that the boundaries of such catchments can only be approximate, and that there will always be a proportion of people who will shop in adjoining catchments. However, the boundaries determined do define the areas within which the great mass of people shop for their daily and weekly needs.

Having defined this pattern of fairly self-contained shopping communities or catchment areas, it was possible to analyse the characteristics of the areas and to determine overall basic features common to each, from which standards for planning future development could be established. Map 36 shows the general pattern of shopping throughout the Melbourne metropolitan area as revealed by this survey. The location and relative size of every shopping centre with five or more shops is shown, together with the spheres of influence of the major centres. The analysis of the number and distribution of shops within each of the broad catchment areas is set out in Table 44.

Number and Distribution of Shops in Relation to Population

The number of shops in proportion to the population varies from as low as one shop for each 37.4 persons in old inner areas like Collingwood and Fitzroy, to as high as one shop for each 112.7 people in developing outer areas such as Heidelberg. The average for all metropolitan catchments is 72 persons a shop or 13.8 shops for 1,000 persons.

In analysing individual catchments it will be seen that the older inner areas such as Brunswick, Northcote, Collingwood, Fitzroy, South Melbourne, Richmond, Hawthorn and Prahran, all have a considerably higher number of shops for each 1,000 persons than do the newer outer suburbs. Many of the older areas have too many shops in relation to population in their present catchments. This must be taken into consideration when determining standards for future development. It is also necessary to allow for the fact that in rapidly developing areas the number of shops may not be increasing as rapidly as the population, which has happened for instance where large Housing Commission settlements have been built since the war. It is also necessary to make some allowance for the income level of the community, as people in a low income area generally do more shopping locally than do those in higher income areas.

An analysis of the figures show that in most new outer catchments the number of persons for each shop varies between 70 and 110 persons and that if shops are properly distributed, a figure of *100 persons a shop* or *10 shops for 1,000 persons* would be a desirable overall average for Melbourne based on present-day needs.

For a balanced shopping structure there should be some reasonable distribution of shops between centres of different categories, and therefore, in addition to an overall standard for the number of shops in relation to population, standards for the different types of shopping centres are necessary. To arrive at this, the distribution of shops within each of the broad catchment areas shown in Table 44 had to be further analysed.

Every major shopping centre has developed from a small local centre, and, therefore, besides providing a service to an area beyond the local neighbourhood each of the centres falling within the major and secondary classifications also contains a proportion of shops which serve the same purpose as those of minor and local shopping centres. From a study of each of the major centres it was found that, after allowing for shops corresponding to those of minor and local centres, there was close similarity between them. On the average it was found that in any broad catchment about one-sixth of the total number of shops had more than local influence.

In estimating future shopping requirements for new areas, therefore, it is reasonable to assume that the major centre should contain one-sixth of all the shops necessary to serve the broad catchment it is designed to cover in addition to the number of shops required to serve the immediate surrounding neighbourhood.

It was next necessary to determine what proportion of the shops outside the major and secondary centres should appropriately be grouped in minor shopping centres and what proportion it was desirable should be distributed as local shops. An analysis of the existing structure showed that the distribution of shops between these two categories varied considerably in different areas. Generally there is a higher percentage of scattered shops in the older areas than in the newer areas where more shops are grouped in centres. In some instances this situation has been brought about by local council regulations forbidding shops being built in residential areas. In some instances this has resulted in an abnormally low proportion of scattered shops and consequently a poor distribution of shops throughout the catchment area. Table 45 shows how suburban shops are distributed between shopping centres of various sizes.

From this table it can be seen that 42.5% of all suburban shops are situated in centres of fewer than 50 shops each.

The proportion of local shops varies according to the number, size and location of defined shopping centres in each neighbourhood. In compact areas with a good local shopping centre, there is not the same need or opportunity for scattered shops as in areas where the distance from the main centre is greater.

Table 45

SIZE OF SUBURBAN SHOPPING CENTRES

Number of Shops in Centre	*Shopping Centres*		*Total Shops Involved*	
	Number	*%*	*Number*	*%*
Over 300	4	1.1	1,522	7.6
200 - 299	7	1.8	1,640	8.2
100 - 199	36	9.5	5,023	25.0
50 - 99	45	11.8	3,358	16.7
20 - 49	97	25.5	3,225	16.0
5 - 19	191	50.3	1,750	8.7
Under 5			3,579	17.8
	380	100	20,097	100

It is generally accepted that half a mile should be the maximum distance from the nearest community shopping centre, and that, in general, it is desirable that some local shops should be within a quarter mile of all residents within each neighbourhood. Depending then, on the size, location and layout of the area, it would seem that up to 25% of the shops needed to serve each neighbourhood should be local shops.

Relationship of Shops of Various Types to Population

For planning purposes some indication of the relationship of shops of various types to the population served is desirable. A study was therefore made of catchment areas to ascertain

(a) the proportion of the general types of shop;

(b) the relation between the number of shops of individual types and the population served.

The results of this study are set out in Table 46.

Although the distribution of shops of different types will vary according to special requirements in different areas, these figures indicate the general relationship which exists in Melbourne. In general, the figures of persons per shop tend to be low by modern standards because, in many areas, there are too many shops.

LAND REQUIREMENTS FOR SHOPPING

Analysis of Existing Centres: Although the variation in the width of shop frontages and of individual shop allotments makes it difficult to obtain really comparable conditions between centres, an analysis of the areas of land occupied by some of the principal suburban centres indicates a reasonable similarity of overall space requirements between centres of similar size and character. In the older shopping centres there is usually a greater number of smaller shop frontages than in the newer outer suburban centres, but this is sometimes offset by the presence of a proportion of very large shop frontages, such as occur in Smith Street, Collingwood, and Chapel Street, Prahran. Most shop frontages in the newer areas tend to average between 17 and 20 feet. The latter figure is generally considered the desirable minimum for a modern shop because of the ever-increasing importance of display space in retailing.

To determine some standard or yardstick for measuring overall space requirements for shopping centres of different types, the areas occupied by a sample of existing centres were determined and related to the number of shops and other land uses within that area to arrive at a gross figure of shops per acre for each centre. In addition, the range of shop frontages and the most common size frontage in each centre were ascertained. An attempt was also made to estimate the proportion of each centre occupied by shops and by other uses.

This table indicates that a gross figure of 10 shops an acre applies fairly generally today and for purposes of broad calculations this gives an indication of area requirements for shopping centres according to existing usage. It also shows that from 80% to 90% of the total frontage in a centre is occupied by shops and the remainder by other uses. Several factors need to be taken into account when interpreting these figures. In the first place, in most instances the figures do not provide for off-street parking facilities. In addition, most of the existing shops are on residential shop allotments, which usually have depths of up to 150 feet, with the result that only a limited portion of the site is usually avaliable as actual shop area. In a large modern centre, where the tendency is for an increasing proportion of shops to be non-residential, a higher proportion of the area could be made available as shop area.

One of the principal factors affecting space in modern centres will, however, be car parking. A count was conducted in those centres shown in Table 47 to ascertain the number of cars that were parked around these centres at peak periods. From the centres counted it would seem that the average number of cars parked in peak periods varied between 1.5 and three cars for each shop according to the location and importance of the centre, and the size and type

Table 46

DISTRIBUTION OF SHOPS OF VARIOUS TYPES WITHIN THE SUBURBS OF MELBOURNE—1951

	Persons per Shop
Food (45% of all shops)	
Butchers	1,300
Dairy Produce	1,500
Fruit and Vegetables	1,300
Groceries	700
Bread and Confectionery (Includes confectionery, cakes and mixed)	500
Fish	7,000
Clothing (15% of all shops)	
Drapers and Mercers	750
Boot and Shoe	6,000
Boot Repairs	3,000
Personal (18% of all shops)	
Newsagents and Booksellers	2,300
Chemists	2,400
Fancy Goods and Toys	4,200
Florists	7,000
Hairdressers	1,000
Household (16% of all shops)	
Electrical and Radio	3,700
Fuel and Fodder	3,200
Furniture	4,000
Hardware	1,800
Cycles and Motor Requisites	1,900
Miscellaneous (6% of all shops)	
Dry Cleaners	3,700
Second-hand Dealers	7,700
Tailors	6,800
Others	2,800