

## ZONING.

The subdivision of a city's area into districts in which the various uses of land can be regulated so as to prevent the indiscriminate mixing of residences, factories, and shops, is generally termed "Zoning." The growth of a city is dependent upon natural and artificial processes, and it is the object of the zoning scheme to co-ordinate and direct this development, so that each particular phase of city expansion shall effectively dovetail with all other phases without detriment to them or to the particular expansion taking place.

The advantages to be gained from zoning are not new to Melbourne. Various legislative enactments have embodied in them clauses which enable the local governing authorities to control certain types of development. The *Local Government Amending Act 1921* empowers municipalities to declare residential areas within their boundaries, and within these areas to prohibit the use of land for other than residential development. This power has been in existence in Victoria for eight years, and has been freely exercised by municipalities. This legislation has had the effect of stabilizing values, and has prevented the creation of undesirable conditions in residential neighbourhoods.

Municipalities have also had powers granted to them to prevent overcrowding in residential areas, and to define the minimum area of allotments on which dwellings may be erected.

Under the authority of building regulations framed in accordance with powers conferred under Local Government Acts, the Councils may regulate the height of buildings, the size of forecourts, the size of rear yards, the distance from allotment side lines to the walls of buildings, and the size of light courts and air spaces for different types of buildings.

The *Health Act 1915* stipulates that dwellings shall not be erected on allotments abutting on a street less than 50 feet in width. Definite by-laws and regulations governing the location of offensive trades are in operation.

Many other powers having a bearing on the zoning problems of the City and the safety, health, and welfare of the citizens generally are incorporated in these Acts.

The waste which takes place in many phases of city development as a result of the haphazard location of industries, shops, and dwellings can be reduced to a minimum by the operation of a sound scheme of zoning, so that the city and its individual components may expand in their true relation to each other and to a general scheme of city development.

**A city-wide scheme of zoning would have a very beneficial effect by stabilizing the value of property. Each particular zone could be located, not only in regard to the necessary amenities, but its area would be regulated in accordance with the probable future demand for space within the district.** Under such regulation, a wasteful allocation of land within the metropolis would be prevented, and a greater value would accrue to the lands set aside, because of the more intense use which could be made of it, and the freedom given from conflicting or injurious uses.

In dealing with the zoning problems of built-up cities, the question of existing services and their relation to the activities which may be carried on in the particular zones must be studied. Great savings will be possible if a greater use can be made of already established services. Different classes of development call for a variation in the nature of services, but if unrestricted development is allowed, little guidance is given to the various service authorities, or companies, either as to the nature of the services or the likely demands upon them.

In unzoned municipalities there is no guarantee that a large factory will not be erected within a residential neighbourhood which will require large supplies of power, water, &c., over much shorter periods than that required by residences. This intrusion may cause a duplication

of mains to serve one factory which would be sufficient for a much larger number of industries. Again, such a use not in accord with the general development of the neighbourhood, attracts heavy cartage beyond the strength of residential streets, causing damage and seriously increasing the cost of maintenance. While cases similar to the above are in evidence in many parts of the metropolitan area, the converse is no less true. In many instances, owing to the uncertainty as to the future, an attempt is made to anticipate development by the installation of services far in excess of that demanded by the general character of the neighbourhood. This extra provision necessarily adds to the cost of the services, and the general community suffers financially as a result.

When a city is divided into districts according to the most suitable and valuable use for the land, the building development can be regulated in accordance with that use. The height, size, and open spaces surrounding the buildings can be determined according to the use allowed. In the absence of such restrictions, however, there is nothing to prevent the intrusion into the midst of a locality composed of single story one family houses of a building of several stories which will detrimentally affect the supply of light and air previously enjoyed by surrounding properties, nor the erection of a motor service station or a dairy in a quiet residential street, where the noise of motor horns or the rattling of milk cans may disturb the inhabitants at all hours of the day and night.

It is these and similar unreasonable uses which the zoning scheme would prevent. A proper zoning scheme, however, will not prevent the erection of the service station or the dairy and the many similar uses, all of which are a necessary part of city activities, but it will relegate them to certain allotted areas or streets which will preserve their convenience to the population and at the same time prevent them from interfering with the comfort of citizens and depreciating property values.

#### AN ANALYSIS OF EXISTING CONDITIONS.

When preparing plans for the creation of an entirely new city it is a comparatively easy matter to set aside the requisite areas of suitable lands for the various activities. The subdivision of an area of a city of over 1,000,000 inhabitants into defined zones which will protect the existing and guide subsequent development along sound lines is, however, from a planning point of view, a difficult matter. Any zoning scheme prepared now will not entirely correct the mistakes of the past, but it will reduce future mistakes to a minimum.

The necessary antecedent to any scheme of zoning is an accurate and comprehensive knowledge of present conditions. The Commission spent much time on this part of its work, which involved the collection of data regarding the existing use of land within the whole of the metropolitan area. This data was collected by surveys, and from municipalities, and is shown graphically on Map No. 6. The Maps used in the analysis of the existing use of property were of much larger scale, and gave greater details than that shown on Map No. 6, which is inserted to illustrate the general distribution of uses of existing property throughout the metropolitan area. After the data had been collected and study-maps prepared, a careful examination followed to ascertain the factors contributing to the zoning which had taken place.

The colored portions of this Map show the areas which are developed, or are in course of development, and the various colors indicate the distribution of uses in the developed areas.

#### RESIDENTIAL DISTRICTS.

The areas shown by pink coloring on Map No. 6 are practically wholly residential. The unequal distribution of the residential districts in relation to the central business area is clearly illustrated. The housing development in the districts south of the Yarra River has proceeded at a rate much faster than in other sections of the metropolis. A study of the topographical Map, page 26, and its comparison with the location of the principal residential districts reveals one of the chief reasons for the natural distribution that has taken place. It will be seen that the principal residential areas occupy the higher and more undulating lands in the north-eastern, eastern, and south-eastern suburbs. These suburbs are practically wholly residential and the comparative freedom from conflicting uses has materially added to their attractiveness. The soils which predominate in districts south of the Yarra are more suitable for the development of the private gardens which are a feature in these suburbs. It is in this area, and especially in the newer portions of it, that liberal allotments and single family houses with adequate forecourts and side and rear yards predominate.



In some of the older portions of the suburbs of Prahran, Windsor, South Yarra and St. Kilda, a poorer type of house is to be found, and the zoning scheme will have the effect of gradually bringing about better conditions in the parts of such areas which it is suggested should be retained for residential development.

Although the most rapid growth, and the greatest expansion of residential areas has taken place south of the Yarra, there has been a remarkable increase in the number of houses erected in the northern and north-western suburbs of Preston, Coburg, West Brunswick, and Essendon districts in recent years, which is proof of the suitability of these suburbs also as residential areas. The Commission expects that these suburbs will continue to attract an increasing number of home seekers; consequently the zoning scheme aims at preserving considerable parts of the northern suburbs for use, exclusively, as residential districts.

As a place of residence, the western suburbs have not progressed at nearly the same rate as other suburbs. While the nature of the country in these suburbs is not as inviting as others around Melbourne, their tardy development appears to be due more to artificial than to natural conditions. The poor transport services between Footscray and Williamstown and the City have no doubt prevented home seekers from building in the western suburbs.

The presence of the noxious trades, which occupy the lands adjacent to the Maribyrnong River and on either side of the railway which carries the bulk of the passenger traffic between the City and western suburbs, has lessened their attractiveness as residential areas. This condition will be much improved by carrying out the zoning proposals set out in the scheme outlined in this chapter. The considerable industrial expansion that has taken place has not been so controlled as to prevent a considerable intermixing of factories and residences. If definite residential areas are set aside in conformity with a zoning scheme, they should prove quite acceptable to the artisans who would be within reasonable distance of their work, and who would be protected against the undesirable living conditions which accompany mixed development.

#### RESIDENTIAL AREA BY-LAWS.

In the introductory paragraphs it was pointed out that the Local Government Act empowered municipalities to make by-laws prescribing residential areas and regulating the erection of buildings in such areas. A total of twenty seven municipalities out of the thirty-four which are wholly or partly in the area dealt with by the Commission have taken advantage of the powers granted by Parliament. The municipalities of Mulgrave, Doncaster and Templestowe, Keilor, Bulla, and Werribee are mostly of a rural character and the same necessity for residential by-laws has hitherto not existed. There appears to be no reason, however, why residential area by-laws should interfere with the carrying on of rural activities in any area before its subdivision and use for building purposes.

The Commission finds that while the by-laws adopted by the majority of the municipalities have given a substantial protection to residential districts covering large sections of the metropolis, they have not been framed with due regard to the probable future development of the municipality. Except for areas used for local business needs, many municipalities are essentially residential districts. Although the by-laws are drafted with the object of preserving the residential development, considerable areas fronting streets regarded by the municipality as main roads have been excluded from the schedule of residential areas defined in the by-laws. The areas not included in the by-laws and wherein any type of use, not prohibited by other laws, is allowed, are usually far in excess of the probable needs of the municipality. They are generally unsuitable for other than retail shops, and the demand for industrial purposes is small, even if such were permitted. It therefore appears that much of the land excluded from residential areas under existing by-laws should be utilized for residences and receive adequate protection against other uses.

The Commission has made a close examination of the by-laws defining residential areas, and has retained the residential areas protected under such by-laws, so far as is practicable and consistent with a general scheme of zoning for the metropolitan area. Certain extensions and additions have been made in order to rectify undesirable conditions which are being created or which it is apparent must arise in the future if corrective measures are not taken. Although the zoning scheme prepared by the Commission cannot be expected to remedy all the past evils it will, if adopted, improve the conditions which have been created by many of the existing by-laws.

## SHOPPING AND BUSINESS AREAS.

As in most cities, the principal business area of the metropolis of Melbourne is the oldest part of the city proper, occupying the streets which were originally laid out by Robert Hoddle as the site for Melbourne. A glance at the aerial photographs on pages iii and ii will give to the reader not familiar with Melbourne some idea of the proportions to which this area has grown in less than a century.



Shopping Area—Bourke Street, Melbourne.

In addition to the central business area shown by the large patch of purple coloring on Map No. 6, there are many other subsidiary business centres of varying degrees of importance whose location is indicated by similar coloring. These centres are widely scattered throughout the metropolitan area, and although Map No. 6 would give the impression that they are generally compact and well developed, this is not always so. The small scale of the map prevents greater detail being shown, but many of the streets which are ostensibly business streets, include other types of development which do not add to their attractiveness as business centres.

The following figures compiled from data supplied by the Department of Labor in October, 1929, give the ratio of shops to population in the various municipalities in the metropolitan area :—

Municipality.				Number of Shops.	Population.	Ratio of Shops to Population.
						One to every
Melbourne	..	..	..	4,129	103,496	25.1 persons
Fitzroy	..	..	..	970	31,075	32.0
Prahran	..	..	..	1,595	52,368	32.8
Richmond	..	..	..	1,196	39,769	33.2
Collingwood	..	..	..	827	31,510	38.1
Oakleigh	..	..	..	270	10,700	39.6
Hawthorn	..	..	..	825	33,236	40.3
South Melbourne	..	..	..	1,142	48,000	42.0
Port Melbourne	..	..	..	304	13,100	43.1
Essendon	..	..	..	931	42,989	46.2
Preston	..	..	..	598	28,000	46.8
Blackburn and Mitcham	..	..	..	96	4,660	48.5
St. Kilda	..	..	..	835	41,934	49.5
Malvern	..	..	..	920	45,652	49.6
Brunswick	..	..	..	1,105	56,496	51.1
Caulfield	..	..	..	1,356	70,702	52.1
Northcote	..	..	..	798	41,805	52.4
Mordialloc	..	..	..	191	10,060	52.7
Footscray	..	..	..	921	51,309	55.7
Heidelberg	..	..	..	390	22,420	57.5
Williamstown	..	..	..	422	24,642	58.4
Moorabbin	..	..	..	263	15,831	60.2
Camberwell	..	..	..	749	45,344	60.6
Coburg	..	..	..	588	38,573	65.6
Box Hill	..	..	..	169	12,414	73.5
Kew	..	..	..	319	24,200	75.9
Sandringham	..	..	..	322	25,000	77.6
Brighton	..	..	..	346	28,649	82.8
				22,577	993,934	44.0
				Average		



It will be seen that areas with a similar character of development have a somewhat corresponding number of people per shop. The variation, however, between the ratio of shops and population in different suburbs is very great, and many factors contribute to this diversity. The older suburbs, which have a somewhat mixed distribution of uses within their municipal boundaries, and which are largely industrial suburbs, show a greater number of shops per 1,000 of population. The available transportation facilities affect the positions of the business areas.

The conditions are most incongruous in those municipalities which have not adopted by-laws to protect residential areas. The present Act only allows municipalities to define residential areas; consequently areas not so defined accommodate practically all forms of development without restriction, other than such as may be imposed by building regulations or other laws. Business sites which are set aside in excess of the demand for shops are generally relegated to certain streets not under the operation of the by-law. The scattered and uneconomic development is therefore confined to streets where restrictions are not imposed.

In those municipalities developed without these restrictions, a more widespread distribution of shops has taken place and many may be found interspersed among dwellings in all parts of the municipality. Map No. 6 shows that in Port Melbourne, Brunswick, and Northcote particularly, there is a considerable intermixing of shops with residences.

*Speculative Land Subdivision*—The subdivision of too much land into business sites in the suburban areas has been one of the chief causes of the somewhat unsatisfactory development of business streets. In the past, subdividers would include the maximum number of shop allotments in land fronting main roads, and gave no consideration to probable requirements of shopping facilities for the neighbourhood.



Shops and dwellings in a Brunswick residential area.

It is clearly evident from a study of the past development that so soon as the demand for shops in any neighbourhood has been satisfied no further shops are erected. The remaining land fronting these roads which was subdivided for shop sites becomes unproductive, because where the land subdivided for shop sites is in excess of the demands of the neighbourhood for business premises, the allotments subdivided for shops are too small for the erection of residences, and the prices paid for the land on account of its supposed business value are usually far in excess of its value for residential purposes. Hence, the conditions created by the provision of too many shop sites are not conducive to residential development.

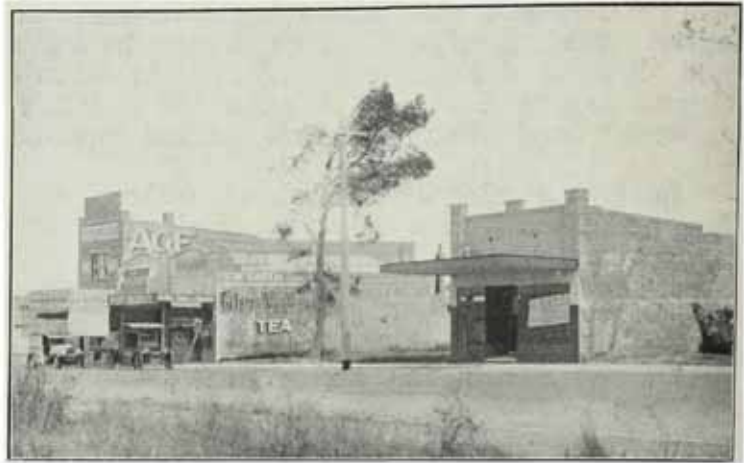


Sydney-road at Parkville—Mixed Development.

The sandwiching of shops and residences, and the resultant mixed development, has a depreciating effect on both forms of use and renders unattractive many of the main roads. In some cases new shops are erected in streets where there is no demand for further business premises, and the new shop will very often draw the tenant from some less modern one which, in turn, becomes vacant. When this period is reached it is a sure sign that the building of shops has arrived at saturation point. The remaining shop sites in the street remain as vacant lands, and economic loss ensues. The illustration on this page, and the views of High-street, St. Kilda, on page 87, show the results of surplus shopping areas.

It frequently happens that where shops have been erected in excess of local demands, the shop is a consideration secondary to the dwelling attached. On account of cheap rents or the probability of off-setting the rent by the shop returns, people are induced to live under conditions which would not be tolerated in other portions of the municipality.

This wasteful development will be prevented by the operation of a zoning scheme, which aims at defining business areas in accordance with the probable future demand for shops.



Waverley-road, East Malvern, showing occupied shops, and vacant land and shops.

#### MIXED OR DECADENT AREAS.

Portions of the metropolis are being transformed, and the older areas are being changed from one form of use to another. The areas where such changes are most noticeable are shown by yellow color on Map No. 6.

The part of Collingwood which is shown yellow is so mixed that it would be difficult to suggest under which classification it should come. The greater part of this area is flat, and factories are rapidly displacing residences. The former inhabitants have moved to the newer outer suburbs.



Earle-street, Windsor—Mixed Development.

In the city proper the commercial and business interests are gradually invading the industrial districts on their fringe. The industries thus displaced move to the older residential districts, bringing about the changes witnessed in West and North Melbourne during recent years.

Some of the older suburbs, which have been almost exclusively residential areas, have experienced the intrusion of factories in those parts which provide the least suitable housing accommodation. Small areas in Prahran, St. Kilda, Brighton, Williamstown, and larger areas in North Melbourne, West Melbourne, Richmond, Collingwood, and South Melbourne, could be advantageously used for industrial development. This industrial growth in such locations assists

greatly in absorbing areas where housing conditions are bad. In suggesting that certain of these areas be allotted for factory development, it is believed that not only will local industrial districts be developed in suitable locations, but they will gradually cause a displacement of comparatively slum conditions, which would be very difficult and costly to transform by other methods.

#### NOXIOUS AND OFFENSIVE TRADES.

The chief offensive trades in the metropolitan area are those which are associated with the slaughter of live-stock and the treatment of animal by-products. As might be expected, most of these trades are located in the vicinity of the principal metropolitan abattoirs at South



Kensington. There are others, however, located in many parts of the metropolis, including private freezing works and municipal abattoirs. Under the heading of the offensive trades classified in the Health Acts and concerning which special regulations are in force, are many of a slighter degree of offensiveness. An anomaly in this regard is that tanneries are omitted from the offensive trades; but fellmongeries, without which it is difficult to carry out the tanning process, are included.

**Many of the noxious trades are at present in decidedly unsuitable locations.** They abut on good residential areas and are contiguous to the principal and most picturesque stream in the metropolis. They should not be allowed in locations where they debar from public use the banks of the streams, and where they pollute the atmosphere and frequently the river water by discharges from the buildings where noxious operations are being carried on, which are detrimental to the health and comfort of a large number of citizens.



Noxious Trades on the River Yarra at Collingwood.

While an adopted zoning scheme will not automatically change these conditions, it will prevent them from becoming worse until such time as the metropolis, in the interests of the general public, will be able to effect their resumption and transfer to a more suitable location.

The Commission, at the request of successive Governments, has supplied reports dealing with the removal of the live-stock markets at Newmarket to some more suitable location. The

inquiries conducted, and the subsequent reports issued, have necessarily included much reference to noxious trades. The Commission recommended that a large area of land south-west of Sunshine known as Derrimut should be reserved for new live-stock markets, abattoirs, and associated trades. Although various alternative sites have been selected by the Government and other bodies, no subsequent or additional information has been forthcoming to change the Commission's expressed view.

The zoning proposals and other phases of city development have been based on the assumption that whenever it is decided to remove the existing saleyards from Newmarket they will be transferred to or near Derrimut.

If the source of supply of many of the noxious trades was removed to this area, such trades, in the course of time, would find it more convenient to locate themselves reasonably close to the abattoirs. While this change may take many years to accomplish, the zoning scheme recommended in this chapter would prevent any further establishment or considerable enlargement of offensive trades in the midst of populous areas, where their presence causes discomfort to a large section of the metropolitan population.



Noxious Trades on the River Yarra at Richmond.

#### INDUSTRIAL DISTRICTS.

It has been pointed out that topographical conditions have influenced the distribution of the residential districts, and that their expansion was most rapid in the undulating and hilly areas. The effect of the same conditions is, however, no less noticeable in relation to the zoning which has taken place in regard to industries. The principal industries of the metropolis have shown a decided preference for the comparatively flat lands that lie within a reasonable distance of the central business area.

The portion of South Melbourne immediately south of the Yarra River, which is nearest to the central business area, is one of the principal industrial districts. A large proportion of the factories in this area are situated on Crown lands.



An almost continuous industrial area extends from the north-western part of the central business district, westerly and southerly between the Williamstown Railway and the River Yarra. This area constitutes the heavy industrial district, and is likely to be developed much more intensively for this purpose in the near future. Included in this area are such undertakings as the Railway Workshops at Newport, ship-building yards, electric power generating and distributing stations, chemical, manure, rope, glass and bottle works, and engineering trades.

The railway between Newport and Sunshine, which is not used for general passenger traffic, and to which railway sidings to the adjacent lands are connected, has had the effect of encouraging the establishment of a considerable number of heavy industries along its route. There appears every reason to expect that, as the population is attracted to the western suburbs, the demand for heavy industrial sites in the vicinity of this railway will increase.

There is also a considerable number of industries in the municipalities of Brunswick, Collingwood, and Richmond. In Brunswick a large area on the western side of Sydney-road, as shown on Map No. 6 by brown colour, is devoted to factories which are mainly engaged in the manufacture of pottery, tiles, bricks, &c., and their location is determined by the local deposits of materials suitable for use in these industries. In addition, quarrying and a variety of other industries are to be found in different parts of the municipality. An indication of the distribution of the larger ones is given by the patches of brown colour shown on that part of Map No. 6 which lies within this municipality.



Mixed Development at Richmond.

Collingwood has become a large manufacturing district, and it is in this municipality that the boot and clothing trades are extensively carried on. There are many industries throughout that portion of Collingwood which lies south of Alexandra-parade. The large MacRobertson Confectionery works are to be found in the neighbouring municipality of Fitzroy, but the industrial invasion of this municipality has not been as rapid as that experienced in the Collingwood district.

Large areas in Richmond have been almost entirely occupied by factories, and although the chief industrial developments have shown a tendency to concentrate in definite areas, there are many instances where isolated factories have been erected in the midst of some of the best residential sections of this municipality. The industrial expansion within Richmond is unlikely to absorb the whole area, and while industries which are likely to be attracted to Richmond should not be barred, they should be regulated to definite areas within the municipality, thus preventing the depreciation of existing residential areas well worthy of protection.

While the principal industrial districts have shown a tendency to concentrate in well-defined neighbourhoods, according to the suitability of the locality for the particular development, there can be found isolated factories in nearly all quarters of the metropolis. Generally speaking the eastern and south-eastern suburbs suffer less from the indiscriminate location of factories than those to the north of the Yarra.

In recent years, a number of factories have been established in the Oakleigh district to which clay deposits in the neighbourhood have contributed. The principal reason, however, is doubtless a desire on the part of certain manufacturers to establish new industries in areas nearer the homes of potential employees, thus avoiding needless travelling costs and time, at the same time securing land for the factory at the lower prices operating in the more distant suburbs.

The Commission's zoning scheme will assist to reduce the time occupied in travelling between places of employment and residence by the segregation of areas for industries, so that they will be convenient to the sources of their labour, their raw products, and the city's commercial and business life.



## UNIMPROVED AREAS.

The uncoloured areas on Map No. 6 which are not existing public open spaces are the unimproved lands within the area of planning covered by the Commission's schemes. They are at present principally used for market garden, agricultural, and grazing purposes. It is in these areas that the benefits of a scheme of zoning will be most appreciated, because a more equitable allocation of the lands in consonance with prospective future needs can be made. The developed areas of the metropolis which border on the unimproved lands give a definite indication of the probable future use to which these lands may be devoted and the density of the expected growth of building.

Although large areas of these vacant lands have been subdivided without reference to any definite scheme of development, future building operations can be successfully regulated in accordance with zoning principles if a complete scheme is adopted. Municipalities having within their boundaries large areas of undeveloped lands which are likely in the future to be used for city expansion, should give immediate attention to this phase of their development.

**The object of the Commission's zoning scheme has been to guide and promote the natural development of these areas along sound lines, and to curb any tendency towards the intrusion of incongruous uses such as are to be found in most of the developed parts of the metropolis.**

## BUILDING REGULATIONS.

Regulations which have in the past been framed by municipalities to govern the erection of buildings may be divided into two classes—

Class 1.—Regulations governing structural details of the buildings themselves.

Class 2.—Regulations governing the size of the building and its position relative to the boundaries of the allotment and to the adjacent buildings.

Grouped under No. 1 are regulations dealing with materials of construction, size of rooms, sanitary arrangements, safety measures in case of fire, &c.

Under No. 2 Class, the height, use, and area of buildings are regulated, and it is this aspect of building regulations which is included under the heading of zoning, and forms an integral part of town planning.

By letter dated 28th March, 1924, the Public Works Department requested the Commission, when framing its proposals, to give special consideration to many important matters of building regulations, the majority of which would be included in Class No. 2. The other matters enumerated in the letter dealt with baths, washhouses, pantries, fireproof materials, &c., which come within Class No. 1.

The Commission has given considerable attention to the height, use, and area of buildings which it is recommended should be allowed in the various districts under the zoning scheme. The existing by-laws framed by the municipalities vary considerably, and it appears that more uniformity in the regulations governing these matters is most desirable. It is a matter of constant and justified complaint, particularly by architects and builders, that there is no uniformity in building regulations. Though a street may have precisely the same forms of use and buildings on each side, it frequently happens that the regulations are at variance for different sides of the street, merely because it forms a municipal boundary. **The Commission considers that similar regulations, regarding the height and area of buildings, should be adopted for similar districts as defined in the general zoning scheme.**



Fitzroy-street, St. Kilda—Flats and private residences.

The housing conditions existing in the metropolis are so diverse as to warrant the classification of residential districts into three distinct divisions. This necessitates certain variations in the regulations. In some municipalities the nature of development in different parts of them is extremely variable. Prahran municipality is an example where the conditions range from the high class dwellings predominating in the Toorak and Heyington areas to the unfavorable conditions in the vicinity of Chapel-street and in parts of Windsor. Uniform building regulations, as framed by the municipalities, make provision for the setting back of houses and the amount of open spaces around the houses and apply similarly to localities of such different types as those instanced above. It is obviously impracticable to apply regulations which would be desirable restrictions for Toorak conditions to those in the neighbourhood of Windsor. It is equally undesirable that the regulations which would permit reasonable building conditions in crowded areas should be made to apply to high class residential areas. Uniformity is most desirable, but only in districts of similar types.

The Commission's zoning scheme aims at creating certain different types of district in the metropolitan area (see page 168) and for certain regulations governing the erection of buildings in these districts to remain uniform. The regulations should be automatically determined by the use allowed in the particular district, and they should deal with such matters as—

- (a) the minimum area and frontage of allotments on which buildings of different classes may be erected.
- (b) the proportion of such allotments which may be covered with buildings.
- (c) the distance from the street line to the front walls of certain buildings.
- (d) the height of buildings.
- (e) the size of side courts or light courts for differing types of development.

**Structural Regulations.**—Building regulations for the metropolitan area could be framed to be uniform in their application to all buildings of similar class and of similar materials. The operation of this system would ensure that a 5-story reinforced concrete store erected in Footscray would be in accordance with regulations that would control the erection of a store or similar building in Coburg. Structurally, a timber dwelling in Caulfield should be subject to the regulations applying to the erection of a similar building in Essendon. **This type of regulation, however, is not regarded by the Commission as a town planning matter. It should be referred to a special expert committee of building surveyors, structural engineers, and architects.**

**Public Buildings.**—All public buildings are subject to very strict regulations in respect of construction, sites, safety, sanitation, &c. These regulations are issued and supervised by the Commission of Public Health, under powers conferred by the *Health Act 1919*.

#### HEIGHT OF BUILDINGS.

Under the powers conferred by the *Local Government Act 1915*, municipalities may by by-law regulate or limit the height of buildings. Many municipalities include in their by-laws provisions defining the heights which must not be exceeded by structures erected since the passing of the by-law. Camberwell, Caulfield, and Coburg, for instance, have by-laws which prohibit the height of buildings on streets less than 33 feet in width being greater than 82 feet 6 inches, while in streets over 33 feet in width the maximum permissible height is 110 feet. Except in odd cases, it is unlikely that buildings in these municipalities will reach the maximum height permitted by the by-laws.

In the older suburbs of South Melbourne, Richmond, Brunswick, and Footscray, no regulations or restrictions are imposed limiting the height to which buildings may be erected. Although the land values in these suburbs do not encourage very high buildings, there is nothing to prevent their erection to a height which would dwarf the highest buildings which have been erected in Melbourne.

In areas outside the central business district, no very high buildings are to be found. The greatest height attained in the most progressive local centres has not exceeded five stories, while the predominating height throughout the suburban business areas is two stories.



In the central area of Melbourne, the concentration of business interests has caused land values to rise to such high figures that a profitable return can only be gained by increasing the height of the building. The question whether high land values attract high buildings or whether high buildings increase land values is debatable; but, if local conditions are the same, there appears little doubt that a building with twice the capacity of another building on a similar area of land will allow of a greater return and consequently invite a greater price being paid for the land on which it is erected. If the building height is limited in certain areas, then the value of land will depend upon its location and suitability consistent with the height limit imposed.

**While the limit of height imposed must take into consideration the values of land obtaining at the time the regulations are framed, so that a reasonable return may be permitted, the authorities have also to safeguard the interests of the community from the undesirable conditions which follow an undue concentration of high buildings.** Many factors besides the height of buildings influence the values of land, and frequently the best economic use of the most valuable land is gained from the erection of comparatively low buildings. This is most noticeable in areas where retail stores predominate, and very high rentals are paid for the ground and lower floors, which give a greater percentage return for the outlay than much higher structures. An undue concentration of very high buildings may tend to lessen values on account of the congestion which they create, which in turn impairs their accessibility.

High buildings generally derive a considerable benefit from the surrounding space which is usually street space, or areas occupied by lower buildings; but when the majority of the buildings in any block attain the maximum allowable height, their supply of light and air is restricted, and a general decline of the rental values ensues. As each high building is erected and the resulting diminution of light and air takes place, the lower buildings are compelled to increase their height in order to obtain their proportion of these necessities.

In the central business area of Melbourne, the maximum allowable height of buildings fronting the 99-foot streets is 132 feet; the buildings which may be erected in the 33-foot streets must not exceed a height of 99 feet. This regulation has been enforced by the Melbourne City Council since 1916. Even if it were proved to be in the interests of the central business district and the metropolis as a whole that this height should be reduced, it would be extremely difficult to bring about the reform in all sections of the city, as land values in selected areas have been largely governed by the returns which could be obtained from a building erected to the present allowable height. In examining the central business district as a whole, it will be found that comparatively few buildings have been erected to the maximum permissible height, and properties adjoining buildings erected to the full height of 132 feet often do not rise above two stories.



Collins-street block, showing buildings not up to maximum height.

Notwithstanding the fact that a large proportion of the land in the most valuable locations is occupied by buildings much lower than the height permitted under existing regulations, the authorities have been requested by certain interests to amend their by-laws to enable the erection of buildings to a height greater than 132 feet. The Royal Victorian Institute of Architects recently requested the Melbourne City Council to amend its regulations so as to permit buildings to be erected to a height of 150 feet. The Institute expressed the opinion that the wide streets in Melbourne make liberal provision for light, and the capacity of the pavements and streets is

more than adequate to cope with the very small increase in traffic caused by the additional height of 18 feet. In analysing the building height limits of Melbourne, it will be interesting to note and compare with them the limits imposed in Australian, European, and American cities—

*Australian Cities.*

Melbourne	..	..	..	..	..	..	132 feet
Sydney	..	..	..	..	..	..	150 "
Brisbane	..	..	..	..	..	..	132 "
Adelaide	..	..	..	..	..	..	132 "
Perth	..	..	..	..	..	..	No restrictions
Canberra	..	..	..	..	..	..	2 stories

*European Cities.*

Vienna	..	..	..	..	..	..	82 feet
London	..	..	..	..	..	..	80 "
Hamburg	..	..	..	..	..	..	78½ "
Rome	..	..	..	..	..	..	78½ "
Berlin	..	..	..	..	..	..	72 "
Breslau	..	..	..	..	..	..	72 "
Dresden	..	..	..	..	..	..	72 "
Leipzig	..	..	..	..	..	..	72 "
Munich	..	..	..	..	..	..	72 "
Stockholm	..	..	..	..	..	..	72 "
Cologne	..	..	..	..	..	..	65½ "
Frankfort	..	..	..	..	..	..	65½ "
Hanover	..	..	..	..	..	..	65½ "
Paris	..	..	..	..	..	..	65½ "
Edinburgh	..	..	..	..	..	..	60 "
Zurich	..	..	..	..	..	..	43 "

*American Cities.*

New York (Borough of Manhattan)—

7 per cent. of area	..	¼ times width of street.
63	..	1½
27	..	2
3	..	2½

Chicago—5 districts ranging from 33 feet to 264 feet.

Cleveland	..	..	..	..	..	..	200 feet
Indianapolis	..	..	..	..	..	..	200 "
Baltimore (2½ times width of street).							
New Orleans	..	..	..	..	..	..	160 feet
Portland	..	..	..	..	..	..	160 "
Boston	..	..	..	..	..	..	155 "
Los Angeles	..	..	..	..	..	..	150 "
St. Louis	..	..	..	..	..	..	150 "

Washington—

Pennsylvania Avenue	..	..	..	..	..	..	160 "
Business Areas	..	..	..	..	..	..	130 "
Residence Areas	..	..	..	..	..	..	85 "
Salt Lake City	..	..	..	..	..	..	125 "

Pittsburgh—5 districts ranging in limitation from 33 feet to 265 feet.

In any consideration of this problem, it must be borne in mind that the congestion of traffic impairs the accessibility of high buildings, and the width of the streets on which they abut is not the only factor which should influence the height to which it is desirable to carry them. **The number of streets, the length of blocks, and the number of efficient outlets to the street system are matters which must be considered in relation to the permissible floor space and height of city buildings.**



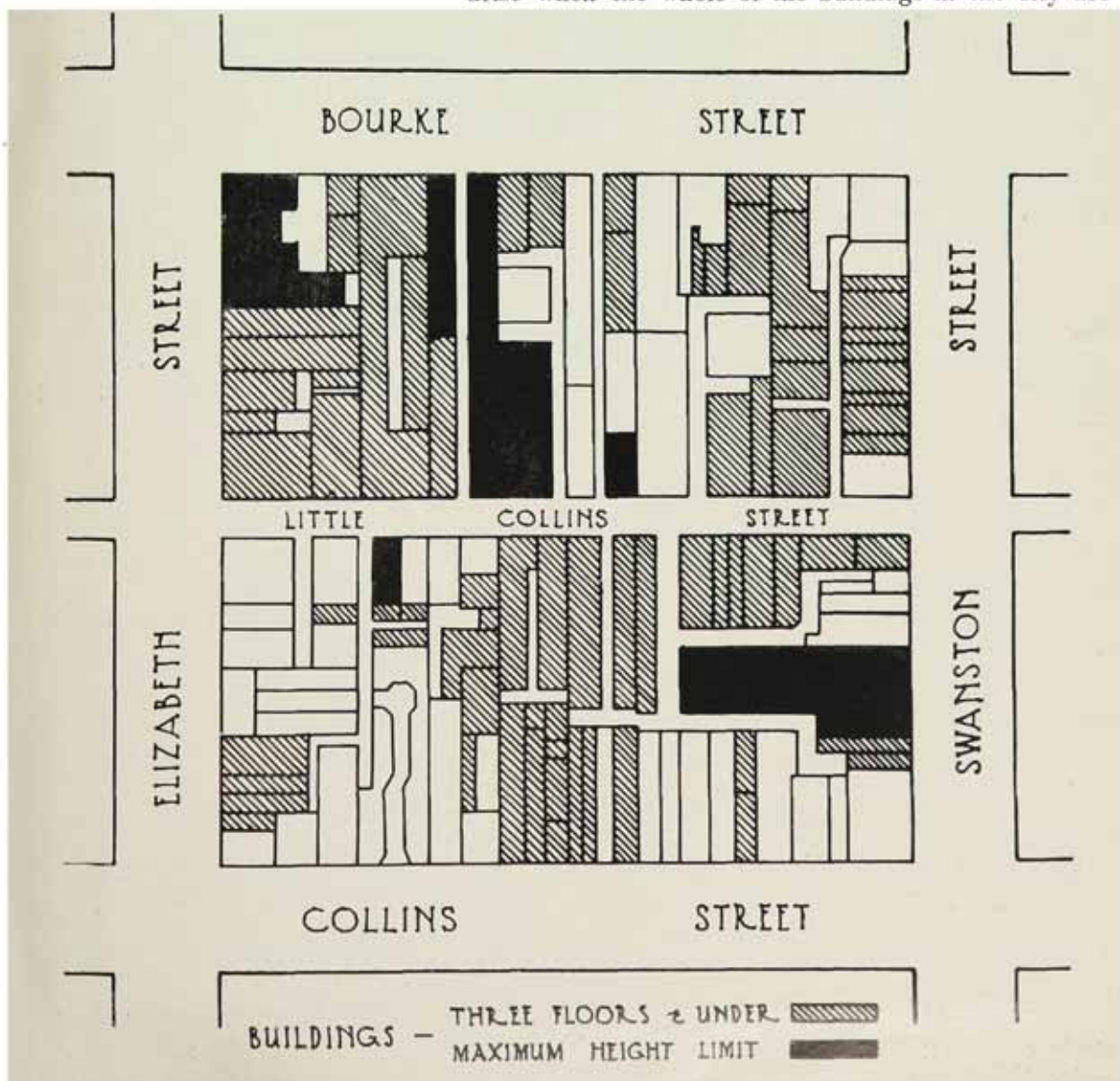


Portion of Swanston-street, Melbourne—  
showing low buildings on valuable sites.

The concentration of traffic in certain areas of the central business district has already resulted in congestion in some of the city streets, although the percentage of buildings which have reached the height limit is extremely low. The Commission considers that a study of the existing building development within the confines of Flinders, Spring, Latrobe, and Spencer streets, where the maximum allowable building height in 99-foot streets is 132 feet, is sufficient to show that the existing regulations are extremely liberal in this respect.

The diagram on this page illustrates the building development which has taken place in the block enclosed by Swanston, Collins, Elizabeth, and Bourke streets, which is the one where the highest land values obtain. In the city block referred to, only 13.6 per cent. of the block area is covered by buildings erected to the maximum height permitted by existing regulations.

Having in mind the congestion that is already evident in some sections of the City, when 48 per cent. of the area of the most valuable city block is covered with buildings of only three stories or less in height, it is not difficult to imagine the conditions that will arise when the whole of the buildings in the city are



carried to the full height of 132 feet. In the city block illustrated, the present building height limits would allow of an increase of 115 per cent. of the present floor-space. This increase can take place in practically all sections of the central business district. If the additional floor-space provided is used as intensely as the existing space, and business increases at a corresponding rate, the traffic would increase so much as seriously to impair their accessibility. **The Commission considers that long before this condition is reached, the congestion not only in the city streets, but in the avenues of approach to the city, would be so great that any additional increase of height would be attended by huge reconstructional schemes involving a cost many times in excess of the value of the increased accommodation.**

In view of the tremendous increase in floor-space which building to the present height limits will allow, and the probability that long before this stage is reached the streets of the city will be uncomfortably congested, the authorities should seriously consider the practicability of reducing the height limit in certain portions of the city streets, where land values are low enough to enable the erection of profitable buildings at a lesser height. Under no circumstances should the present limit of 132 feet be exceeded. It is considered that more detailed examination will show that the allowable increases in height of city buildings, in comparison with the available street space, should be much less than permitted by existing by-laws, unless unnecessary street extensions and widenings at formidable cost are to be resorted to. If increased accommodation near the centre of the city were desired under the operations of lesser height restrictions, an expansion of the area of the district could take place in lieu of an increase in height, and in this way a proportionately greater area of street space will be retained for the service of a similar day-time population or volume of buildings.

## THE ZONING SCHEME.

### DESCRIPTION OF THE AREA.

Map No. 7 gives in broad outline the Commission's scheme of use districts, which are defined in greater detail on the various sheet plans at the back of this report. The references to colours on the Maps indicate the manner in which it is recommended that the metropolis should be subdivided for zoning purposes. Under this scheme the metropolitan area would be divided into eight different types of districts, and the area of each district would be in accordance with the probable demand for each type of use.

**The effect of the zoning scheme would be to encourage the compact and orderly growth of the metropolis along lines best suited to the particular type of development, and in accordance with the expansion that has taken place in the various districts in the past. A comparison of Map No. 7, which shows the Commission's proposals, with Map No. 6, showing the existing conditions, is invited.**

### *Area of Zoning.*

The whole of the lands within the area of planning adopted by the Commission have been subdivided into zones, and this area and the different zones are indicated on Map No. 7. The area included within the zoning scheme is 165,805 acres. Within this area, a prospective population of 3,714,820 would be permitted under the suggested regulations, which are included herein to govern the development of the residential districts.

### *The Zones.*

The districts or zones into which the metropolis would be divided under this scheme are designated as follows:—

Residential "A"	Business "A"	Industrial "A"
Residential "B"	Business "B"	Industrial "B"
Residential "C"		Industrial "C"

### RESIDENTIAL DISTRICTS.

The residential districts, as explained earlier, were mapped after due consideration and study of the existing by-laws governing residential development, and the extensions of these residential areas are planned so that the correct proportion of the metropolitan area, in the most suitable locations, could be used for housing the people who would be engaged in pursuits carried