2
65	Capitol Complex	2
66	Capitol Complex	2
67	Capitol Complex	2
68	Capitol Complex	2
69	Providence College	37
70	Windmill Street School	47
71	Windmill Street School	47
72	Providence College	37
73	Esek Hopkins Jr. High School, Charles St.	45
74	Armory, 1049 No. Main St.	51
75	Leach Realty Co., 387 Charles St.	46
76	Post Office	49
77	Armory, 1049 No. Main St.	51
78	Armory, 1049 No. Main St.	51
79	Nathan Bishop High School, Hope St.	52
80	Hope High School, Hope St.	57
81	Brown University Complex	54
82	Rhode Island School of Design	55
83	Brown University Complex	54
84	Hope High School, Hope St.	57
85	Brown University Complex	54
86	Providence County Court House, S. Main St.	56
87	Salvation Army	53
88	Brown University Complex	54
89	Providence County Court House, S. Main St.	56

TABLE III

## Nighttime Shelter Use General Allocation Plan

District	Pop. Amount	Principal Shelter	Shelter No.	Capacity
1	100	Circular Tool, 765 Allens Ave.	6	112
2	309	Federal Products, 1144 Eddy St.	3	1225
4	762	" " " "		
6	<u>81</u>	" " " "		
	1152			
3	205	70 Ernest Street	4	362
4		Refer to District #2		
5	2261	Roger Williams Jr. High	13	4000
8	175	" " "		
10	420	" " "		
11	<u>975</u>	" " "		
	3831			
6		Refer to District #2		
7	159	Hopkins Williams Exc., 1096 Broad St.	12	241
8		Refer to District #5		
9	1982	Broad St. Sch., 1450 Broad St.	5	2034
10		Refer to District #5		
11		" " " "		
12	954	Rhode Island Hospital	16	13,799
14	3626	" " "		
15	<u>4711</u>	" " "		
	9291			
13	1565	Sackett St. Sch., 159 Sackett St.	8	1618
14		Refer to District #12		
15		" " " "		
16	1214	St. Josephs Hospital, Peace St.	10	1752
17	<u>553</u>	" " " "		
	1767			
18	1030	Nurses Home, 44 Peace St.	9	1052
19	178	Internal Revenue Ser. Bldg., 544 Elmwood	58	219
20	652	Providence Gas Co., 477 Dexter St.	21	1420
25	<u>620</u>	" " " "		
	1272			
21	100	Gilbert Stuart Jr. High	59	4000
22	<u>1641</u>	" " " "		
	1741			
23	50,252	Downtown Shelters	1	138,836
24	83	Hi-Hat Food Products, 176 Narragansett	22	147
25		Refer to District #18		
26	2416	Jones Warehouse	20	2670

## 2.

District	Pop. Amount	Principal Shelter	Shelter No.	Capacity
27	409	YMCA, 160-166 Broad St.	15	1696
28	<u>864</u>	" " "		
	1273			
29	1721	Samuel Bridgham Jr. High School	18	1723
30	1760	U.S. Rubber Co., 10 Eagle St. Bldg.	32 & 33	4382
41	<u>860</u>	" " " "		
	2620			
31	388	General Electric, Atwells Ave.	28	539
32	4488	Greens Warehouse Corp., 431 Harris Ave.	48	5700
33	88	Wales Bldg., 30 Olneyville Sq.	27	105
34	98	St. Bartholomews Sch., 315 Laurel Hill	24	172
35	1413	Oliver H. Perry Jr. High	25	4000
37	2448	" " "		
38	<u>324</u>	" " "		
	4185			
36	2351	Hartford Housing	26	4724
39	<u>2069</u>	" "		
	4420			
37		Refer to District #35		
38		" " " "		
39		" " " #36		
40	1404	George J. West Jr. High School 145 Beauford St.	30	1631
42	5894	Brown & Sharpe	41	28518
43	3739	Mt. Pleasant High School	29	12727
47	1423	" " " "		
56	4658	" " " "		
57	<u>2419</u>	" " " "		
	12239			
44	1774	Nathaniel Green Jr. High School	36	4000
52	1286	" " " "		
54	<u>313</u>	" " " "		
	3373			
45	1781	Roger Williams Gen. Hospital, Chalkstone Ave.	35	2254
46	4146	Veterans Hospital, Chalkstone Ave.	31	4420
47		Refer to District #43		
48	351	Smith St. Sch., 396 Smith St.	40	490

DAYTIME AT-HOME SHELTER PLAN

- (a) Daytime at-home Shelter Plan
- (b) District, Principal Shelter, and Shelter Number
- (c) District, Population, Principal Shelter, Shelter Number and Capacity

## DAYTIME AT-HOME SHELTER PLAN

The daytime at-home population shelter use plan has been keyed to the same shelter districts as the nighttime shelter use plan. Therefore, the procedure for finding the assigned shelter location is basically the same for this component as for the nighttime group.

The difference lies in the fact that certain shelter locations are closed to the general population during the day because these locations are being used for the school shelter plan. Although the shelter movement districts are the same, the shelter location may change in certain instances.

For example, someone living on Carlisle Street during the nighttime hours would find his location as Shelter District 8. Turning to master Map 1, he would see that during the nighttime hours his assigned shelter location would be Sackett Street School. However, the attached chart would indicate that if the same person were found at home during the daytime hours, his assignment would be to find shelter in Dunne Motors, located at 705 Elmwood Avenue. This is due to the fact that Sackett Street School is needed during school hours to shelter school children, and does not have any surplus space for the shelter of the general public.

## DAYTIME SHELTER USE

## Population - Shelter Relationships

## At-Home Population

District	Principal Shelter	Shelter No.
1	Circular Tool Co., 765 Allens Ave.	6
2	Federal Products, 1144 Eddy St.	3
3	70 Ernest St.	4
4	Federal Products, 1144 Eddy St.	3
5	" "	3
6	70 Ernest St.	4
7	Hopkins Williams Exc., 1096 Broad St.	12
8	Jim Anthony Co., 115 Baker St.	23
9	Roger Williams Project, 600 Prairie Ave.	--
10	St. Josephs Hospital, Peace St.	10
11	R. I. Hospital	16
12	" " "	16
13	Dunne Motors, 705 Elmwood Ave.	--
14	R. I. Hospital	16
15	" " "	16
16	St. Josephs Hospital, Peace St.	10
17	" " "	10
18	Nurses Home, 44 Peace St.	9
19	Internal Revenue Ser. Bldg., Elmwood Ave.	58
20	Providence Gas Co., 477 Dexter St.	21
21	St. Josephs Hosp. Laundry, Plenty St.	11
22	YMCA, 160-166 Broad St.	15
23	Downtown Shelters	1
24	Hi-Hat Food Products, Narragansett Ave.	22
25	Providence Gas Co., 477 Dexter St.	21
26	Jones Warehouse	20
27	Lederer Bldg., 100 Stewart St.	14
28	Mulry Bldg., Broadway	19
29	Jones Warehouse	20
30	U.S. Rubber Co., 10 Eagle St., Bldg. 2	33
31	General Electric, Atwells Ave.	28
32	Greens Warehouse Corp, 431 Harris Ave.	48
33	Wales Bldg., 30 Olneyville Square	27
34	Wales Bldg., " " "	27
35	Hartford Housing	26
36	" " "	26
37	U.S. Rubber Co., 10 Eagle St., Bldg. 2	33
38	" " " " 9	32
39	Hartford Housing	26
40	" " "	26
41	Brown & Sharpe	41
42	" " "	41
43	Mt. Pleasant High School	29
44	Roger Williams Gen. Hosp., Chalkstone Ave.	35
45	" " " "	35
46	Veterans Hospital, Calkstone Ave.	31
47	Mt. Pleasant High School	29

District	Principal Shelter	Shelter No.
48	Veterans Hospital, Chalkstone Ave.	31
49	Capitol Complex	2
50	State Garage, 30 Arlene St.	50
51	Capitol Complex	2
52	Veterans Hospital, Chalkstone Ave.	31
53	Capitol Complex	2
54	Veterans Hospital, Chalkstone Ave.	31
55	Capitol Complex	2
56	Mt. Pleasant High School	29
57	" " " "	29
58	Providence College	37
59	Boiler House, 725 Branch Ave.	44
60	" "	44
61	Chad Brown Training, Chad Brown St.	42
62	Prov. Lying-In Hospital, Maude St.	34
63	Capitol Complex	2
64	" "	2
65	" "	2
66	" "	2
67	" "	2
68	" "	2
69	" "	2
70	Leach Realty Co., 387 Charles St.	46
71	" " "	46
72	Providence College	37
73	Leach Realty Co., 387 Charles St.	46
74	Armory, 1049 No. Main St.	51
75	Post Office, West River St.	49
76	" "	49
77	Armory, 1049 No. Main St.	51
78	"	51
79	"	51
80	"	51
81	Providence County Court House, S. Main St.	56
82	Rhode Island School of Design	55
83	Providence County Court House, S. Main St.	56
84	" " " "	56
85	" " " "	56
86	" " " "	56
87	Salvation Army	53
88	Providence County Court House, S. Main St.	56
89	" " " "	56

TABLE IV

## Daytime Shelter Use General Allocation Plan:

## Population - Shelter Relationships

At-Home Population				
Dist.	Pop. Amt.	Principal Shelter	Shelter No.	Capacity
1	40	Circular Tool Co., 765 Allens Ave.	6	112
2	122	Federal Products, 1144 Eddy St.	3	1225
4	305	" "		
5	<u>904</u>	" "		
	1331			
3	82	70 Ernest St.	4	362
6	<u>32</u>	" " "		
	114			
4		Refer to District #2		
5		" " " "		
6		" " " #3		
7	64	Hopkins Williams Exc., 1096 Broad St.	12	241
8	70	Jim Anthony Co., 115 Baker St.	23	174
9	793	Roger Williams Project, 600 Prairie Ave.	--	2800
10	168	St. Josephs Hospital, Peace St.	10	1752
16	486	" " "		
17	<u>221</u>	" " "		
	875			
11	390	R. I. Hospital	16	13799
12	382	" " "		
14	1450	" " "		
15	<u>1884</u>	" " "		
	4106			
13	626	Dunne Motors, 705 Elmwood Ave.	--	1800
14		Refer to District #11		
15		" " " "		
16		" " " #10		
17		" " " "		
18	412	Nurses Home, 44 Peace St.	9	1052
19	71	Internal Revenue Ser. Bldg., Elmwood Ave.	58	219
20	261	Providence Gas Co., 477 Dexter St.	21	1420
25	<u>248</u>	" " "		
	509			
21	40	St. Josephs Hosp. Laundry, Plenty St.	11	100
22	656	YMCA, 160-166 Broad St.	15	1696
23	20061	Downtown Shelters	1	138836
24	33	Hi-Hat Food Products, Narragansett Ave.	22	147
25		Refer to District #20		
26	966	Jones Warehouse	20	2670
29	<u>688</u>	" "		
	1654			

Dist.	Pop.Amt.	Principal Shelter	Shelter No.	Capacity
27	124	Lederer Bldg., 100 Stewart St.	14	427
28	346	Mulry Bldg.	19	762
29		Refer to District #26		
30	704	U.S. Rubber Co., 10 Eagle St., Bldg. 2	33	3896
37	<u>979</u>	" " "		
	1683			
31	155	General Electric, Atwells Ave.	28	539
32	1795	Greens Warehouse Corp., 431 Harris Ave.	48	5700
33	35	Wales Bldg., 30 Olneyville Sq.	27	105
34	<u>39</u>	" "		
	74			
35	565	Hartford Housing	26	4724
36	940	" "		
39	828	" "		
40	<u>561</u>	" "		
	2894			
37		Refer to District #30		
38	130	U.S. Rubber Co., 10 Eagle St., Bldg. 9	32	486
39		Refer to District #35		
40		" " " "		
41	344	Brown & Sharpe	41	28518
42	<u>2358</u>	" "		
	2702			
43	1496	Mt. Pleasant High School	29	9400
47	569	" " " "		
56	1863	" " " "		
57	<u>968</u>	" " " "		
	4896			
44	709	Roger Williams Gen. Hosp., Chalkstone Av.	35	1866
45	<u>712</u>	" " " "		
	1421			
46	1658	Veterans Hospital, Chalkstone Ave.	31	4420
48	140	" "		
52	514	" "		
54	<u>125</u>	" "		
	2437			
47		Refer to District #43		
48		" " " #46		
49	1368	Capitol Complex	2	33649
51	656	" "		
53	310	" "		
55	806	" "		
63	2071	" "		
64	257	" "		
65	1071	" "		
66	<u>2339</u>	" "		

4.

Dist.	Pop. Amt.	Principal Shelter	Shelter No.	Capacity
81	1365	Prov. County Court House, S. Main St.	56	13575
83	695	" " " "		
84	225	" " " "		
85	2274	" " " "		
86	2168	" " " "		
88	2958	" " " "		
89	<u>2198</u>	" " " "		
	11883			
82	1750	Rhode Island School of Design	55	3400
83		Refer to District #81		
84		" " " "		
85		" " " "		
86		" " " "		
87	112	Salvation Army	53	374
88		Refer to District #81		
89		" " " "		

NOTE: Shelter Districts in this table which are referred to other Shelter Districts are not in numerical order but are contained within the principal Shelter of the referred District.

DAYTIME AT-WORK, ON-STREET, AND SHOPPING AND SERVICES SHELTER PLAN

- (a) Daytime At-work, On-street, Shopping and Services Shelter Plan
- (b) Census Tract, Population, Principal Shelter and Capacity
- (c) Census Tract Map

## DAYTIME AT-WORK, ON-STREET, AND SHOPPING AND SERVICES SHELTER PLAN

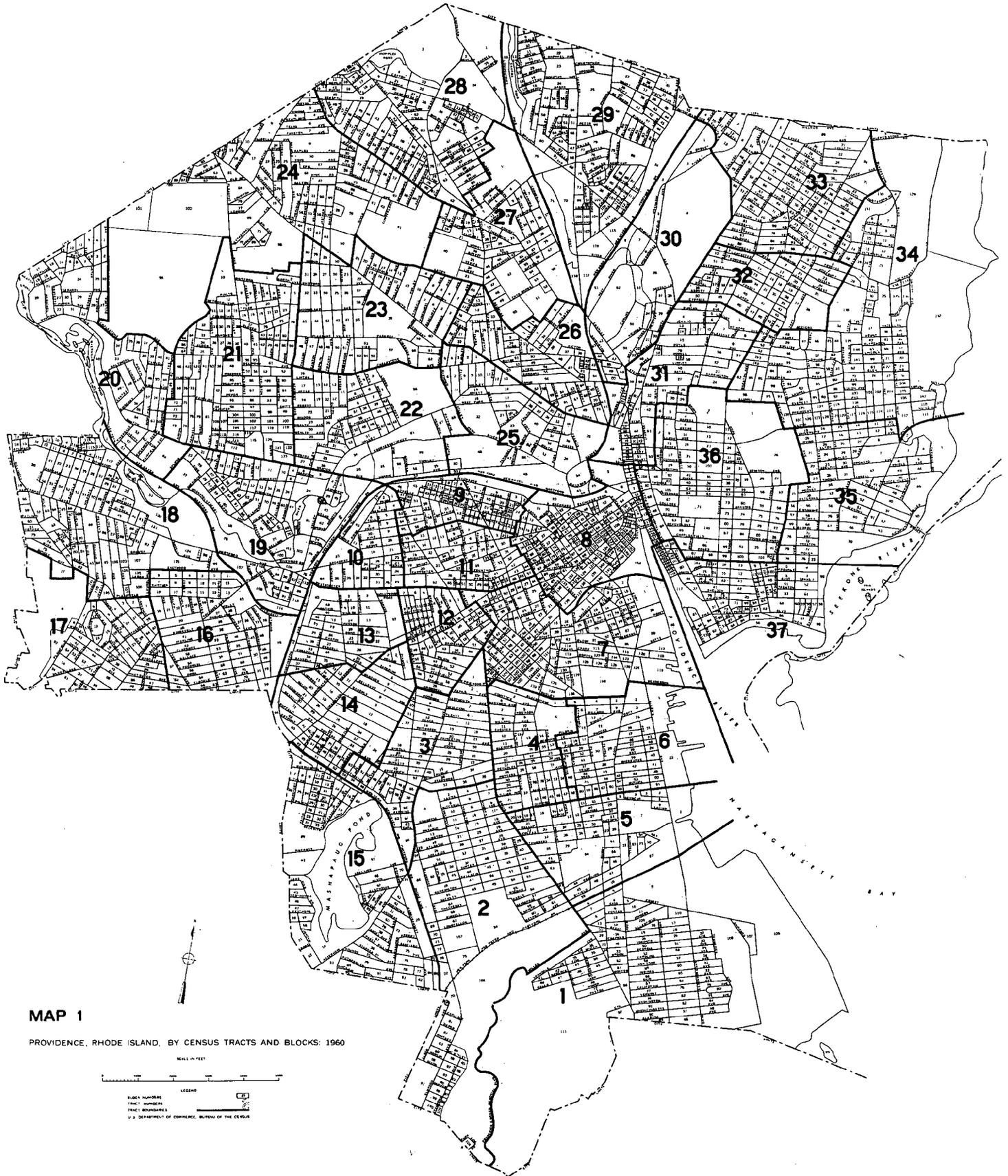
The daytime population components of at-work, on-street, and shopping and services population are assigned shelter locations on the basis of the census tracts in which they are found during the daytime hours. The on-street and shopping and services components are combined and treated as a single entity. The at-work population is also treated separately.

The rationale for using census tracts rather than shelter assignment districts is because population estimates for the subject components are difficult to make for areas smaller than census tracts.

In order to find the assigned shelter location for people at work during the day, the first step is to consult the master census tract map #1. Once the census tract location in which the individual works is determined, the at-work table is consulted, and the shelter locations within the census tract are found.

For example, if the individual works at a store located at the corner of Candace Street and Douglas Avenue, looks at the master map #1 and finds that his place of work is in census tract 26, he then turns to the Table of at-work shelter assignments and finds that he is assigned to the State Capitol complex.

Similarly, the on-street and shopping and services population is defined by census tracts. For people who customarily shop at the same place, they should find the census tract in which the shopping location is situated, and then turn to the proper table to find the principal shelter location. In any case, the managers of the various shopping locations will be apprised of the proper shelter location to which to direct their customers, and will be responsible for such direction. For the average householder, it is sufficient to know the proper shelter location for nighttime hours, at-home hours and at-work hours. Most of the shopping and services population is found during the day either in the downtown area or at a relatively few shopping and service centers. The managers of such centers will know the assigned shelter location and will direct their customers to such locations.



**MAP 1**

PROVIDENCE, RHODE ISLAND, BY CENSUS TRACTS AND BLOCKS: 1960

SCALE IN FEET

LEGEND

BLOCK NUMBERS

TRACT NUMBERS

TRACT BOUNDARIES

CITY BOUNDARIES

U.S. DEPARTMENT OF COMMERCE, BUREAU OF THE CENSUS

TABLE II

## DAYTIME SHELTER USE GENERAL ALLOCATION PLAN:

## POPULATION SHELTER RELATIONSHIPS--AT WORK POPULATION

Census Tract	Population	Principal Shelter	Capacity
1	3420	City Hwy. Bldg., Ernest St.	1100
		Social Welfare, Harbour Side	400
		Circular Tool, Allens Ave.	112
		Calvary Baptist Church, Broad St.	800
		115 Baker Street	174
		Church, 1520 Broad St.	80
		Roger Williams Project	280
		" " "	2900
		Church, 1250 Broad St.	55
2	2563	General Electric, Hathaway St.	600
		Telephone Bldg., 1096 Broad St.	200
		Swiss Cleansing, 675 Elmwood	400
		R. I. Hospital	6800
		Home for Aged, 807 Broad St.	114
		St. Elizabeth's Home, 109 Melrose St.	91
3	1627	Ward's Baking, 461 Eddy St.	300
		Church, 225 Elmwood Ave.	225
		Tyler School, Somerset	113
		Coro Jewelry, Point St.	500
		Prov. Lithograph, 353 Prairie Ave.	90
		Building, 95 Reynolds	61
		Barrelled Sunlight, Dudley St.	194
		Eastern Scientific, 267 Plain St.	90
		Imperial Knife, Imperial Place	92
		Jake Kaplan's, Reservoir Ave.	115
5	684	Telephone Bldg., Broad St.	700
		Dart Union, 134 Thurbars Ave.	320
		Rhode Island Hospital	6400
14	1541	Church, 791 Potters Ave.	700
		Lederer Bldg., 100 Stewart	427
		Codding Court, 134 Dodge	81
		Codding Court, 15A Street	71
		St. Charles School, 155 Harrison	97
		Roger Williams Baptist Church, Cranston St.	102
		R. I. State Armory, Cranston St.	598
15	4500	Gorham Corp., 333 Adelaide Ave.	700
		Hi-Hat Foods, Narragansett St.	147
		Internal Revenue, Elmwood Ave.	519
16	511	U. S. Rubber Co., Valley St.	3800

Census Tract	Population	Principal Shelter	Capacity
17		St. Bartholomew Sch., Laurel Hill Ave.	400
		St. Bartholomew Nursery	30
		City of Prov., 201 Pocasset Ave.	34
		Hartford Housing	7200
18	259		
	173	Hartford Housing	13900
19		Veterans Hospital	4900
		St. Mary's, Bainbridge St.	54
		Charles Falugo, 381 Westminster St.	200
		1828 Westminster St.	106
		Recreation Hall, Hyat St.	60
		U. S. Rubber Co., Valley St.	3090
		Wales Bldg., Olneyville Sq.	105
		St. Adalbert's, Chaffee St.	60
		Manton Industries, 120 Manton	70
		Rawl Eng., 167 Valley St.	44
		Dairy Test, 103 Dike	62
		Ind. National Bank, Olneyville	24
		Guild Realty, 556 Atwells Ave.	620
20	4190		
		Mt. Pleasant High School	7957
		564 Manton Ave.	93
21	338		
	259	Roger Williams Hospital, Calkstone Ave.	900
22		Brown & Sharpe	48100
		V.F.W. Hall, America St.	85
		St. Margaret's Home, 141 Dean St.	138
		Armour, 100 Harris Ave.	207
		Marcello, Harris Ave.	707
23	5983		
		St. Pius Church, Elmhurst	200
		Brown & Sharpe, Promenade	39800
		" "	39400
		" "	39200
		Coca Cola, Valley St.	400
24	770		
		Craig-Lee Hall, R. I. C.	800
		Mt. Pleasant High School	7487
		Providence Halls	1000
25	943		
		State Capitol	7900
		Brown & Sharpe, Promenade	38900
26	3000		
	1109	State Capitol	3500
27	943	State Capitol	2100
28		Boiler House, Branch Ave.	50
		Providence College	500
		Leach Realty, Charles St.	3700
	1109		

Census Tract	Population	Principal Shelter	Capacity
29		Leach Realty, Charles St.	2800
		North Main St. Armory	700
	425	Wanskuck Boys Club, Branch Ave.	400
30		Leach Realty, Charles St.	2700
		What Cheer Bottling, 491 Silver Spring	104
	2500	Monarch Stores, Stevens St.	178
31		R. I. S. D.	1600
		R. I. School for Deaf Gym, Hope St.	64
		Wayland Manor, Wayland Ave.	1468
	1706		
32	173	Emanu-El Temple & School	300
33		Post Office, West River St.	800
		" "	700
		" "	600
		Home for Aged, 99 Hillside Ave.	252
	1109		
34	684	Brown University	13100
35		Court House, South Main St.	9400
		Minden Hotel, 123 Waterman St.	400
		Salvation Army, Pitman St.	300
	1282		
36	2736	Brown University	12150
37	943	Court House	7900
4, 6, 7, 8, 9, 10, 11, 12, & 13	52503	Downtown Area	62000

TABLE V

## DAYTIME SHELTER USE GENERAL ALLOCATION PLAN

Population - Shelter Relationships - Shopping - Shopping, Services and On-Street  
Population.

Census Tract	Population	Principal Shelter	Capacity
1	700	City Highway Bldg., Ernest St.	720
2	600	Roger Williams Project, 600 Prairie Ave. Home for Aged, 807 Broad St.	853 114
3	700	Church, 225 Elmwood Ave. Barrelled Sunlight, Dudley St. Jake Kaplan's, Reservoir Ave.	225 194 115
5	300	Dart Union, 134 Thurbers Ave.	320
14	300	Lederer Bldg., 100 Stewart St.	427
15	250	St. Elizabeths Home, 109 Melrose St. Hi-Hat Foods, Narragansett Ave.	549 147
16	300	Hartford Housing Project	1830
17	300	" " "	
18	<u>200</u> 800	" " "	
19	1800	Brown & Sharpe	25316
20	200	Mt. Pleasant High School	7487
21	200	Roger Williams Hospital, Chalkstone Ave.	540
22	800	Marcello, 105 Harris Ave.	707
23	600	Brown & Sharpe St. Pius Church, Elmhurst Ave.	500 146
24	500	Providence College Halls	570
25	1700	State Capitol	12902
26	350	" "	
27	<u>100</u> 2150	" "	
28	100	Leach Realty	920
29	250	Armory, North Main St.	375
30	1000	Post Office Miriam Hospital, Summit Ave.	438 700
31	1000	Wayland Manor, Wayland Sq.	1468
32	100	Emanu-El Temple & School	60
33	2000	Brown University	8350
34	300	" "	
35	1000	" "	
36	<u>1400</u> 4700	" "	
37	500	Court House	1792

A SPECIAL BREAKDOWN FOR DAYTIME DOWNTOWN PROVIDENCE

- (a) Downtown Shelter Plan
- (b) Shelter Priority, Location, and Capacity
- (c) Map of Downtown Providence

## DOWNTOWN SHELTER PLAN

The downtown area is coterminous with Census Tract 8. The area contains 69 major shelter facilities. Shelter occupancy will be based on a system of priorities using four key variables: 1) Stockage of shelters; 2) Quality of shelters; 3) Distance of shelter from downtown perimeter; and 4) Size of shelter. Thus, the first shelters to be filled will be those which are stocked with shelter supplies, having a protection factor of 100 or better, farthest from the downtown perimeter, and having the largest amount of shelter space.

The numbering of the shelter locations reflects the established priorities. Authorities in charge of shelter occupancy will attempt to fill up shelter #1 first, #2 next, and so on. It is obvious that the established order of priority will not be followed strictly, but it will serve as a basic guide for downtown shelter occupancy.

The chart which follows shows the criteria on which the existing priorities were established:

## SHELTER PRIORITY OF CENSUS TRACT EIGHT - DOWNTOWN AREA

1. Stocked PF 4-8 Farthest 3000+	2. Stocked PF 4-8 Farthest 1000-2999	3. Stocked PF 4-8 Farthest Under 1000	4. Stocked PF 4-8 Nearest 3000+	5. Stocked PF 4-8 Nearest 1000-2999	6. Stocked PF 4-8 Nearest Under 1000
7. Stocked PF 2-3 Farthest 3000+	8. Stocked PF 2-3 Farthest 1000-2999	9. Stocked PF 2-3 Farthest Under 1000	10. Stocked PF 2-3 Nearest 3000+	11. Stocked PF 2-3 Nearest 1000-2999	12. Stocked PF 2-3 Nearest Under 1000
13. Unstocked PF 4-8 Farthest 3000+	14. Unstocked PF 4-8 Farthest 1000-2999	15. Unstocked PF 4-8 Farthest Under 1000	16. Unstocked PF 4-8 Nearest 3000+	17. Unstocked PF 4-8 Nearest 1000-2999	18. Unstocked PF 4-8 Nearest Under 1000
19. Unstocked PF 2-3 Farthest 3000+	20. Unstocked PF 2-3 Farthest 1000-2999	21. Unstocked PF 2-3 Farthest Under 1000	22. Unstocked PF 2-3 Nearest 3000+	23. Unstocked PF 2-3 Nearest 1000-2999	24. Unstocked PF 2-3 Nearest Under 1000

This downtown shelter occupancy plan is designed to be executed by defined authorities in charge of the internal movement, principally police personnel assisted by fire department personnel. The general public will be told only to proceed to the downtown area. Both for the nighttime population and the at-home daytime population, persons using the downtown shelter area are found in Census Tracts 4, 8, 9, 10, 11, 12 and 13, as well as in the downtown area itself both during the day and night. Pick up points have been designated on the downtown perimeter and will be properly manned. Internal routing points have also been determined to increase the movement flow to shelter locations and will also be manned. These external and internal check points are indicated on the accompanying downtown map by letters. The shelter locations themselves have priority numbers in rank order and rough capacity figures to give some idea of the numbers of people to be directed to the particular shelter.

The State Capitol complex is also indicated on the downtown map. As with the downtown area itself, the general public assigned to these shelter locations will be told only to proceed to the State Capitol. Once again, external and internal check points have been established for this complex, and these check points will be properly manned. A separate order of priority for the State Capitol group of shelters has been drawn up, and the shelter locations are thus numbered.

## DOWNTOWN PROVIDENCE SHELTER PLAN

50.

Shelter Priority	Location	Capacity
1	Industrial National Bank	13481
2	Boston Store Bldg.	11624
3	Federal Bldg.	4957
4	Swartz Bldg.	71
5	Alwin Mason	70
6	Alice Bldg.	67
7	Gardner Bldg.	124
8	People's Saving Bank	588
9	Y. W. C. A. Bldg.	1034
10	Union Station (Main)	220
11	Bldg. 11	135
12	Bldg. 10	456
13	Public Library	167
14	WPRO Bldg.	172
15	Y. W. C. A. Gym	66
16	Post Office Annex	2612
17	Lapham Bldg.	1497
18	Cross Country	204
19	Industrial National Bank (Trust)	598
20	Gladding's	82
21	Phoenix Bank Bldg.	62
22	Hall Bldg.	175
23	Prov. Washington Insurance Bldg.	2729
24	Amica Bldg.	5625
25	Elk's Hall	1315
26	Fire & Police Hdqts.	1251
27	U. S. Custom House	775
28	St. Xavier's Academy	162
29	Bishop House	146
30	Ballou Johnson	52
31	Narragansett Hotel Garage	356
32	Waite-Thresher Bldg.	61
33	Arnold Hoffman Bldg.	95
34	Kresge	3026
35	Newberry's	6413
36	Providence City Hall	4639
37	Smith Bldg., 100 Union St.	7644
38	Union Trust Bldg.	4612
39	Old Industrial Trust Bldg.	9179
40	Prov. Journal Bldg.	2445
41	20 Dorrance St.	126
42	217 Westminster St.	579
43	Telephone Bldg.	10390
44	RKO Albee	195
45	Biltmore Hotel	9841
46	Turks Head Bldg.	6025
47	R. I. Hospital Trust Bldg.	6914
48	Union Trust Annex	207
49	Bank of Commerce Bldg.	220
50	Title Guarantee Bldg.	329

Shelter Priority	Location	Capacity
51	Colt Bldg.	152
52	Blue Cross Bldg.	1046
53	R. I. School of Design Aud.	2032
54	Jackson Bldg.	1571
55	Steinert Bldg.	1712
56	Crown Hotel	1332
57	Manufacturer's Bldg.	1522
58	Mathewson St. Church	755
59	Old Colony Bank Bldg.	742
60	Weybosset Pure Food Market	215
61	Stan Hope Bldg.	559
62	400 Westminster St.	52
63	Aborn Corp.	120
64	Old Stone Bank, Empire St.	161
65	Wilcox Bldg.	105
66	Providence Gas Bldg.	133
67	Kinsley Bldg.	1006
68	327 Westminster St.	157
69	139 Mathewson Bldg.	280

## CAPITOL COMPLEX

1	Veteran's Memorial Bldg.	3339
2	Roger Williams Bldg.	4342
3	State Capitol	13731
4	U. R. I. Bldg.	6088
5	State Office Bldg.	6149

A SPECIAL IN-SCHOOL SHELTER PLAN

(a) In-School Shelter Plan

(b) Table I: Host Schools Capacity, Sending Schools, and Sending School Population

#### IN-SCHOOL SHELTER PLAN

As explained in previous sections of this CSP, the school shelter plan is a separate operational entity using principally school buildings and school personnel to shelter school children.

The accompanying table shows the amount of school children to be moved, the shelter capacity of the various buildings used in the school plan, and the pattern of movement of school children.

TABLE I

## DAYTIME SHELTER USE GENERAL ALLOCATION PLAN

Population - Shelter Relationships - School Population through Grade 12

Host Schools Capacity	Sending Schools	Sending School Population
H-1 Hope High School 324 Hope St. 7236	1-A Holy Name, 113 Camp St.	292
	1-B Summit Ave., 86 Fourth St.	583
	1-C John Howland, 120 Cole Ave.	611
	1-D St. Sebastian's, University Ave.	219
	1-E Lincoln School, Burler Ave.	420
	1-F R. I. School for Deaf, 520 Hope St.	190
	1-G Abbie Loveland Tuller, 72 Prospect St.	70
	1-H St. Dunstan's, Benefit St.	110
	1-I Moses Brown, 250 Lloyd Ave.	500
	1-J Thomas A. Doyle, 83 Doyle Ave.	270
	1-K Jenkins St. School, 83 Jenkins St.	<u>173</u>
	3438	
H-2 Roger Williams Thurbers Ave. 4000	2-A Temple St., 252 Public St.	450
	2-B St. Michael's, Gordon Ave.	1020
	2-C Mary E. Fogarty, 199 Oxford St.	<u>815</u>
	2285	
H-3 Broad St. School 1450 Broad St. 2034	3-A Self-Shelter	
H-4 Sackett St. School 1618	4-A Reservoir Ave., 156 Reservoir Ave.	175
	4-B Lexington Avenue, 51 Lexington Ave.	<u>480</u>
	655	
H-5 Oliver H. Perry 370 Hartford Ave. 4000	5-A Webster Ave., 191 Webster Ave.	450
	5-B Laurel Hill, 85 Laurel Hill Ave.	530
	5-C St. Anthony, 240 Laban St.	380
	5-D Ralph St., 77 Ralph St.	325
	5-E Laurel Hill Annex, 370 Hartford Ave.	105
	5-F St. Bartholomew, 315 Laurel Hill Ave.	330
	5-G Merino School, 181 Glenbridge	<u>130</u>
	2250	
H-6 George J. West Jr. High 145 Beauford St. 4000	6-A Our Lady of Lourdes, 211 Carleton St.	275
	6-B Academy Avenue, 36 Academy Ave.	270
	6-C St. Theresa Elem., 15 Pope St.	640
	6-D Sission St., 467 Manton Ave.	<u>145</u>
	1330	

Host Schools Capacity	Sending Schools	Sending School Population
H-7 Mt. Pleasant High Mt. Pleasant Ave. 12,727	7-A St. Augustine's, 635 Mt. Pleasant Ave.	340
	7-B Manton Avenue, 923 Manton Ave.	195
	7-C St. Thomas, 15 Edendale Ave.	315
	7-D Henry Barnard, Mt. Pleasant Ave.	700
	7-E Mt. Pleasant Ave., 1246 Chalkstone Ave.	<u>200</u>
		1750
H-8 LaSalle Academy Academy Ave. & Smith St. 4290	8-A St. Edwards, 977 Branch Ave.	295
	8-B Veazie St. School, 211 Veazie St.	745
	8-C Blessed Sacrament, Regent Ave.	775
	8-D Nelson St., 194 Nelson St.	<u>580</u>
		2395
H-9 Windmill St.Sch. 110 Paul St. 1414	9-A Esek Hopkins, 480 Charles St.	435
	9-B St. Ann's, 524 Branch Ave.	<u>285</u>
		720
H-10 Nathaniel Greene 721 Chalkstone Av. 4000	10-A Camden Ave., 60 Camden Ave.	915
	10-B Regent Ave., 101 Regent Ave.	<u>350</u>
		1265
H-11 Smith St.School 396 Smith St. 490	11-A Berkshire St., 99 Berkshire St.	240
H-12 St.Patrick's Sch. 244 Smith St. 1612	12-A St. Patrick's High Sch., 19 Davis St.	215
	12-B St. Casimir's, 333 Smith St.	87
H-13 Samuel Bridgham 371 Carpenter St. 1723	13-A Willow St., 99 Willow St.	245
	13-B Hammond St., 55 Hammond St.	145
	13-C Messer St., 158 Messer St.	405
	13-D Almy Street, 20 Almy St.	55
	13-E Mary C. Greene, Kenyon St.	<u>20</u>
		870
H-14 Nathan Bishop Jr. High 101 Sessions St. 902	14-A St. Raymond's, Highland & Ninth St.	350

## 3.

Host Schools Capacity	Sending Schools	Sending School Population
H-15 Gilbert Stuart Jr. High 188 Princeton Av. 4000	15-A Vineyard St., 15 Vineyard St. 15-B Assumption, 620 Potters Ave. 15-C Althea St., 245 Althea St. 15-D Gilbert Stuart Elementary, 160 Bucklin St. 15-E St. Charles Elementary, 155 Harrison St. 15-F St. Charles High, 165 Harrison St.	415 325 290 430 290 <u>150</u> 1900
H-16 Grove St. School 95 Grove St. 79	16-A Self Service	
H-17 Blessed Sacrament 240 Regent Ave. 160	17-A St. Theresa High, 231 Amherst St. N.B. School Population of Blessed Sacrament will move to LaSalle Academy	640
H-18 St.Pius School & Rectory 30 Elmhurst Ave. 446	18-A Self-service	
H-19 Esek Hopkins Jr. High 480 Charles St. 243	19-A Branch Ave., 425 Branch Ave. N.B. School population of Esek Hopkins will have to move to Windmill St.	170
H-20 Veazie St. Sch. 211 Veazie St. 277	20A R.I. Vocational, Corliss Park N.B. School population of Veazie St. will move to Gilbert Stuart Jr. High	250
H-21 Vineyard St. Sch. 15 Vineyard St. 202	21-A St. Paul's Christian Day, 12 Carter St. N.B. School population of Vineyard St. will move to Gilbert Stuart Jr. High	95
H-22 Summit Ave. 86 Fourth St. 188	22-A Prov. Hebrew Day School, 450 Elmgrove Ave. N.B. School population of Summit Ave. will move to Hope High	230
H-23 Nelson St. 195 Nelson St. 77	23-A Valley View, 11 West Drive N.B. School population of Nelson St. will move to LaSalle	65

## 4.

Host Schools Capacity	Sending Schools	Sending School Population
H-24 Brown University 13,677	24-A Mary C. Wheeler, 216 Hope St.	330
	24-B Fox Point, 431 Wickenden St.	595
	24-C Cleary School, 75 John St.	<u>350</u>
		1275
HV-25 Jones Warehouse 59-61 Central St. 2670	25-A Central High, 170 Pond St.	1280
	25-B Classical High, 124 Pond St.	<u>1105</u>
		2385
HV-26 Y.M.C.A. 160 Broad St. 1696	26-A St. Xavier's, 60 Broad St.	770
	26-B Beacon Avenue, 106 Beacon Ave.	280
	26-C Edmund W. Flynn, 280 Blackstone Ave.	835
	26-D Tyler, 126 Somerset St.	<u>330</u>
		2215
HV-27 Green's Warehouse 431 Harris Ave. 5800	27-A Kenyon St. Sch., 99 Kenyon St.	795
	27-B St. Mary's High School, 5 Courtland St.	571
	27-C Holy Ghost, 67 Ridge St.	640
	27-D St. Mary's of the Visitation, 7 Bainbridge	220
	27-E St. Adalbert's, 36 Chaffee St.	180
	27-F Joslin St., 60 Kossuth St.	<u>681</u>
		2987

## SHELTER DEVELOPMENT PLAN

This chapter is divided into two basic sections. The first section is concerned with population analysis and projection; the second section will discuss shelter development plans.

Detailed population estimates will be made for Providence for 1970. Residential population will be the only population type estimated. After the total future population has been estimated, allocations among the various census tracts of the city will be made.

Shelter development will be analyzed by two population components. The first component will be the residential population, since estimates of the future size of this population have been made, and the previous chapter of this CSP has shown that the residential population is the key shelter assignment population around which most of the daytime population components can be structured. The second component will be the population of school age, for which an optimum school shelter plan using existing school buildings will be drawn up. In both these shelter development plans, cost estimates as well as time-distance shelter use estimates will be presented.

## POPULATION ANALYSIS AND PROJECTION

Several different estimates of the future population of Providence for 1970 were made. All of these estimates have as their rationale the prediction of population from past experience. The hazards of predicting future populations for small areas like Providence are too well known to be labored here. The various techniques used are clearly set forth in a technical appendix and will not be presented here.

Providence CSP Estimates, Residential Population - 1970

The basic problems of several of the estimating techniques generally used in predicting future populations involve assumptions concerning natural increase and migration components. Therefore, it was decided to take the actual pattern of natural increase and migration for the period from 1960 to 1961 and assume that this pattern would continue throughout the 1960-1970 decade. It becomes necessary, then, simply to extrapolate the post-censal trend through the decade in question. This gives a parameter of population change for Providence as a whole which can then serve as the basis for allocation of this population change among the various census tracts of the city. The extrapolation of the post-censal trend through the decade gives an estimate of Providence population for 1970 of 185,000.

Allocation of Population Change, Providence 1970

Once the total population estimate for Providence for 1970 has been secured, three different processes were used to allocate this population change among the different census tracts. In the first series, it was assumed that population changes in specific census tracts would continue in the same pattern as in the post-censal period; these changes were then extrapolated through the 1960-1970 decade. A second allocation series was made which forced the total population change to agree with the Providence total of 185,000. The third series was calculated using the population parameter of about 185,000, and allocating the population change in the decade on the basis of known variables. (The specifics of each series are contained in the aforementioned technical report) Series III is used as the basis for recommended shelter development in Providence.

## RESIDENTIAL POPULATION ESTIMATE, 1970, PROVIDENCE, R. I.

<u>Census Tract</u>	<u>Series I</u>	<u>Series II</u>	<u>Series III</u>
1	7555	6711	7500
2	8713	7767	8700
3	6920	6183	6900
4	6568	5640	6500
5	5625	6098	5300 (1)
6	2985	3236	2000 (2)
7	5539	6827	4000 (3)
8	539	815	2400 (4)
9	4027	4262	4000 (5)
10	4239	4187	4200
11	4323	4639	4200
12	3509	4295	3500
13	5605	4796	5500
14	6469	5924	6400
15	1858	3420	2300 (6)
16	6509	6216	6500
17	3703	3655	3800
18	5065	6051	5200
19	5750	6106	5600
20	3641	3383	3800 (7)
21	9114	8130	9100
22	4932	4899	4700 (8)
23	6214	5272	6200
24	7259	6205	7200
25	2913	3034	2600 (9)
26	4690	5546	4500
27	4692	4871	5500
28	5701	5043	4700
29	6482	6031	6400
30	188	438	300
31	2299	4205	4000 (10)
32	4373	3900	4300
33	5660	4923	5800
34	6042	4872	5800
35	5659	5397	6000
36	7255	6662	7200
37	4907	5209	4700 (11)
TOTAL	187522	184838	187300

- (1) - CRP recommended for clearance for industrial use.  
(2) - CRP recommended for clearance for industrial use.  
(3) - CRP recommended for clearance.  
(4) - Weybosset Hill Development.  
(5) - CRP recommended clearance for residential and commercial rehabilitation.  
(6) - Possibility of arrested area development.  
(7) - CRP recommends development of the arrested area.  
(8) - CRP recommended for clearance for industrial use.  
(9) - CRP recommended for clearance for industrial use.  
(10) - Lippitt Hill Development.  
(11) - Highway clearance program.

## SHELTER DEVELOPMENT PLAN

Background

The specific shelter allocation plans presented in chapter 4 of this CSP indicate that all the population of Providence can be sheltered during nuclear attack using the given time-space assumption. However, the above plans show that a large percentage of the population, particularly during the nighttime hours, must travel a distance of one mile to one and one-half miles before reaching assigned shelter locations. Furthermore, in order to shelter all the Providence population, some shelterees must by-pass certain shelter locations to leave them free for people who could not otherwise be sheltered. The undesirable element in such shelter assignment are clear.

Most important, shelter development must be considered in terms of people rather than in terms of arbitrary city administrative boundaries. The cities and towns in the immediate periphery of Providence have serious shelter deficiencies, and sooner or later a metropolitan or community area shelter plan must be devised. It is not reasonable to assume that people living in Cranston or North Providence will not seek shelter in Providence even though they live outside the Providence city boundaries.

Therefore, two separate shelter development plans have been drawn up. The first is confined exclusively to school children through grade 12 (see pages 63-65). The reasons for shelter development for this category of population will appear in the presentation of the optimum school plan. Briefly, school shelter development permits the school plan to become an effective independent system using school buildings mainly and school department personnel.

The second shelter development plan is a plan for nighttime or residential population. It is this population category which presents the most serious shelter use problems, since residences are usually at some distance from the downtown complex of shelter areas and neighborhood shelter locations are relatively scarce. Since no particular problems are presented by the daytime at-work, on-street, or shopping and services population components, and since the daytime at-home population can tie into the nighttime shelter use plan, these latter categories have been omitted here.

School Shelter Development Plan

The population for this optimum school shelter plan will be held constant at about 43,000 people. This population includes administrative, custodial, and teaching personnel as well as students. Although the total population of Providence has declined by 8,000 since 1960, the school population has declined by only about 1,000. Furthermore, it seems better to leave a planning margin rather than to underestimate the number of school children to be sheltered.

After the proposed modifications to existing school buildings have been carried out, the quality of shelter space available to school children will be considerably increased. The number of shelter spaces having a protective factor of 100 or better will increase from about 22,000 spaces to more than 35,000 spaces. Also, at the same time the number of spaces providing a protection factor of 40 or better increases to about 55,000 spaces which can be used in the nighttime shelter use plan by the total residential population.

More important than the total number of shelter spaces, after modification to existing buildings, is the location of these new spaces. A priority list of the buildings to be modified is shown in table I. These buildings

have been selected for initial modifications because they are all located in areas of relative shelter deficiency. The increased shelter capacity of these four school buildings will not only permit tighter control and operation of the school shelter plan, but will decrease the amount of movement of school children necessary for shelter purposes

Table 1

## DAYTIME SHELTERS

Number of Added Spaces, Total Cost and Cost per Space for Proposed Modifications to Selected Schools, OPTIMUM, City of Providence

<u>Shelter</u>	<u>Added Spaces</u>	<u>Total Cost</u>	<u>Cost Per Space</u>
Nathan Bishop Elmgrove Ave. & Sessions St.	1194	21,226	\$17.50
George J. West 145 Beauford St.	1100	17,520	15.50
Samuel Bridgham Jr. High 371 Carpenter St.	500	7,625	15.25
Windmill St. School	500	8,625	17.25
	3294	54,996	16.35

It is evident that the optimum school shelter plan uses both school buildings and selected private facilities. However, these private facilities are only four in number, and two of these are Brown University and the Y.M.C.A. The other two are large warehouses possessing a very high quality of shelter space, and a high degree of cooperation has been obtained from both the owners of these warehouses.

The inclusion of the four private facilities in the school plan results in a much more desirable movement pattern than the pattern necessary if only school buildings are included. In the present optimum plan, the maximum movement of any single school is less than one mile and well within the one-half hour time limit for movement. Nearly 70 percent of the school population either do not move at all, or have a movement pattern of less than one-half mile. The differences in movement between the existing plan and the optimum plan are striking.

#### Nighttime Shelter Use Development Plan

As in the school shelter plan, the function of shelter development in Providence lies not so much in insuring adequate shelter for the population of Providence as in assuring shelter of improved quality and minimizing the movement required in reaching assigned shelter locations. In brief summary, in existing shelters, nearly 30 percent of the Providence population must travel between one and one-half miles to reach assigned shelter locations; in the optimum shelter development plan, less than 10 percent of the total population must travel more than one mile.

It should be noted that certain school buildings are being recommended for modification as part of the nighttime shelter development program, even though they were not included in the school shelter development plan. The reason for this is that such school shelters are not needed to shelter the school population as such, but are located in shelter deficient areas in which shelter is needed for the total nighttime population. It may be that given certain shelter definitions for shelter development, the development of school building shelters should be recommended even though they are not needed for school population as such. (See page 66 "Optimum Nighttime Shelters")

As in the school development plan, the movement patterns for shelter use of the nighttime population are improved by developing new shelters. In the existing plan, about 30 percent of the nighttime population must travel between one mile and one and one-half miles to reach the assigned shelter location; in the shelter development plan, less than 10 percent of the total residential population must travel more than one mile.

The population-shelter relationship (see pages 70-73) is based on estimated populations for 1970 for shelter movement districts. The basis for these population estimates is explained in the previous section of this report and in the Appendix. Once more, as in the school plan, the upper limits of the population estimate have been adopted for shelter use purposes; it seems better to leave the margin of error on the conservative side.

All the time-distance assumptions in the shelter development plans have been held constant with those adopted in chapter 4. However, the improved movement patterns of both the school and the nighttime optimum plans permit a modification of the time-distance assumptions to be made to include one-half hour total time to reach shelter locations in place of the existing three-quarter hour time limit.

The at-work, on-street, shopping and services, and at-home daytime population shelter use plan remain essentially the same. Surplus shelter space is available to all of these daytime population components since they are largely found either within or close to the downtown shelter complex or are located within industrial buildings which are in themselves shelter locations. The at-home population can adjust itself to the nighttime shelter use plan using new shelter development.

Finally, it cannot be emphasized too strongly that shelter development must be considered in terms of a metropolitan or community shelter use plan. It does not make much sense to recommend shelter development for the population of Providence when people who live across the street in Cranston, North Providence, East Providence and so on must be sheltered as well. In any federal or state government program for shelter development, these considerations should form an integral part of the recommended program. In the meantime, only Providence population has been used to determine shelter development recommendations in this CSP.

## OPTIMUM

## DAYTIME SHELTER USE GENERAL ALLOCATION PLAN

## POPULATION-SHELTER RELATIONSHIPS-SCHOOL POPULATION THROUGH GRADE 12

Host Schools Capacity	Sending Schools	Sending School Population
H-1 Hope High School 324 Hope St. 7236	1-A Holy Name, 113 Camp St.	292
	1-B Jenkins St. School, 83 Jenkins St.	173
	1-C John Howland, 120 Cole Ave.	611
	1-D St. Sebastian's, University Ave.	219
	1-E Lincoln School, Butler Ave.	420
	1-F R.I. Sch. for Deaf, 520 Hope St.	190
	1-G Abbie Loveland Tuller, 72 Prospect St.	70
	1-H St. Denstan's, Benefit St.	110
	1-I Moses Brown, 250 Lloyd Ave.	500
	1-J Thomas A. Doyle, 83 Doyle Ave.	<u>270</u>
	2855	
H-2 Roger Williams Thurbers Ave. 4000	2-A Temple St., 252 Public St.	450
	2-B St. Michael's, Gordon Ave.	1020
	2-C Mary E. Fogarty, 199 Oxford St.	815
	2-D Edmund W. Flynn, 280 Blackstone Ave.	<u>835</u>
	3120	
H-3 Broad St. School 1450 Broad St. 2034	3-A Self-shelter	
H-4 Sackett St. School	4-A Reservoir Ave., 156 Reservoir Ave.	175
	4-B Lexington Ave., 51 Lexington Ave.	<u>480</u>
		655
H-5 Oliver H. Perry 370 Hartford Ave. 4000	5-A Webster Ave., 191 Webster Ave.	450
	5-B Laurel Hill, 85 Laurel Hill Ave.	530
	5-C St. Anthony, 240 Laban St.	380
	5-D Ralph Street, 77 Ralph St.	325
	5-E Laurel Hill Annex, 370 Hartford Ave.	105
	5-F St. Bartholomew, 315 Laurel Hill Ave.	330
	5-G Merino School, 181 Glenbridge	<u>130</u>
	2250	
H-6 George J. West 145 Beauford St. 1906	6-A Our Lady of Lourdes, 211 Carleton St.	275
	6-B St. Theresa High Sch., 231 Amherst St.	640
	6-C St. Theresa Elementary, 15 Pop St.	640
	6-D Sission St., 467 Manton Ave.	<u>145</u>
	1700	

## 2.

Host Schools Capacity	Sending Schools	Sending School Population
H-7 Mt. Pleasant High Mt. Pleasant Ave. 12,727	7-A St. Augustines, 635 Mt. Pleasant Ave.	340
	7-B Manton Ave., 923 Manton Ave.	195
	7-C St. Thomas, 15 Edendale Ave.	315
	7-D Henry Barnard, Mt. Pleasant Ave.	700
	7-E Mt. Pleasant Ave., 1246 Chalkstone Ave.	<u>200</u>
		1750
H-8 LaSalle Academy Academy Ave. & Smith St. 4,290	8-A St. Edwards, 977 Branch Ave.	295
	8-B Veazie St. School, 211 Veazie St.	745
	8-C Valley View, 11 West Driver	65
	8-D Nelson Street, 194 Nelson St.	<u>580</u>
		1685
H-9 Windmill St. Sch. 110 Paul St. 1914	9-A Esek Hopkins, 480 Charles St.	435
	9-B St. Ann's, 524 Branch Ave.	285
	9-C R. I. Vocational, Corliss Park	250
	9-D Branch Ave., 425 Branch Ave.	<u>170</u>
		1140
H-10 Nathaniel Greene 721 Chalkstone Av. 4000	10-A Camden Ave., 60 Camden Ave.	915
	10-B Regent Ave., 101 Regent Ave.	350
	10-C Blessed Sacrament, Regent Ave.	775
	10-D Berkshire St., 99 Berkshire St.	<u>240</u>
		2270
H-11 Smith St. School 396 Smith St. 490	11-A Self-Shelter	
H-12 St. Patrick's Sch. 244 Smith St. 1612	12-A St. Patrick's High Sch., 19 Davis St.	215
	12-B St. Casimir's, 333 Smith St.	<u>87</u>
		302
H-13 Samuel Bridgham 371 Carpenter St. 2,223	13-A Willow St., 99 Willow St.	245
	13-B Hammond St., 55 Hammond St.	145
	13-C Messer Street, 158 Messer St.	405
	13-D Almy Street, 20 Almy St.	55
	13-E Mary C. Greene, Kenyon St.	20
	13-F St. Mary's of the Visitation, 7 Bainbridge	220
	13-G Kenyon St., 99 Kenyon St.	<u>795</u>
		1885
H-14 Nathan Bishop Jr. High 101 Sessions St. 2096	14-A St. Raymond's, Highland & Ninth St.	350
	14-B Summit Avenue, 86 Fourth St.	583
	14-C Prov. Hebrew Day, 450 Elmgrove Ave.	<u>230</u>
		1163

## 3.

Host Schools Capacity	Sending Schools	Sending School Population
H-15 Gilbert Stuart Jr. High 188 Princeton Ave. 4000	15-A Vineyard St., 15 Vineyard St.	415
	15-B Assumption, 620 Potters Ave.	325
	15-C Althea St., 245 Althea St.	290
	15-D Gilbert Stuart Elementary, 160 Bucklin St.	430
	15-E St. Charles Elementary, 155 Harrison St.	290
	15-F St. Charles High, 165 Harrison St.	<u>150</u>
		1900
H-16 Grove St. School 95 Grove St. 79	16-A Self-Shelter	
HV-17 Y.M.C.A. 160 Broad St. 1696	17-A St. Xavier's, 60 Broad St.	770
	17-B Beacon Ave., 106 Beacon Ave.	280
	17-C Tyler, 126 Somerset St.	<u>330</u>
		1380
H-18 St. Pius School & Rectory 30 Elmhurst Ave. 446	18-A Self-Shelter	
HV-19 Jones Warehouse 59-61 Central St. 2670	19-A Central High, 170 Pond St.	1280
	19-B Classical High, 124 Pond	<u>1105</u>
		2385
H-20 Brown University 13,677	20-A Mary C. Wheeler, 216 Hope St.	330
	20-B Fox Point, 431 Wickenden St.	595
	20-C Cleary School, 75 John St.	<u>350</u>
		1275
HV-21 Greene's Warehouse 431 Harris Ave. 5,800	21-A Academy Ave., 36 Academy Ave.	270
	21-B St. Mary High, 5 Courtland St.	571
	21-C Holy Ghost, 67 Ridge St.	640
	21-D Joslin St., 60 Kossuth St.	681
	21-E St. Adalbert's, 36 Chaffee St.	<u>180</u>
		2342

## OPTIMUM

## NIGHTTIME SHELTERS

Number of Added Spaces, Total Cost and Cost per Space for Proposed Modifications to Selected Shelters, City of Providence.

<u>Shelter</u>	<u>Added Spaces</u>	<u>Total Cost</u>	<u>Cost per Space</u>
Nathan Bishop Elmgrove Av. & Sessions St.	2000	\$21,600.	\$17.50
Windmill St. School 120 Paul St.	2575	44,419.	17.25
George J. West 145 Beauford St.	2045	31,697.	15.50
Samuel Bridgham Jr. High 371 Carpenter St.	1072	16,409.	15.25
Sackett Street School 159 Sackett St.	1202	10,457.	8.50
Hope High School 324 Hope St.	200	7,250	36.25
U. S. Rubber Co. 10 Eagle St.	1500	54,375.	35.25
Hi-Hat Food Products	671	5,256.	9.00
St. Bartholomew's 315 Laurel Hill Ave.	100	2,825.	28.25
Broad Street School 1450 Broad St.	266	6,064.	22.50
Internal Revenue 544 Elmwood Ave.	821	6,568.	8.00
Hartford Housing Whelan Road	2110	60,806.	28.25
Greene's Warehouse 431 Harris Ave.	500	10,750.	21.50
	15062	\$268,482.	\$20.30

TABLE VI  
OPTIMUM NIGHTTIME SHELTER USE  
GENERAL ALLOCATION PLAN

Dist.	1970 Projec- tions	1964 Pop. Amount	Principal Shelter	Shelter No.	Optimum Capacity
1	100	100	Circular Tool Co., 765 Allens Ave.	6	112
2	307	309	Federal Products, 1144 Eddy St.	3	1225
4	<u>757</u>	<u>762</u>	" "		
	1064	1071			
3	203	205	70 Ernest St.	4	362
4			Refer to District #2		
5	2248	2261	Roger Williams Jr. High	13	4000
6	80	81	" " " "		
7	158	159	" " " "		
10	417	420	" " " "		
11	<u>969</u>	<u>975</u>	" " " "		
	3872	3896			
6			Refer to District #5		
7			" "		
8	174	175	Broad St. School, 1450 Broad St.	5	2300
9	<u>1970</u>	<u>1982</u>	" " " "		
	3872	3896			
10			Refer to District #5		
11			" " " "		
12	952	954	Sackett St. School, 159 Sackett St.	8	2820
13	<u>1563</u>	<u>1565</u>	" " " "		
	2515	2519			
14	3008	3626	Rhode Island Hospital	16	13799
15	4705	4711	" " " "		
part 23	<u>2671</u>	<u>3220</u>	" " " "		
	10384	11557			
16	1210	1214	St. Josephs Hospital, Peace St.	10	1752
17	410	553	High-Hat Food, 176 Narragansett Ave.	22	820
19	133	178	" " " "		
24	<u>61</u>	<u>83</u>	" " " "		
	604	814			
18	765	1030	Internal Revenue Serv.Bldg., 544 Elmwood	58	1040
19			Refer to District #17		
20	<u>484</u>	<u>652</u>	Prov. Gas Co., 477 Dexter St.	21	1420
	944	1272			
21	99	100	Gilbert Stuart Jr. High School	49	4000
22	<u>1633</u>	<u>1641</u>	" " " " "		
	1732	1741			

## 2.

Dist.	1970 Projections	1964 Pop. Amount	Principal Shelter	Shelter No.	Optimum Capacity
23	42000	46032	Downtown Shelters	1	138836
24			Refer to District #17		
25			Refer to District #20		
26	2349	2416	Jones Warehouse	20	2670
27	397	409	YMCA, 160-166 Broad St.	15	1696
29	1673	1721	Samuel Bridgham Jr. High School	18	2795
part 23	<u>1006</u>	<u>1000</u>	" " " " "		
	2679	2721			
30	1681	1760	Greene's Warehouse Corp, 431 Harris Av.	48	6200
32	4288	4488	" " "		
41	<u>747</u>	<u>860</u>	" " "		
	5616	6108			
31	370	388	Oliver H. Perry Jr. High	25	4000
35	1358	1413	" " " " "		
36	<u>2260</u>	<u>2351</u>	" " " " "		
	3988	3764			
32			Refer to District #30		
33	84	88	St. Bartholomew's, 315 Laurel Hill	24	272
34	<u>93</u>	<u>98</u>	" "		
	177	186			
35			Refer to District #31		
36			" " " "		
37	2071	2448	Hartford Housing	26	6824
38	274	324	" "		
39	1750	2069	" "		
40	<u>1188</u>	<u>1404</u>	" "		
	5283	6245			
41			Refer to District #30		
42	5125	5894	U. S. Rubber Co., 10 Eagle St.	32 & 33	5882
43	3800	3739	George J. West Jr. High	30	3743
44	1769	1774	LaSalle Academy, Academy Ave.	38	4290
57	<u>2461</u>	<u>2419</u>	" "		
	4230	4193			
45	1776	1781	Mt. Pleasant High School	29	12727
46	4136	4146	" " " "		
47	1419	1423	" " " "		
48	312	351	" " " "		
56	<u>4739</u>	<u>4658</u>	" " " "		
	12382	12359			
49	3040	3420	Brown & Sharpe	41	28518
50	1347	1516	" "		
63	<u>5500</u>	<u>5177</u>	" "		
	9887	10113			

## 3.

Dist.	1970 Projec- tions	1964 Pop. Amount	Principal Shelter	Shelter No.	Optimum Capacity
51	1687	1641	Veterans Hospital, Chalkstone Ave.	31	4420
52	1322	1286	Roger Williams Gen. Hospital	35	2254
53	796	775	Nathaniel Green Jr. High School	36	4000
55	<u>2071</u> 2867	<u>2014</u> 2789	" " " " "		
54	321	313	Prov. Lying-In Hospital, Maude St.	34	1537
55			Refer to District #53		
56			Refer to District #45		
57			Refer to District #44		
58	2942	3553	Providence College	37	5600
61	193	234	" "		
62	<u>1216</u> 4351	<u>1469</u> 5256	" "		
59	192	233	Boiler House, 725 Branch Ave.	44	329
60	154	137	Veazie St. School, 211 Veazie St.	43	277
61			Refer to District #58		
62			Refer to District #58		
63			Refer to District #49		
64	519	643	Capitol Complex	2	33649
65	2161	2678	" "		
66	4657	5848	" "		
67	<u>2896</u> 10233	<u>3637</u> 12806	" "		
68	993	1034	St. Patricks School, 244 Smith St.	39	1612
69	1216	1266	Windmill St. School	47	3989
70	1041	1084	" " "		
71	357	372	" " "		
72	<u>1216</u> 3830	<u>1266</u> 3988	" " "		
73	232	242	Esek Hopkins Jr. High, Charles St.	45	243
74	1000	1041	Armory, 1049 North Main St.	51	2065
77	560	539	"		
78	<u>460</u> 2020	<u>443</u> 2023	"		
75	562	586	Leach Realty Co., 387 Charles St.	46	730
76	300	478	Post Office	49	863
77			Refer to District #74		
78			Refer to District #73		
79	979	942	Nathan Bishop High School	52	2902
80	<u>1989</u> 2968	<u>1913</u> 2855	" " " "		

## 4.

Dist.	1970 Projec- tions	1964 Pop. Amount	Principal Shelter	Shelter No.	Optimum Capacity
81	4000	3812	Brown University Complex	54	17881
85	571	563	" " "		
88	<u>7200</u>	<u>7395</u>	" " "		
	11907	11770			
82	4300	4376	Rhode Island School of Design	55	6032
83	1807	1738	Hope High School, Hope St.	57	7436
84	<u>5800</u>	<u>5684</u>	" " "		
	7607	7422			
85			Refer to District #81		
86	5503	5420	Prov. County Court House, S. Main	56	13575
89	<u>4700</u>	<u>5495</u>	" " " "		
	10203	10915			
87	285	281	Salvation Army	53	374
88			Refer to District #81		
89			Refer to District #86		

NOTE: Shelter Districts in this Table which are referred to other Shelter Districts are not in numerical order but are contained within the Principal Shelter of the referred District.

## PROVIDENCE CIVILIAN DEFENSE COUNCIL

## GENERAL OPERATIONS PLAN--AUTHORITY AND ORGANIZATIONAL STRUCTURE

## 11. Authority

The authority for the Providence Civilian Defense Council derives from Chapter 8A, Sections 1-4, of the Ordinances of the City of Providence, 1956, etc. which reads as follows:

## Sec. 1. Civilian defense council - Creation and composition.

There is hereby created the Providence civilian defense council which shall consist of the following:

(a) The mayor of the City of Providence who shall serve as chairman of the council.

(b) A director of civilian defense to be appointed by and serve at the pleasure of the mayor of the city. The director shall be charged with the preparation of the civilian defense plan for the city, together with such other duties as they may prescribe. He shall serve as vice-chairman of the council.

(c) An assistant director of civilian defense appointed by and holding office at the pleasure of the director, subject to approval of the mayor, who shall exercise such duties as the director may prescribe.

(d) The deputy directors of divisions and the chiefs of services of such divisions as may be provided for by ordinance of the city council, said deputy director to be appointed by the director of civilian defense, with the approval of the mayor.

(e) Representatives not to exceed twenty-five in number from civic, business, industry, labor, veterans, professional, or other groups, to be selected and appointed by the mayor. (Ord. 1952, ch. 583, S 1.)

## Sec. 2. Same - Powers and duties generally; meetings.

The powers and duties of the Providence civilian defense council shall include the recommendation for adoption by the city council of a civilian defense plan for the City of Providence and the recommendation for adoption by the city council of a civilian defense plan for the City of Providence and the recommendation for adoption by the city council of any and all mutual aid plans and agreements which are deemed essential for the implementation of such civilian defense plan. The duties of such civilian defense council shall also include a continuing study of the need for amendments and improvements in the civilian defense plan adopted by the city council. The Providence civilian defense council shall meet upon the call of either the chairman or the vice-chairman. (Ord. 1952, ch. 583, S 2.)

Sec. 3. Powers and duties of director of civilian defense.

The office of director of civilian defense is hereby created. The director of civilian defense shall have the authority to request the declaration of the existence of an emergency by the city council or by higher authority. In the event that it is deemed necessary to declare the existence of an emergency without delay if the city council is not in session, the mayor, upon his own initiative or upon the request of the director, may do so, but such action shall be subject to confirmation by the city council at its next meeting.

The duties and responsibilities of the director of civilian defense shall include the following:

- (1) The control and direction of the actual or training efforts of the civilian defense organization of the City of Providence.
- (2) The determination of all questions of authority and responsibility that may arise within the civilian defense organization of the City of Providence.
- (3) The maintenance of necessary liaison with other municipal, area, state, regional, federal, or other civilian defense organizations.
- (4) The marshaling after the declaration of an emergency as provided for above, of all necessary personnel, equipment or supplies from any department of the City of Providence to aid in the carrying out of the civilian defense plan.
- (5) The issuance of all necessary proclamations as to the existence of an emergency and the immediate operational effectiveness of the civilian defense plan.
- (6) The issuance of reasonable rules and regulations which are necessary for the protection of life and property in the City of Providence including but not limited to rules and regulations applicable to blackouts and air raids.
- (7) The supervision of the drafting and execution of mutual aid agreements entered into by the City of Providence.
- (8) The supervision of and final authorization for the procurement of all necessary supplies and equipment, including acceptance of private contributions.
- (9) The authorizing of agreements, after approval of the city solicitor, for the use of private property for air raid shelter and other purposes.
- (10) The powers and duties referred to in paragraphs 4, 5, 6, and 8 of this section shall be exercisable only with the prior approval of the mayor. (Ord. 1952, ch. 583, § 3.)

Sec. 4. Operational civilian defense organization.

The operational civilian defense organization of the City of Providence shall consist of the officers and employees of the City of Providence designated by the director of civilian defense as well as all volunteer municipal

defense workers. The functions and duties of this organization shall be distributed among such divisions, services and special staff as the city council shall prescribe by ordinance. Any such ordinance shall set forth the forms of organization, establish and designate divisions and services, assign functions, duties and powers, and designate officers and employees to carry out the provisions of the chapter. Insofar as possible, the form of organization, title and terminology shall conform to the recommendations of the federal government and the recommendations of the civilian defense agency of the State of Rhode Island. (Ord. 1952, ch. 583, S 4.)

The authority of the shelter managers is contained in Chapter 1536, Sections 1-4, of the Ordinances of Providence, April 5, 1963, as follows:

SEC. 1: Shelter managers who possess a certificate of proper training from the Providence Civilian Defense Council shall be considered as a special staff forming part of the operational civil defense organization of the City of Providence.

SEC. 2: The duties of said special staff of shelter managers shall begin upon the declaration of an emergency as stated in Section 3 of Chapter 8(a) of the Revised Ordinances of 1969, Cumulative Supplement, and shall continue so long as the declaration of the emergency is in force.

SEC. 3: Shelter managers shall be assigned to specific shelter areas by the Providence Civilian Defense Council, and shall be in complete charge of such specified shelter areas subject to orders of the Civilian Defense Council or the Director and/or Deputy Director of Civilian Defense when communication is possible. In the absence of such communication, the shelter manager of an assigned shelter area shall possess all the powers and duties of the Civilian Defense Director of Providence, as stated in Section 3 of Chapter 8(a) of the Revised Ordinances of 1959, Cumulative Supplement. Shelter managers who find themselves in a shelter not specifically assigned to them shall act as Deputy Shelter Managers to the assigned shelter manager. In the absence of the assigned shelter manager, any shelter manager present shall assume the duties of the assigned shelter manager.

SEC. 4: This ordinance shall take effect upon its passage.

The Providence Civil Defense Council is integrated with the Rhode Island Civil Defense Council which is authorized by Chapter 2641 of the Public Laws of the State of Rhode Island, titled "State Emergency Defense Act of 1950" as amended. This law is modeled after Title 111, Public Law 920, 81st Congress, Reference 2.

The Rhode Island State Civil Defense organization is coordinated with the Region 1 Office of Civil Defense, Department of Defense, which in turn is responsible to the National Office of Civil Defense, Department of Defense.

## V. Organization

The office of the Director of Civil Defense of the City of Providence will consist of the Director, the Deputy Director, and the Operations Officer. The staff of the Director of Civil Defense will consist of the following Chiefs of Service and their respective staffs. The City Agency which is responsible for their assignment is also given.

<u>Service Chief</u>	<u>City of Providence Agency</u>
1. Director of Civil Defense	1. Providence Civilian Defense Council
2. Attack Warning Officer	2. Providence Fire Department
3. Public Information Officer	3. Providence Civilian Defense Council
4. Training Officer	4. Providence Civilian Defense Council
5. Engineering Officer	5. Providence Public Works Department
6. Fire Officer	6. Providence Fire Department
7. Health and Medical Officer	7. Providence Health Department
8. Welfare Officer	8. Providence Department of Public Welfare
9. Police Officer	9. Providence Police Department
10. Shelter Officer	10. Providence Civilian Defense Council
11. Supply Officer	11. Providence Purchasing Department
12. Transportation Officer	12. Providence Civilian Defense Council
13. Radiological Officer	13. Providence Fire Department
14. Special Weapons Officer	14. Providence Civilian Defense Council
15. Communications	15. Providence Civilian Defense Council
16. Legal Officer	16. Providence City Solicitor
17. Intelligence Officer	17. Providence Civilian Defense Council
18. Operations Officer	18. Providence Civilian Defense Council
19. Mutual Aid Officer	19. Providence City Solicitor
20. Public Utilities Officer	20. Providence Dept. of Administration
21. Controller and Fiscal Officer	21. Providence Department of Finance
22. Manpower Officer	22. Providence Personnel Department
23. Religious Affairs Officer	23. Providence Civilian Defense Council
24. Administration Officer	24. Providence Dept. of Administration
25. Economic Controls	25. Providence Dept. of Administration

The authority for the above delegations of specific functions to the indicated City Agencies is contained in Chapter 8A, Section 4, of the City of Providence Ordinances of 1956 as revised.

The basic decision of actions to be taken will be made by the Mayor of Providence through the Director of Civil Defense on the basis of intelligence received and in coordination with the State Council of Defense. After a decision has been made, its execution will be through the organization subsequently described.

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United States Data

Number of Deaths of Males by five year intervals ages 45-85+, 1959-1961.  
Same as above for Female population.

Number of Deaths of Males by five year intervals ages 45-85+, 1963.  
Same as above for female population.

Number of Births to females in ages 15-44 by five year intervals for the years 1959-1961 & 1963.

Estimate of the 1960 & 1963 population for both males and females by five year intervals for the entire population, by sex.

Number of males under 5 years old as of 1960 and as of 1963.  
Same as above for female population.

Number of males in the labor force between ages 15-44 in 1960, by five year intervals.

Number of males unemployed as of 1960 between the ages 15-44 by five year intervals.

Marriage rates for males for ages 15-29 by five year age groups for the years 1960 & 1963.  
Same as above for female population.

Providence Data

Number of people living in each census tract as of 1960.

Number of people in the city by five year age groups by sex, as of 1960.

Number of births in Providence for the years 1959-1961 & 1963 by census tracts.

Number of deaths by five year age groups for 1959-1961 & 1963 by census tracts.

Number of males in the labor force by five year age groups from 15-44 as of 1960 and 1964.

Complete count of all children by one year age groups from birth to 23 years for the years 1960 and 1963, by sex.

Net migration of children and families in Providence annually, 1950-1963.

Death rate by 5 year age groups by sex.

Birth rate for women 15-44 by 5 year age group.

Population for the city of Providence, for the county of Providence, for the SMSA, for the State of Rhode Island, and for Providence, Bristol and Kent counties. All this data should be for the years 1920, 1930, 1940, 1950, & 1960.

Number of children born to mothers between the ages of 15-44 by five year age groups, by census tracts.

Maps

City of Providence, Rhode Island by Census Tracts & Blocks; Scale 1400' = 1".

City of Providence, Rhode Island by Census Tracts & Blocks; Scale 1200 ' = 1".

City of Providence, Rhode Island, Scale 600' = 1".

City of Providence, Rhode Island, Downtown Section; Scale 100' = 1".

City of Providence, Rhode Island, Downtown Section; Scale 200' = 1".