County Planning in Metropolitan Areas
as Exemplified by Bergen County, New Jersey

Economy in government requires continuity of policy and coordination of the actions of the various departments. There is a growing realization of this fact. In many cities planning and zoning agencies have been created to supply varying degrees of this continuous and forward looking direction. Obviously the city is not the only governmental entity that requires the application of business principles for the sake of economy. Every unit of government that collects and spends public funds is under obligation to spend them wisely. The planning method is applicable to, and has been introduced into, all levels of government: municipal, county, state and national.

Urban planning has been gaining momentum for over thirty years. More than 1,700 towns and cities have developed some form of planning or zoning while some 1,200 have permanent planning boards. It is only within the past decade that planning has been applied extensively to other units of area, such as the county.

The need for planning in metropolitan counties is acute because of the current trend of population from the central districts to the suburban fringes. The purpose of this Bulletin is to point out some of the advantages of county planning of this type, principally by indicating the methods, results and program of the County Planning Board in Bergen County, New Jersey.

GROWTH OF COUNTY PLANNING IN THE UNITED STATES

In spite of its newness county planning has made considerable headway throughout the country. Figure 1 shows the extent to which it has spread in the United States. At the end of 1938 more than 400 official and unofficial county planning boards had come into existence, many of them in counties dominantly rural in character.

It may be seen on the map that most of the counties of the six northwestern states had planning agencies, largely as a result of promotional activities by the Pacific Northwest Regional Planning Commission; those in Washington, Idaho, Montana and North Dakota were mostly official boards while all those in Oregon and South Dakota were unofficial boards. The other states conspicuous for official county planning boards were Florida, California, Missouri and Wisconsin. There was a cluster of counties in West Virginia with unofficial county planning boards. In Tennessee and neighboring states many counties are covered by a single Federal agency, the Tennessee Valley Authority. While this agency is administrative in character it has a division which includes, to some extent, the functions of regional and county planning.

1 Progress Report, National Resources Committee, December, 1938.
In other areas, also shown in Figure 1, where intensive regional plans have been made, a certain amount of county planning has been done by the regional agencies. These areas include the metropolitan districts of Chicago, Philadelphia and New York, where most of the planning covering the counties has been unofficial and region-wide. As the insert in Figure 1 shows, official planning commissions have been established in the majority of the counties of the New York Region. While several of these have grasped the opportunity of collecting valuable basic data with the aid of WPA personnel, the experience of Bergen County is significant in that it has been followed through by analysis and study of the information with the aid of technical advice.

ACCOMPLISHMENTS IN THE PLANNING OF BERGEN COUNTY

Planning on a county-wide scale in Bergen County started in 1929 when a committee of the Bergen County Chamber of Commerce was formed for this purpose. The committee was replaced by the appointment, in 1932, of an official planning commission under an enabling act of 1918. A number of studies were made by this commission.

Following the enactment of a new County Planning Enabling Act in 1935, a county planning board was created which has proceeded with the collection of information, analysis of data and studies for a master plan. The material described and illustrated in this Bulletin is largely the work of the present board, which for the last two years has had the Regional Plan Association as its technical adviser. Acknowledgement is hereby made of the board's courtesy in making available their drawings reproduced herein.

BASE MAPS

The absence of maps suitable for the graphic portrayal of the wide range of information and statistical data required in the planning technique necessitated the preparation of a number of base maps. The process of assembling and plotting data from which these were

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1 See Information Bulletin No. 32, "County Planning Progresses in the Metropolitan Region," October 26, 1936.
compiled was a laborious one. It involved a small staff of engineers, surveyors, title searchers and draftsmen.

By using all accurate information obtainable from the county offices, together with what could be secured from the files of the state highway department, railroad companies and town and village offices, a system of coordinates was devised. This was tied in and fitted to monuments of the United States Coast and Geodetic Survey. The system of coordinates was carefully checked with reference to the location of principle highways, railroads and water courses, and municipal boundary lines. Discrepancies were rectified and gaps filled in by ground surveys and title searches. An accurate geographic representation of the principle landmarks and boundaries of municipalities resulted from this process.

The work required to secure the accuracy of the map made in this way is justified only as a base for the official map of the county, hereinafter described. For planning purposes accuracy is desirable but ordinarily a composite of existing maps is sufficiently accurate.

The principal base maps used consisted of two series, one at a scale of 2,000 feet to the inch and the other at a scale of 3,000 feet to the inch. Each series of maps was made by striking off lithoprints at different stages of completion of the final tracing. Prints were made, for example, when only the outline, the principal streams, state highways and railroads had been drawn in; additional prints were made after municipal boundaries were added. In all, there were eight maps in a series beginning with a bare outline of the county and ending with a complete map having streams, railroads, municipal boundaries, state highways, county roads and municipal streets.

These maps have a degree of accuracy consistent with their scale but are not minutely accurate since they are used only for general indications of county-wide conditions. The original maps are filed and identified by key letters. Contact lithoprints of the base best suited for a particular study are used for mapping planning data.

**Topographic Map**

In order to have general topographic information in a concise and usable form, twenty-foot contours of the United States Geological Survey sheets were transferred to a lithoprint of the 3,000-foot scale base map. Having this information on one sheet materially aided many studies, particularly park and highway locations and a comprehensive plan of sewage disposal. This map appears as Figure 2 on page 4.

Precise topographic data will be necessary in the more advanced stages of planning involving exact locations of specific projects. These will have to be obtained by ground surveys and drawn at a much larger scale.

**OFFICIAL MAP**

One of the steps in the administration of a master plan is the adoption of an official map (called “county plan” in New York State legislation) by the governing body. This map is an accurate representation of all public properties, streets, parks, etc. As parts of specific proposals of the master plan, or any public improvement, are adopted by the Board of Chosen Freeholders, they will be recorded on the official map.

Simultaneously with the progress of base map work, an engineering draftsman was assigned the task of preparing such a map at the scale of 2,000 feet to the inch. Originally based on conditions as of 1938, all new subdivisions have been added and it is periodically kept up to date by the planning board. A distinction is made between those streets which are physically opened and those which are merely recorded. Briefly, this document shows an up-to-the-minute picture of local street development and its relation to public projects. If only used for the graphic recording of new subdivisions the ultimate value of this map will be immeasurable.

**FACT-FINDING PROGRAM**

The work of fact-finding preliminary to the making of a county plan as well as the map work described above, has been conducted by personnel supplied by Federal work-relief programs under direct supervision of the planning board. Efficient operation was hampered somewhat in the early stages of the work by an inexperienced staff and the complex regulations which govern Federal work-relief projects. It is significant that, despite difficulties under which the Bergen County program was carried forward, an extensive compilation of essential planning material has been assembled as a step toward a county plan.

While the nature and extent of data gathered are not regarded as entirely sufficient upon which to base a master plan, the county has received, in return for its investment in this field, information which it could not duplicate for the same outlay in any other way.

Following is a brief description of the field work, the office research and the procedure used for the graphic presentation of the data.

**Field Surveys**

The present uses of land and the location of all private, public and semi-public buildings in the county were determined in the field. Notes of conditions were made on large scale tax maps of the separate municipalities which are filed in the planning board offices. Other pertinent planning data were noted on these maps at the time of this inspection, including width and type of street pavements, the extent of areas served by sewers and water, and off-street areas used for automobile parking.
Counts of traffic were taken, over a nine month period from January to September, on all principal highways within the county. Individual station counts extended from 7 a.m. to 11 p.m. over a period of from seven to ten days. Commercial traffic, including buses, was tabulated separately from passenger car traffic. An illustration of a traffic count taken at a typical intersection along a principal highway is shown in Figure 3.

Simultaneously with the vehicular counts the number of persons in private cars and buses were also recorded; also the origin of all passenger cars entering the county was ascertained from the letters on the license plates. This information was supplemented by records of the daily and seasonal traffic movement on the George Washington Bridge, furnished by the Port of New York Authority.

Salient data regarding sanitary sewers, sewage disposal, water supply and refuse disposal were gathered by conferring with local authorities. Field investigators were supplied with comprehensive forms covering every possible phase of the subjects involved and facts were noted at the time of interview.

**Research**

Most of the time devoted to research was spent on assembling available material with a direct bearing on the social, economic and physical development of the county. This involved an examination of official records and the assembly and tabulation of needed information. The following are some of the kinds of data collected in this stage of the program:

- Population statistics, from earliest record date, for municipalities and the county as a whole;
- History of boundary line changes;
- Assessed valuation of property and land;
- Records of land subdivision since 1927;
- Lands used for agricultural purposes;
- Use exceptions to present zoning;
- School population and registration;
- Municipal zoning ordinances and maps;
- Municipal building and sanitary codes;
- County and municipal financial data.

In addition, field survey data were organized and statistical summations made of the component parts. For example, land use information was broken up and separate tabulations compiled for: public and semi-public lands; property abutting state and county roads; property abutting streams; commercial and recreational areas.

A staff of statisticians organized all the above data into convenient forms for reference purposes. This greatly facilitated the work of mapping and at the same time produced a permanent set of records for office use.
Maps and Diagrams

Before the completion of statistical research and field surveys, a start was made on the graphic presentation of assembled factual material. Data were first roughly plotted with colored crayons on work sheet maps to determine suitable symbols and an appropriate style of rendering. Experiments on these work sheets ironed out many unpredictable difficulties, thus facilitating the making of final black and white drawings.

India ink tracings were made, on lithoprints of suitable base maps, of most of the statistical material assembled. In general, this involved presenting a graphic picture of the variations in density or intensity of a particular factor in different parts of the county. This was accomplished by a series of graded tones, or hatchings. Areas of lowest intensity are rendered white and those of the highest intensity, black. Intermediate intensities appear as various shades of hatchings. Special attention was given to spacing of hatching and size of lettering on all drawings so that they would be legible when reduced for publication.

On page 6 an example of such graphic presentation of factual material is shown. In this case the relative assessed values of land are shown by eight major classifications. Most maps required variations of this technique as may be seen in other illustrations in this Bulletin.

Planning Studies

When the collection and analysis of factual material had reached an advanced stage, a start was made on studies organized to determine the character and extent of future development. Some of these studies were prompted by public demand for the solution of pressing problems of the county. Four studies having direct bearing on urgent needs have been completed and reports thereon formally submitted to the governing body. A study of population was completed but will not be presented until it can be checked against the Federal census of 1940. Several others are still in a preliminary stage and require more detailed attention. A brief description of the more important studies conducted to date follows.

Land Subdivision

The importance of avoiding hodge-podge land development is obvious. Not generally recognized, however, are the severe financial difficulties coming from the high incident of tax delinquency on prematurely subdivided land. A report on land subdivision gave a definite measurement of subdivided land, past and present trends, enabling legislation for municipal control, and a review of the county planning board's activity in connection with control of subdivisions.

Emphasis was placed upon the need for a more intelligent control of land subdivision in relation to principal elements of the county plan. Illustrations consisted of maps showing existing facts pertaining to the subject and photographic comparisons of good and bad subdivision practice.

Water Supply and Sanitation

Pollution from the discharge of untreated or inadequately treated sewage has already produced deplorable conditions in the waterways in the southern half of the county. Signs are already appearing which indicate that these objectionable conditions may be repeated in other waterways. Only by the development of a far-sighted, comprehensive plan can pollution be successfully controlled or eliminated. Realizing the difficult problem of locating sewage disposal plants within the limits of municipalities and the economy of locating sewers in close relation to topography, natural drainage areas are recommended as the logical units for comprehensive treatment of the problem. The boundaries of these areas generally have no relation to the boundaries of political subdivisions. An illustration of these units is shown in Figure 5.

Statistics for all areas sewered, disposal plant characteristics, plant location and designed capacity were published in a report. Also the number of dwelling units connected and a measurement of existing and future population were included. Similar information was obtained and presented regarding water supply and refuse disposal. Other factors affecting public health were discussed, including an analysis of local health and sanitary codes. Several methods for controlling tidal flow, which would make possible reclamation of meadow land after sewage pollution has been eliminated, were also presented.

Zoning

While it is essentially a municipal function, zoning is of broad significance in county-wide development. An analysis of each of the ordinances of zoned communities showed many discrepancies and emphasized the need of comprehensive revisions. A zoning study has been printed and submitted to the Board of Chosen Freeholders. The study disclosed for one thing that the amounts of land allotted by zoning to the less restrictive uses are far out of proportion to present demands and future population requirements.

Final study of this problem will include definite recommendations as to the amounts and proper arrangements of land uses.

Transportation

The scope of the study of transportation has been limited to rail and highway transportation of passengers, with special emphasis on the latter. The published report is principally an analysis and examination of
data collected under the fact-finding program described above.

Under the section dealing with rail transportation, areas served by railroads, time and fare zones, and passenger train service were discussed. Plans advanced by other agencies for the solution of the county’s transit needs were also included.

Important data regarding vehicular traffic movement and its passengers were analyzed as a preliminary step to preparing a comprehensive highway plan for the county. Among such items are motor vehicle registration, general traffic flow, origin of passenger car traffic, peripheral traffic counts and their hourly variation, and bus passenger flow. Two of the illustrations from this report, showing general traffic flow and the same figures groups of municipalities which have grown and are likely to grow similarly because of their character and geographic location. Curves of past growth were plotted from the earliest recorded census and spot maps showing population distribution were plotted. Tentative estimates up to 1960 were made for each group and also for individual communities. The growth of other metropolitan counties was studied as a basis for estimating the future growth of Bergen County.

PUBLIC RELATIONS

An important part of the work of the planning board has been to enlist public support through a program of public relations. In addition to formal reports advising the governing body of the results of the various plan-

reduced to lane density, or the traffic per lane of roadway available for moving vehicles, are reproduced on page 9 as Figures 6 and 7.

Following submission of the report a tentative highway plan which meets the theoretical requirements of the county was prepared. One of the major north and south routes of this plan, in the form of a limited access highway, has been studied at greater detail and a public hearing was held on this proposal. On page 10 a photograph showing a scale model of a typical road intersection along this route is shown. It also shows various methods of treating the property bordering on such an express highway.

Population

Trends of past growth indicate varying rates of increase for different sections of the county. For the purpose of population study the county was divided into

PHOTOGRAPH OF A MODEL OF A TYPICAL ROAD INTERSECTION ALONG A PROPOSED LIMITED ACCESS HIGHWAY

Cooperation with Municipalities

At the outset it must be emphasized that the county planning board is not organized as an agency to intrude
upon the functions of local planning. It has, however, sought to coordinate and harmonize municipal planning effort in the interest of county developments. For example, in connection with the alignment of the proposed limited access highway, already referred to, the board conferred with local planning agencies and local officials as to the best routing through their respective areas. This procedure resulted in an alignment that was subject to little criticism at the public hearing on the project.

The county planning board has acted as an adviser to several municipal planning projects set up by the Works Progress Administration of New Jersey. Procedures were specified for the types of studies included in the sponsors' programs and assistance given in initial staff organization. The board gives general supervision to the collection of factual data and the technique of graphic presentation. On the whole, it has aided materially in stimulating local planning.

Publications

By the end of 1939 the planning board had printed and distributed the four reports of planning studies briefly described above. Copies were distributed to each member of the governing body and to each of the seventy municipalities of the county. They are available to anyone for a nominal fee. Growing knowledge of planning progress in Bergen County has brought requests for these reports from many sources, including the leading colleges of the country.

Consistent with good taste, yet economical to reproduce in quantity, the offset lithographic process was used for the reproduction of reports. Typewritten copy in its final form and a dummy showing the complete layout, including illustrations, are prepared by the staff of the planning board and supplied to the printer. By this method reproduction costs are kept down and highly satisfactory results obtained.

Exhibits

A forceful and dramatic portrayal of county conditions and trends was prepared from black and white prints of the principal drawings. These prints are rendered in tempera, or show card color, and displayed in the planning board office.

This exhibit material has attracted wide interest in Bergen and neighboring counties as well as nationally. The manager of a local theatre was so impressed with its effectiveness that he obtained the loan of it for exhibit in the lobby of his theatre. At several other exhibitions in 1939 various items of this material were shown. Among these were the two conventions of the New Jersey Federation of Official Planning Boards at Newark and Rochelle Park, the regional meetings of the National Resources Planning Board in Boston and Chicago, and meetings of the Rotary Club of Ridgewood, the Tenafly Planning Board, the convention of the New Jersey State Board of Realtors at Atlantic City, and the Passaic County Planning Board.

As part of the public relations program of the Board of Chosen Freeholders, the planning board material has been exhibited at the annual Home Show held in the State Armory building at Teaneck. For the past two years a special exhibit has been designed for the purpose. Supplementing exhibition maps, models of highway types and of a proposed county airport were built and displayed. Last year a special pamphlet "Planning Facts," which tells the what, why and how of county planning, was distributed at this function. A more detailed publication on this subject was scheduled for publication in May, 1940.

FUTURE PROGRAM

With the background of data assembled, analyzed, charted and to some degree studied, the immediate, definite objective of the Bergen County Planning Board is the formation and adoption of the master plan. The major benefits of the whole planning process accrue largely in the application of the master plan; it is therefore essential to have a plan to apply.

The Master Plan

The technique of making a plan consists of studying separately the various subjects, such as highways, parks and land uses and putting them all together into one mosaic that is consistent with probable population growth. Studies are made at different scales dependent upon the amount of detail involved. The separate studies take place simultaneously with study of the composite pattern, each having a reaction on the other.

The final result is a map or series of maps representing the best thought as to the form which the county should take in the future. This is supplemented by a printed report that describes and interprets the plan to the people and to the agencies concerned with administering the various phases of county development.

A Functional Chart of County Planning

In order to present a clear conception of planning procedures and relationships the chart shown as Figure 8 was prepared. While it is based on the provisions of the New Jersey and New York county planning acts it is generally applicable, subject only to minor changes which may be suggested by the enabling acts in other states.

The preliminary plan is represented as evolving from the study and correlation of various types of basic data. Public hearings, compulsory under the New Jersey law but optional under the New York law, would be held.
on this preliminary plan, followed by its adjustment and adoption by the planning board in the form of a master plan.

The master plan is not the end of the procedure. The lower half of the chart indicates a list of continuing activities with an ebb and flow relationship to the master plan. Review of subdivisions, for example, involves reference to the master plan to see that new development conforms to it. The new development, in turn, may so crystallize a variation in the alignment of a proposed highway that a revision in the master plan is called for. A careful and continuous follow-up of a master plan is just as important for its success as a sound initial plan.