Elemental Structure of the Master Plan

Lawrence V. Sheridan
Planning Consultant
Indianapolis

PART I. RUDIMENTAL CONSIDERATIONS

1. The People

The fulfillment of the universal desire of people for pleasant, safe, healthful, convenient, and attractive places in which to live and work is the primary objective of city planning. The master plan, including the use of land for various purposes, the provision of physical elements composing the structure of the city, regulations to guide the growth and development of the city, and financial programs for accomplishing the plan must be designed to contribute to the attainment of the primary objective.

Clear knowledge of basic facts regarding the city is a prerequisite to the development of the master plan. The first group of facts relates to the people themselves and includes, at least, the following:

a. How many people are there in the city?

b. How many people will there be in the city?

There are so many variables which influence the growth of cities that it is difficult to make accurate predictions. However, by studying past growth and reasons therefor, past trends of growth may be projected forward with a reasonable degree of assurance.

c. What is the composition of the people?

d. What is the economic status of the people?

e. What are the social characteristics of the people?

Social characteristics of the population indicate the existence or lack of commendable desires for municipal betterment and are an aid to determining where and in what manner improved desires may be inculcated by the master plan.
f. How are the people and their characteristics distributed throughout the city?

It is important not only to have the above-listed types of information, but it is also essential to know how the total population and its various characteristics are distributed throughout the city. By means of spot maps a clear picture of the composition of each neighborhood of the city may be portrayed. Such information is invaluable in reaching decisions regarding the development of new neighborhoods and the redevelopment and improvement of old localities. In cities which are integral parts of larger urban regions, similar information should be assembled and shown on regional maps, where it bears a relationship to the city.

2. The Way in Which People Make a Living

The city exists for two purposes, namely, to provide locations for industrial and commercial enterprises and places where those who work in the industries, commercial establishments, and related enterprises may live. The working elements of the city comprise its economic base. In order that a sound master plan may be developed it is important that accurate information regarding the economic base be assembled, analyzed, and understood. Among the facts which should be gathered are the following:

a. Industries
   (1) A list of all industries in the city.
   (2) The effect upon the industrial composition of the city of the current trend towards decentralization of industry.
   (3) Labor relations.
   (4) Employment in industry.
   (5) Predictions as to probable future expansion or retrogression of industry and its effect upon population.

b. Wholesale and retail trade.

c. Other employment.

d. Payrolls.

e. Out-of-city employees and places of employment.

An accurate estimate should be made of the number of employees whose places of employment are out of the city. Also the number of persons living outside the city but working in the city should be determined. The places of residence and locations of employment should be noted.
f. Migratory employees.

The number of employees who migrate to the city for seasonal employment should be determined. The effect of these migrants upon city functions and neighborhoods is important, particularly when they remain after their work is finished and then become subjects of relief.

3. The Land Which the City Uses

The third rudimental element of the composition of the city is the land upon which it is built or over which it will expand. In a normal city this land is partially within its corporate limits and partially outside. Occasionally all the land is within the corporate limits, since other cities or towns border it on all sides.

The manner in which the land is used, or will be used, influences in great degree the efficient operation of the city and contributes, or fails to contribute, to the primary objective of the master plan—the creation of pleasant, safe, healthful, convenient, and attractive places in which to live and work.

A thorough study of existing and future use of land is another essential prerequisite to the development of the master plan. This study should include at least the following items:

a. What use is now made of the land?

A complete survey should be made of every block of the city, supplemented and aided by the use of Sanborn Insurance Maps or aerial photographs, where available, to determine the actual use of property. The map should show the way in which lots are actually used. If the original platted lots have been subdivided, or combined, the actual boundary lines should be shown. From the surveys a map entitled “Existing Use of Land” should be prepared, showing in colors the following classifications:

- Single-family residences.
- Two-family residences.
- Multi-family residences.
- Public buildings.
- Schools.
- Parks and playgrounds.
- Commercial structures.
- Industrial uses, both light and heavy.
- Railroad property.
- Airports.
- Storage and wholesale uses.
- Churches.
- Parking spaces.
- Other uses which may be pertinent.
b. What proportions of the total area of the city are used for various purposes?

Following the preparation of the foregoing map, the areas devoted to various uses, including area in streets, vacant land, and water, should be computed and tabulated in acres. The percentage of the city's area allocated to such uses should then be calculated and tabulated.

c. How does the land-use compare with land-use in other comparable cities?

d. What is the predominant use of land in various parts of the city?

e. How intensely is the land used?

Many of the difficult problems of cities arise, or are intensified, by the more thickly populated areas. It is therefore desirable to prepare a map which will show the number of square feet of lot area per family in each block of residential occupancy. This information can be recorded on a map in appropriate colors, with the darkest colors representing the greatest intensity of use.

f. What are the needs of the city for different types of land use?

g. What land should be allocated to various uses?

Upon the basis of the quantitative analysis of the needs for different types of land-use in the future city and a qualitative analysis of the suitability of available land for the various purposes, a preliminary map should then be prepared in color, or black and white, indicating the desirable subdivision of the area of the city into residential, commercial, and industrial areas. Each of the districts should then be analyzed to determine the land available for the types of uses permitted in the respective districts. These areas should correspond with the determination made heretofore for the space requirements of the different types of uses in the future city.

h. What use should be made of the land in the area beyond the city limits?

In cities which have unincorporated territory beyond the city limits, the land-use plan and determinations of future use of land should cover the unincorporated areas. It is frequently necessary to provide for the major portion of industrial expansion in the area beyond the city limits.

i. What shall be done with land properly located for certain uses but unusable for other reasons?
There are frequently areas within or surrounding cities which are unusable because they are subject to floods or lack adequate storm drainage or sanitary facilities. In the study of land use, these obstacles should be considered and recommendations included in the master plan for their correction. For the purposes of the initial land-use analysis a map should be prepared showing the location of land unusable for various reasons.

PART II. THE MASTER PLAN

1. Neighborhoods

The concept of city planning based upon neighborhoods is an attempt to break down the master plan into more or less homogeneous areas, each with similar planning problems in principle.

a. What is a neighborhood?

The normal conception of a neighborhood is an area unit, the occupants of which are served by one grade school. In such a unit common interests are developed through the school, and these common interests may be used to develop a better understanding of local problems than would be possible in considering the city as a whole as the minimum planning unit. In the older portions of cities the boundaries of units are not clearly defined in many instances. In newer sections, particularly in unincorporated territory, advanced planning may guide the development of ideal neighborhood units.

b. What is a community?

The normal community is the area served by one high school. In smaller cities this is often the entire city. If the city is expected to increase in size and population, additional communities may develop in the unincorporated territory. Each community is composed of several neighborhood units.

c. The ultimate planning unit.

Upon the basis of the existing use of land, the character of unoccupied land, and the future requirements of the city for the various types of land use, an ultimate planning unit should be established. If there are river valleys, ranges or hills, or other topographical features, or large permanent open areas, such as a large airport or park, which define a natural area, this area should be selected as the unit. Other units might possibly develop
beyond the topographical features, and these could then be planned as units at an appropriate time. In a city entirely surrounded by other cities and towns the planning unit is automatically defined.

d. Determination of neighborhoods.

Within the ultimate planning unit, the boundaries of existing or future neighborhoods should be selected and indicated on a map.

e. Analysis of existing neighborhoods.

Each neighborhood should be analyzed in order to determine superior qualities as well as deficiencies.

f. Unit plan.

A unit master plan should then be developed for the area, covering recommended replanning or redevelopment in old neighborhoods and original planning in new areas. Each of these should be drawn on a separate map.

g. Community plan.

The community plan is essentially the summation of several neighborhood plans, supplemented by a broader consideration of major streets, the high school, an athletic field, public buildings, and other appropriate elements. This should also be drawn on a map, which would be on a smaller scale than the neighborhood plans.

h. Industrial units.

While there may be some industrial land-use in a neighborhood or community plan, it is generally advisable to designate one or more areas which are predominantly industrial. These units should then be analyzed from the standpoint of planning needs.

i. Central business district.

The central commercial area, forming the core of the city, should be considered as an independent unit. Within this district are concentrated the greatest land and improvement values, the greatest source of municipal revenue, and the greatest traffic congestion. Careful analysis of the planning problems of the district should be made.

j. Public buildings.

In some cities the principal group of public buildings may logically be considered as an independent planning unit. In
smaller cities it may be incidental to another subplanning unit. In any event, requirements and opportunities for the efficient and attractive grouping of public buildings should be investigated, and, if warranted, made the subject of a special plan and report.

k. Reports on neighborhood and other unit plans.

Each neighborhood, community and other subplanning unit should be made the subject of a separate report. Each report should include maps, drawings, illustrations, and descriptive text, indicating:

Existing conditions.
What the unit needs.
A plan for its development or redevelopment.

2. Citizen Cooperation

An advisory committee, composed of citizens representing the various sections, interests, and activities of the neighborhood, or other planning units, should be formed in each unit. This committee will be invaluable in assisting with the determination of the needs of the unit and the reaching of decisions as to how these needs may be met.

The unit committees will, in turn, form the nucleus of a general citizens' advisory committee for the entire city, which will be of great value in the development of the master plan for the city.

3. Structural Elements of the Master Plan

Geographic study of the planning requirements of the existing city and its environs, through the instrumentality of the neighborhood and other subordinate planning units, reveals the intimate needs throughout the planning area. The unit plans will have determined to a large extent the land-use pattern of the future city. The pattern of minor streets, general locations for schools, parks and playgrounds, housing requirements, neighborhood shopping districts, location of public buildings, and many other details will have been decided upon in the unit plans.

The structural elements of the master plan will therefore summarize in reports the local decisions contained in the neighborhood plans and supplement them with proposals of a citywide character. Each report should consist of maps, drawings, illustrations, and descriptive text setting forth the existing conditions, and planning proposals supported by facts and reasons for decisions. The following elements should be included:
a. Thoroughfares and traffic.

Traffic congestion is the most vexing problem facing cities today. It is occasioned not only by the great increase of automobiles within the city itself, but by the increasing load of freight and passenger vehicles destined for points within the city or merely passing through. The larger the city, the greater the volume of foreign traffic destined for stopping points within the city. Moreover, the need for the solution of traffic congestion comes at a time when funds available to municipalities for such purposes are greatly restricted.

(1) More efficient use of streets.

One-way streets. It has been demonstrated conclusively that the primary obstacle to traffic movement is the intersection with another street. It has been further demonstrated that, at the intersection of one-way streets, delays are reduced to one-fourth or less of those produced at the intersections of two-way streets allowing both right and left turns. The development of a pattern of one-way streets, not only in the downtown area but throughout the city, is highly desirable.

Off-street parking. No major street can be termed efficient unless it has at least four traffic lanes on a two-way street or two lanes on a one-way street. Where parking interferes with the maintenance of these minimum standards, it should be eliminated entirely. This may require the planning of off-street parking facilities, conveniently situated with respect to the destination of those seeking parking facilities. The off-street parking plan should be preceded by accurate survey to determine the need for such facilities, and the report should cover the manner in which they should be provided.

Traffic control. The efficient use of existing streets may be facilitated by the installation of effective traffic-control devices. The timing of traffic lights is particularly important. While traffic control is not strictly a matter of city planning, it is closely related to it and should be considered in conjunction with the development of the street plan.

Removal of obstacles. There may be errors in alignment of existing streets, such as jogs, or short stretches which are narrower than the usual width of the street. The elimin-
ination of such obstacles will facilitate traffic movement and the more efficient use of existing streets.

*Railroad grade crossings.* Where railroad grade crossings exist they are the greatest cause of traffic delay. In some cities the number of such obstacles may be few and not present a major problem, but in others they may be the greatest single problem in the city. Certainly existing streets may be used more efficiently if all grade crossings with railroads carrying an appreciable amount of traffic can be eliminated.

(2) Diversion trafficways.

A major cause of traffic congestion is occasioned by the necessity for large volumes of traffic to traverse available streets into, or through, districts where it does not wish to go, because there is no other way to go. Relief from traffic congestion caused by such situations may be effected by the designation of diversion trafficways. In a small city a diversion way directing through traffic on one or more state highways around the city may be adequate. In a larger city, an outer diversion way will be desirable. It should be placed well beyond the city limits and should intersect all approaching major highways. Within the city there should be a diversion belt around the central business district, which will tap traffic that would otherwise have to enter the district and furnish it with an efficient route to reach its destination beyond the central district. In addition, there may be need for other such routes, placed concentrically at intervals of approximately one mile.

Outer belt highways are normally the function of the State Highway Commission and usually require new construction. Inner belts may require little, or no, new construction, but may utilize existing streets. Where existing streets are to be used, they can be designated by proper signs and their efficiency promoted by the elimination of parking and standing vehicles.

(3) Expressways, superhighways or limited-access roads.

The location and construction of superhighways of various types is justified only where there are great volumes of interregional traffic. It is necessary to base the location upon accurate data on traffic and where the traffic wishes to go. Such origin-destination surveys are costly to make
and analyze, and since they are concerned with traffic generated over a wide area, they are usually made by the State Highway Commission in conjunction with the Public Roads Administration, or with funds furnished by them.

These surveys, made in cities of many sizes, have shown that a large percentage of the traffic is destined to points within the city, rather than desiring to pass around the city. It is believed that, if diversion trafficways around a city had been available at the time of making an origin-destination survey, a larger percentage of drivers would have expressed a desire to by-pass the city, but it is still conclusive that much of the traffic wishes to enter the city, and that the expressway should pass close to, but not through, the central business district.

(4) Details of the thoroughfare plan.

The report on the thoroughfare plan should include a table showing:

- Existing width of right-of-way.
- Proposed width of right-of-way.
- Existing width of roadway.
- Proposed width of roadway.
- Proposed use of street—one-way or two-way.
- Elimination of jogs.
- Elimination of grade crossings with railroads or other highways.
- Location and form of traffic circles or other physical aids to traffic movement.

The report should also include drawings of standard street cross-sections, showing the subdivision of the street into roadway, sidewalk, and lawn spaces, and tree-planting areas.

b. Parks and recreation.

This section of the master plan should present a complete review of recreation requirements in the city and proposals for the location of parks, play areas, parkways, and other physical recreational areas. Its development should be preceded by a survey of existing facilities, including property and the equipment and facilities in use on each property.

On the basis of generally accepted standards, a map should be prepared showing the location of existing recreational properties and proposed general locations of new acquisitions.
The report should be accompanied by standard designs illustrating the principles of arrangements of equipment and facilities for the different types of recreational areas.

The neighborhood unit plans will have indicated the needs for local facilities. The complete report will supplement these with recommendations for larger areas, with wider ranges of use.

c. Schools.

The planning of school sites is intimately associated with the development of neighborhood designs. These proposals should be summarized and a school plan prepared for the entire city. This should show not only local schools, but high schools also.

In preparing the school plan, consideration should be given to its integration with the park and recreation plan.

d. Other elements.

Each element of the master plan should be designed following an accurate determination of needs, consideration of the detailed requirements of neighborhoods and subordinate planning units, evident possibilities, and the ability of the city to accomplish the plan.

PART III. EFFECTUATION OF THE MASTER PLAN

1. Legislative Action

In Indiana the master plan may be adopted as a whole or by parts by the common council of the city. It is required that an ordinance be prepared for the adoption of the plan, or one of its parts. A hearing must be held by the city plan commission, following which, upon recommendation of the commission, the ordinance may be passed by the common council.

2. Citizens' Advisory Committee

In order that the master plan and its several parts may most effectively reflect the desires of the city, it is desirable that a citizens' advisory committee, representing all activities and interests of the city, be appointed during the preparation of the plan. Advice and counsel of this committee should be sought at all stages of the development of the plan. The committee should be particularly helpful at the hearings which are held on the ordinances effectuating the plan.
3. Establishment of a Jurisdictional Area

The Indiana Planning Statute provides that, before a city plan commission may exercise jurisdiction over the platting of land and other planning matters beyond the limits of the city it shall file with the County Recorder a map showing its jurisdictional area, not to exceed two miles beyond the city limits. This should be done at an early date.

4. Regulations for the Platting of Land

In order to exercise sound judgment over the platting of land, the city plan commission should adopt suitable regulations in conformity with the planning statute, and recommend their passage as an ordinance by the common council.

5. Zoning

While the zoning ordinance is considered as one element of the master plan, it is definitely a regulatory measure rather than a structural element of the plan. It should be based upon the land-use plan described here in Part I. It should furthermore be coordinated with the other elements of the master plan.

Whether the zoning ordinance is an original document or a revision of an earlier ordinance, it should conform in principle to the requirements of the State Planning Act. Its adoption should follow the procedure prescribed in the Act.

The Act also provides for the control of land-use in the two-mile jurisdictional area around the city, by the issuance of improvement locations permits. An ordinance similar to a zoning ordinance may be developed for the regulation of land-use in the area. It should be adopted separately from the zoning ordinance.

6. County Authority

The Indiana Planning Act provides that, if a county has adopted a master plan, the city ceases to have any jurisdiction over the two-mile area. Since much of this area will eventually be annexed to the city, the municipality has a definite interest in how it shall be planned. It is therefore desirable that, where a county plan commission is functioning, close cooperation should be maintained between the two commissions. There are many advantages in the two commissions operating with a single joint staff, so that the problems in the two-mile area may be continuously coordinated.
PART IV. ACCOMPLISHMENT OF THE MASTER PLAN

The master plan will include many items which require construction or land acquisition and consequently the expenditure of money. In addition there are other public expenditures involving the construction of public works. All the proposals for public works should be assembled and determination made of the relative importance and urgency of each project.

Concurrently a thorough analysis of available public funds derived from all sources should be made. The availability of funds from bond issues, returns from utilities, direct taxes, revenue bonds, etc., should be tabulated. The amounts which it is anticipated will become available each year for a period of six years in advance should be noted.

Priorities should be established for all the projects on a six-year basis also. The cost of the projects should then be balanced with the available funds, and a capital-improvement budget covering a six-year period should be adopted.

Each year the program should be reviewed and adjusted to new conditions and advanced one more year into the future. Thus there will always be a capital-improvement program and budget extending for six years in advance.

The result of such a procedure is that all improvements will be initiated in an orderly manner in accordance with the master plan. Hasty, ill-considered projects will be avoided. By knowing in advance the work that is to be done, it will be possible to make detailed plans in an unhurried manner, which contributes to economical planning.

The capital-improvement program and financial plan is an essential part of the master plan, and its adoption is certain to meet with public approval and bring about sound accomplishment of the important elements of the master plan.