

HIGHWAY
EXTENSION
AND
RESEARCH
PROJECT
FOR
INDIANA
COUNTIES

**County
Subdivision Control:
Model Ordinance
With
Discussion**

PURDUE UNIVERSITY—ENGINEERING EXPERIMENT STATION

in cooperation with

THE COUNTY COMMISSIONERS OF INDIANA

COUNTY HIGHWAY SERIES—No. 3

HIGHWAY EXTENSION AND RESEARCH AT PURDUE

The Highway Extension and Research Project for Indiana Counties was organized in July 1959 to carry on extension and research programs specifically for County Highway Departments throughout the state of Indiana. The Project was organized as a result of legislation designating Purdue University through its Engineering Experiment Station and School of Civil Engineering as the agency to perform this service. The intent of the legislation was that the University through the School of Civil Engineering should extend its existing highway research and extension program at the county level to assist and guide county highway officials in their problems of planning, design, operation, and management of the county departments throughout the state.

The Highway Extension and Research Project for Indiana Counties (HERPIC) operates as a cooperative effort between the county commissioners of Indiana and Purdue University. As a relatively new organization the HERPIC program is still being developed. However, initial effort is directed toward providing guide manuals that set forth recommended procedures on important topics. In addition regional workshop conferences are held in various parts of the state, and at these conferences typical county road problems of the specific area are reviewed.

An older and more widely known highway research and extension organization is the Joint Highway Research Project which has operated since 1936 as a cooperative effort between the Indiana State Highway Department and Purdue University. Since its inception the Joint Highway Research Project has made many significant contributions toward the improvement of highway design and operational procedures at both state and local levels. In addition the Joint Highway Research Project sponsors the Annual Purdue Road School, an activity that brings together people from all segments of the highway industry and provides an opportunity to develop better relationships through discussion of mutual problems.

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by

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County Subdivision Control

FOREWORD

- A. The Need for Planning.** Subdivision control and regulation are only two facets of the much broader problem of planning. The need for planning in general must be shown before subdivision regulations can be justified.

Planning might be defined as "systematic forethought." In everyday life, man is continually exercising "systematic forethought." This he does of necessity to lend some semblance of order to life. Unfortunately, many are not aware that the same tool which brings order to personal life may also be used to bring order to man's environment, i.e., to his urban and rural communities.

The results of man's failure to plan his communities are all too commonplace; growth is haphazard, erratic; segments of town and countryside are blighted and depressed. Planning is not a panacea which in some mysterious way solves economic problems or eases communal growing pains; planning is an important and proved means to an end. That end is orderliness.

Planning, then, is necessary for order and if, in the light of increasing population, increasing urbanization and industrialization, and increasing demands for city and county supplied services, it is agreed that orderliness is essential, then planning is essential and the need for planning is clear.

- B. Authority for Planning in Indiana.** Enabling legislation for community planning has existed in Indiana in one form or another since 1921. The most current laws are the Planning Act of 1947 (Chapter 174, Acts of 1947 and amendments thereto) and the Area Planning Act (Chapter 138, Acts of 1957 and amendments thereto). These laws are permissive rather than mandatory, i.e., they *permit* a community and/or a county to enact planning legislation rather than *requiring* such action.

For purposes of this manual, the Area Planning Act is of particular interest. Within this act is found the authority for a county to enact legislation which establishes a county-wide subdivision ordinance. Membership of the plan commission, procedure for establishing a master plan, a zoning ordinance, a subdivision control ordinance, and the procedure for approval of plats, for public hearings, etc., are all specified in this act. A copy of the act entitled "Area Planning Legislation" may be obtained from the Indiana Department of Commerce and Public Relations, 333 State House, Indianapolis 4, Indiana.

C. The Order of Planning. Planning must be not only logical and complete in content and scope but planning must be accomplished in a certain order. Unless planning be carried out in a logical sequence, it may be that over a long period of time, a county or community may find it advantageous to have had no planning whatsoever. Consider, for example, the county that enacts a subdivision control ordinance without first adopting a master plan. Such a procedure is ridiculous because the subdivision control ordinance, while valuable in itself, is by its nature incomplete. The subdivision control ordinance is a *tool* used in achieving the objectives of the master plan. The example just cited is common and it is understandable that some counties, lacking funds and under pressures to supply services to an increasing number of developments, would in desperation adopt a subdivision control ordinance as a stopgap measure before even considering planning in a broader sense. Unfortunately, such measures provide only temporary relief. If the ordinance adopted is adequate, the county may find itself with small, well developed (in a quality sense) subdivisions that are so chaotically scattered as to make future expansion difficult if not impossible. Where will industry be located? Where will schools and parks be built, given the usual inadequate income, so that they will serve the most people best? Add to these questions the consideration of administration and one sees that the overall picture, i.e., the master plan, is needed *first* and is necessarily the first step in the logical process of planning.

The order of planning is as follows: (1) the master plan, (2) zoning, (3) the thoroughfare plan, and (4) the subdivision control ordinance. The reason for ordering zoning, the thoroughfare plan, and the subdivision control ordinance as steps two, three, and four is found in the function of these planning tools as discussed subsequently.

Ideally, for the sake of objectivity, the master plan would be drawn up by an outside planning firm, i.e., one outside the county or community. This is the best solution to the planning problem since planning firms offer professional, competent service. Many counties and communities will not be financially able to obtain professional guidance and will be faced with utilizing those resources that are readily available. In either case, whether the job of planning is done on an outside consulting basis or by local personnel, *obtain the master plan first*; this cannot be emphasized too strongly.

D. The Master Plan.

The master plan may be defined as the ever-changing, constantly revised, general design for growth best suited to present and probable future needs, commensurate with the present and future population, economic and financial resources, and the public sentiment. Perhaps the most important feature of this definition is the emphasis placed on flexibility. The master plan is ever subject to revision in the light of new circumstances; thus, the job of planning is never-ending and the master plan is never completed.

The three main tools for achieving the objectives of the master plan are: (1) Zoning, (2) the Thoroughfare Plan, and (3) the Subdivision Ordinance.

E. Zoning. The main purpose of zoning is to define and control, in the public interest, the locations of land use, i.e., where homes, stores, and factories may and may not be constructed. Zoning laws protect the home owner against commercial and/or industrial encroachment into residential areas; in a similar manner, store and factory owners are protected against residential encroachment. In the interest of public health and welfare, zoning also usually provides minimum standards for the admission of light and air through the use of setback lines, minimum spacing between buildings, etc.

F. The Thoroughfare Plan. The thoroughfare plan delineates future roads and streets. It is a fact that land use, to a large extent, is determined by the location of major arterials. If thoroughfare location can be predetermined and controlled, the planning function is greatly enhanced. This control comes mainly through the thoroughfare plan.

The thoroughfare plan should classify roads according to importance or purpose. This is primarily accomplished by designation of certain roads as arterial, collector, or minor roads. Long-range planning achieved by the thoroughfare plan is essential to the development of an efficient system. The thoroughfare plan is the basis for determining priority of improvement, geometric standards, and method of finance.

G. Subdivision Control Ordinance. Growth is given direction by the thoroughfare plan and location by zoning; the subdivision ordinance controls the development of what is perhaps the most tangible manifestation of growth, the subdivision.

The main objectives of the typical subdivision ordinance are two-fold: (1) to establish a procedure whereby the developer (or

“subdivider”) may file a plan (or “plat”) of the subdivision with the county recorder; sale of lots within the subdivision is accomplished by referral to the plat; (2) to specify to what extent and to what minimum level of quality the subdivision must be developed before the county or city will assume the responsibility of maintaining services (water supply, sewage disposal, street maintenance, etc.) to the subdivision.

H. The Importance of Streets and Roads. One of the most important functions of county government in Indiana is the construction and maintenance of the county road system. The planning of new roads and streets merits the most careful consideration in order to produce results that will meet present and future needs.

At least two of the three sections of the typical master plan are directly concerned with planning the road and street system. In general, the thoroughfare plan delineates the location of roads and streets; street classification is also included in this section. Subdivision ordinances usually contain requirements regarding street geometry (width, curvature, grade, sight distance, tangency, etc.), and street structure (surface and base thickness, compaction requirements, etc.).

Typical values concerning street geometry are noted in this manual; typical values concerning street structure are not noted because of the number and variability of the factors effecting street structure.

I. Purpose of the Manual. The purpose of this manual is twofold: (1) to impress upon the reader the urgent need for sound planning and to show what tools are available to facilitate the job of planning and (2) to provide a rough framework, a “model subdivision ordinance,” around which a county can build a subdivision ordinance tailored to its particular needs and circumstances.

It must be emphasized that the values appearing in this manual are only typical minimum values. The model ordinance is quite general—any county wishing to adopt this ordinance would be obliged to initiate a study to determine to what extent the model ordinance suited the prevalent conditions and what changes would have to be made in the ordinance to accommodate these conditions.

J. Plan of the Manual. The plan of the manual is simple; the model ordinance appears on one page and explanatory comments, not of course, a part of the ordinance itself, appear on the facing page. All illustrations are found at the back of the manual.

K. Acknowledgments. The model subdivision ordinance and illustrations contained in this manual were taken from "Suggested Land Subdivision Regulations," a publication of the Housing and Home Finance Agency, Washington, D.C. The author is grateful to the HHFA for their generous assistance. Many of the figures noted as typical values in Section IV, "Regulated Improvements," were taken from "Neighborhood Standards, Land Planning Bulletin No. 3," a publication of the Federal Housing Administration, Indianapolis, Indiana.

Section I—Definitions

- A. Subdivision**—This definition is important because it must clearly determine those activities which will and those which will not be subject to review by the Planning Commission.

In some counties, it may be sufficient to define subdivision as a division of land into three or more lots, but generally, no greater number should be allowed without review. The sale of a single lot from a large tract, for example, may not in itself affect the land pattern of the community sufficiently to warrant public concern. However, if repeated a number of times, the resulting arrangement of land probably will be more haphazard than if the entire tract were planned in advance and subdivided at one time. For comparative purposes, it is noted that both Tippecanoe and Marion Counties generally define "Subdivision" as the division of land into two or more parcels.

B. Streets and Alleys

1. For a more detailed definition of arterial streets and highways, the reader is referred to *A Policy on Arterial Highways in Urban Areas*, American Association of State Highway Officials, 1957, pp. 69-72. The term "arterial streets and highways" as used herein includes all those streets frequently termed "major" and "secondary" thoroughfares, freeways, etc.

SUGGESTED SUBDIVISION REGULATIONS

Section I

DEFINITIONS

For the purpose of these regulations, which shall be known as and may be cited as “----- (name of county) ----- Subdivision Regulations,” certain words used herein are defined as follows:

A. Subdivision

The term “subdivision” means the division of a parcel of land into two (2) or more lots or parcels for the purpose of transfer of ownership or building development, or, if a new street is involved, any division of a parcel of land; provided that a division of land for agricultural purposes into lots or parcels of five (5) acres or more and not involving a new street shall not be deemed a subdivision. The term includes resubdivision and, when appropriate to the context, shall relate to the process of subdividing or to the land subdivided.

B. Street and Alleys

The term “*street*” means a way for vehicular traffic, whether designated as a street, highway, thoroughfare, parkway, throughway, road, avenue, boulevard, lane, place, or however otherwise designated (Fig. 1).

1. *Arterial streets* and *highways* are those which are used primarily for fast or heavy through traffic.

2. *Collector streets* are those which carry traffic from minor streets to the major system of arterial streets and highways, including the principal entrance streets of a residential development and streets for circulation within such a development.

3. *Minor streets* are those which are used primarily for access to the abutting properties.

4. *Marginal access streets* are minor streets which are parallel to and adjacent to arterial streets and highways, and which provide access to abutting properties and protection from through traffic.

5. *Alleys* are minor ways which are used primarily for vehicular service access to the back or the side of properties otherwise abutting on a street.

A. Pre-application Procedure

The purpose of the preapplication procedure is to afford the subdivider an opportunity to avail himself of the advice and assistance of the Planning Commission and to consult early and informally with the commission staff before preparation of the preliminary plat.

The Planning Commission (also known as the "County Planning Commission," the "Area Plan Commission of ---- County" or simply, the "Plan Commission") is the platting authority of the county. Without the official approval of the Planning Commission, the recording of a plat is without legal effect. (See Section 60, Area Planning Act, Chapter 138, Acts of 1957, Indiana General Assembly.)

2. This period of time should not be too long; the Housing and Home Finance Agency (HHFA) suggests 15 days.

B. Procedure for Conditional Approval of Preliminary Plat.

1. The terms "General Subdivision Plan" and "Subdivision Plat" (both used by the Federal Housing Administration either in the past or currently) are synonymous with "Preliminary Plat" and "Final Plat," respectively.

2. The number of copies to be submitted will, of course, be dependent upon the number of agencies needing copies for purposes of review and recording.

The HHFA suggest that this period be from five to ten days in order to allow time for technical review and preparation of a report thereon to the Planning Commission. Tippecanoe County sets this period at 10 days.

Notice of the meeting must be published (perhaps in a newspaper) so that all parties having an interest in the proposed development may appear before the Planning Commission to express their views (see Section 56, Article VI of the Area Planning Act, Chapter 138, Acts of 1957).

3. Tippecanoe County specifies a sum of \$10 plus 25 cents for each lot in the proposed subdivision; Marion County specifies the following fee schedule: for 1 to 50 lots, \$25 plus \$1 per lot; over 50 lots, \$75 plus 50 cents per lot.

Section II

PROCEDURE

A. Pre-application Procedure

1. Previous to the filing of an application for conditional approval of the Preliminary Plat (Preliminary Subdivision Plan, General Subdivision Plan), the Subdivider shall submit to the County Planning Commission plans and data as specified in Section V. This step does not require formal application, fee, or filing of plat with the Planning Commission.

2. Within ----- days the Planning Commission shall inform the Subdivider that the plans and data as submitted or as modified do or do not meet the objectives of these regulations. When the Planning Commission finds the plans and data do not meet the objectives of these regulations it shall express its reasons therefor.

B. Procedure for Conditional Approval of Preliminary Plat

1. On reaching conclusions, informally as recommended in A. above, regarding his general program and objectives, the Subdivider shall cause to be prepared a Preliminary Plat, together with improvement plans and other supplementary material as specified in Section V.

2. ----- copies of the Preliminary Plat and supplementary material specified shall be submitted to the Planning Commission with written application for conditional approval at least ----- days prior to the meeting at which it is to be considered.

3. The written application shall be accompanied by a fee of ----- dollars, plus ----- cents for each lot in the proposed subdivision, payable to the Planning Commission for the checking and verifying of the Preliminary Plat. If the Preliminary Plat is disapproved, the fee shall be returned to the subdivider.

4. The HHFA suggests 30 to 40 days and states that 40 days is preferable to permit consideration of the plat at two meetings (assuming that the Commission meets once a month) if such action is necessary.

C. Procedure for Approval of Final Plat

2. This time period should again be set at five to ten days for reasons previously stated.

3. The number of copies to be consistent with the number of agencies involved as in the required number of copies of the Preliminary Plat.

The HHFA suggests that the Final Plat be submitted six to 12 months after the approval of the Preliminary Plat. This limit is set so as to avoid a situation in which the Planning Commission would have to act on out-dated plans which might be inconsistent with changed conditions.

4. Following (a) review of the Preliminary Plat and other material submitted for conformity thereof to these regulations, and (b) negotiations with the subdivider on changes deemed advisable and the kind and extent of improvements to be made by him, the Planning Commission shall, within ----- days, act thereon as submitted, or modified, and if approved, the Planning Commission shall express its approval as Conditional Approval and state the conditions of such approval, if any, or if disapproved, shall express its disapproval and its reasons therefor.

5. The action of the Planning Commission shall be noted on two copies of the Preliminary Plat, referenced and attached to any conditions determined. One copy shall be returned to the Subdivider and the other retained by the Planning Commission.

6. Conditional Approval of a Preliminary Plat shall not constitute approval of the Final Plat. Rather it shall be deemed an expression of approval to the layout submitted on the Preliminary Plat as a guide to the preparation of the Final Plat which will be submitted for approval of the Planning Commission and for recording upon fulfillment of the requirements of these regulations and the conditions of the Conditional Approval, if any.

C. Procedure for Approval of Final Plat

1. The Final Plat shall conform substantially to the Preliminary Plat as approved, and, if desired by the subdivider, it may constitute only that portion of the approved Preliminary Plat which he proposes to record and develop at the time, provided, however, that such portion conforms to all requirements of these regulations.

2. Application for approval of the final Plat shall be submitted in writing to the Planning Commission at least ----- days prior to the meeting at which it is to be considered.

3. ----- copies of the Final Plat and other exhibits required for approval shall be prepared as specified in Section V, and shall be submitted to the Planning Commission within ----- months after approval of the Preliminary Plat, otherwise, such approval shall become null and void unless an extension of time is applied for and granted by the Planning Commission.

Section III

DESIGN STANDARDS

A. Streets

1. General County Plan is synonymous with the terms "master plan," "comprehensive plan," etc.

2. a. The continuation or projection of minor streets into surrounding areas is neither necessary nor desirable.

3. The main purpose of minor streets is to provide access to abutting property; for reasons of safety, privacy, and convenience, large volumes of fast, through traffic should be discouraged from utilizing minor streets.

Section III

DESIGN STANDARDS

A. Streets

1. The arrangement, character, extent, width, grade, and location of all streets shall conform to the General County Plan and shall be considered in their relation to existing and planned streets, to topographical conditions, to public convenience and safety, and in their appropriate relation to the proposed uses of the land to be served by such streets.

2. Where such is not shown in the General County Plan, the arrangement of streets in a subdivision shall either :

a. Provide for the continuation or appropriate projection of existing principal streets in surrounding areas ; or

b. Conform to a plan for the neighborhood approved or adopted by the Planning Commission to meet a particular situation where topographical or other conditions make continuance or conformance to existing streets impracticable.

3. Minor streets shall be so laid out that their use by through traffic will be discouraged.

4. Where a subdivision abuts or contains an existing or proposed arterial street, the Planning Commission may require marginal access streets (Fig. 2), reverse frontage with screen planting contained in a non-access reservation along the rear property line (Fig. 3), deep lots with rear service alleys, or such other treatment as may be necessary for adequate protection of residential properties and to afford separation of through and local traffic.

5. Where a subdivision borders on or contains a railroad right-of-way or limited access highway right-of-way, the Planning Commission may require a street approximately parallel to and on each side of such right-of-way, at a distance suitable for the appropriate use of the intervening land, as for park purposes in residential districts, or for commercial or industrial purposes in appropriate districts. Such distances shall also be determined with due regard for the requirements of approach grades and future grade separation.

6. Reserve strips controlling access to streets shall be prohibited except where their control is definitely placed in the county under conditions approved by the Planning Commission.

7. Marion County specifies 125 feet as a minimum offset; Tippecanoe County specifies 200 feet.

8. Marion County specifies a 200 foot tangent between reverse curves on arterial streets, and a 100 foot tangent on collector streets.

9. The HHFA suggests 10 degrees; Tippecanoe County specifies a minimum of 200 feet for sight distance.

10. Sixty degrees is a generally accepted minimum.

11. Tippecanoe County specifies a radius of 30 feet at streets intersecting a major street or state highway and, generally, a radius of 20 feet at all other intersections.

12. Standard right-of-way widths and street cross-sections should be included in the county thoroughfare plan. Where such is the case, reference should be made at this point to the thoroughfare plan; where such is not the case, standard right-of-way widths and street cross-sections may be incorporated into the subdivision regulations. The FHA publication "Neighborhood Standards—Land Planning Bulletin No. 3" and the subdivision regulations for Marion County contain sketches of typical local street sections.

The Housing and Home Finance Agency offer the following as reasonable right-of-way widths:

Street Type	Right-of-Way, feet
Arterial -----	80-120
Collector -----	60
Minor, for row houses and apartments-----	60
Minor, other residences -----	50
Marginal access -----	40

The subdivision ordinances of both Marion and Tippecanoe Counties are generally in agreement with the figures listed above.

7. Street jogs with centerline offsets of less than ---- feet shall be avoided (Fig. 4).

8. A tangent at least ---- feet long shall be introduced between reverse curves on arterial and collector streets.

9. When connecting street lines deflect from each other at any one point by more than ----- degrees, they shall be connected by a curve with a radius adequate to insure a sight distance of not less than ---- feet for minor and collector streets, and of such greater radii as the Planning Commission shall determine for special cases.

10. Streets shall be laid out so as to intersect as nearly as possible at right angles and no street shall intersect any other street at less than ----- degrees (Fig. 5).

11. Property lines at street intersections shall be rounded with a radius of ---- feet, or of a greater radius where the Planning Commission may deem it necessary. The Planning Commission may permit comparable cut-off or chords in place of rounded corners.

12. Street right-of-way widths shall be as shown in the General County Plan and where not shown therein shall be not less than as follows:

Street Type	Right-of-Way feet	Street Type	Right-of-Way feet
Arterial -----	—	Minor, for other	
Collector -----	—	residences -----	—
Minor, for row houses and apartments ----	—	Marginal access --	—

13. Half streets shall be prohibited, except where essential to the reasonable development of the subdivision in conformity with the requirements of these regulations, and where the Planning Commission finds it will be practicable to require the dedication of the other half when the adjoining property is subdivided. Whenever a half street is adjacent to a tract to be subdivided, the other half of the street shall be platted within such tract.

14. Such dead-end streets are commonly termed cul-de-sacs and are utilized quite extensively in modern subdivisions.

The Housing and Home Finance Agency cites 400 to 500 feet as commonly permitted maximum lengths of dead-end streets with 80 to 100 feet as generally accepted standards for roadway and property line diameters for turn-arounds, respectively. Tippecanoe County limits the length of dead-end streets to 800 feet with a minimum inside curb diameter of 100 feet for the turn-arounds.

16. Typical maximum grades are as follows:

Street Type	Maximum Per Cent Grade	County
Arterial	6	Tippecanoe
	3-4	Marion
Collector	7	Tippecanoe
	4	Marion
Minor	7	Tippecanoe
	7	Marion
Marginal Access	7	Marion

17. A minimum street grade should be specified in order to facilitate surface drainage; typical values range from 0.3 to 0.5 per cent.

B. Alleys

1. Alleys are usually prohibited in residential areas.

2. Typical values range from 16 to 20 feet with the latter value being quite common. Tippecanoe County requires that alleys be paved over their entire width.

C. Easements

1. Tippecanoe County requires a total width of 20 feet (10 feet from each lot). Marion County requires a total width of 10 feet. The Housing and Home Finance Agency states that at least 12 feet is generally found to be necessary.

14. Dead-end streets, designed to be so permanently, shall not be longer than ---- feet and shall be provided at the closed end with a turn-around having an outside roadway diameter of at least ---- feet, and a street property line diameter of at least ---- feet (Fig. 6).

15. No street names shall be used which will duplicate or be confused with the names of existing streets. Street names shall be subject to the approval of the Planning Commission.

16. Street grades, wherever feasible, shall not exceed the following, with due allowance for reasonable vertical curves:

Street Type	Per Cent Grade	Street Type	Per Cent Grade
Minor -----	——	Arterial -----	——
Marginal access --	——	Collector -----	——

17. No street grade shall be less than ---- per cent

B. Alleys

1. Alleys shall be provided in commercial and industrial districts, except that the Planning Commission may waive this requirement where other definite and assured provision is made for service access, such as off-street loading, unloading, and parking consistent with and adequate for the uses proposed.

2. The width of an alley shall be ---- feet.

3. Alley intersections and sharp changes in alignment shall be avoided but where necessary, corners shall be cut off sufficiently to permit safe vehicular movement.

4. Dead-end alleys shall be avoided where possible, but if unavoidable, shall be provided with adequate turn-around facilities at the dead-end, as determined by the Planning Commission.

C. Easements

1. Easements, across lots or centered on rear or side lot lines, shall be provided for utilities where necessary and shall be at least ---- feet wide.

2. Where a subdivision is traversed by a water course, drainage way, channel, or stream, there shall be provided a storm water easement or drainage right-of-way conforming substantially with the lines of such water course, and such further width or construction, or both as will be adequate for the purpose. Parallel streets or parkways may be required in connection therewith.

D. Blocks

1. Land use is a major factor in determining block and lot size; in general, commercial and industrial uses require different sized blocks and lots than residential uses.

2. The Housing and Home Finance Agency cites the present trend in subdivision design towards larger blocks and points out that long blocks are not only more economical to maintain than are short blocks, but that the long blocks reduce the first costs of land and improvements for streets because of the reduction in the number of cross streets. According to the HHFA, maximum permitted block lengths vary from 1000 to 1800 feet; minimum lengths vary from 400 to 500 feet. Tippecanoe County limits maximum block length to 1050 feet.

3. A walkway is similar to a sidewalk; a walkway, however, accommodates pedestrian movement *across* a block while a sidewalk accommodates movement *around* the perimeter of a block. Tippecanoe County requires walkways 10 feet in width, paved to a width of 5 feet, when block length exceeds 1000 feet and where the blocks are not arranged in the direction of natural traffic flow.

The HHFA recommends that pedestrian walkways be required only where circulation cannot be suitably and practically obtained by other methods. Where walkways have been used, maintenance difficulties have been experienced and residents are somewhat reluctant to use them at night.

E. Lots

2. Where no zoning ordinance is in effect, the subdivision ordinance should set minimum lot dimensions; generally, this is accomplished by specifying minimum lot width, depth, and area. Typical values for lots serviced by public sewers are: 70 foot width, 85 foot depth, minimum lot area of 7500 square feet (Tippecanoe County). The HHFA cites 60 foot depth and a minimum lot area of 6000 square feet as generally accepted minimum values. For subdivisions not serviced by public sewers, the subdivision ordinance should state that increased lot areas may be required in order to satisfy the minimum requirements of the Indiana State Board of Health and any local health requirements which may be applicable. For further information concerning areas not serviced by public sewers and the health requirements pertinent thereto, the reader is referred to Bulletin Number S.E. 8, published by the Indiana State Board of Health, 1330 West Michigan Street, Indianapolis 7, Indiana.

D. Blocks

1. The lengths, widths and shapes of blocks shall be determined with due regard to:
 - a. Provision of adequate building sites suitable to the special needs of the type of use contemplated.
 - b. Zoning requirements as to lot sizes and dimensions.
 - c. Needs for convenient access, circulation, control and safety of street traffic.
 - d. Limitations and opportunities of topography.
2. Block lengths shall not exceed ---- feet, or be less than ---- feet.
3. Pedestrian walkways, not less than ---- feet wide, shall be required where deemed essential to provide circulation, or access to schools, playgrounds, shopping centers, transportation and other community facilities.

E. Lots

1. The lot size, width, depth, shape, and orientation, and the minimum building setback lines shall be appropriate for the location of the subdivision and for the type of development and use contemplated.
2. Lot dimensions shall conform to the requirements of the zoning ordinance.
 - a. Residential lots where not served by public sewer shall not be less than ---- feet wide nor less than ---- square feet in area.
 - b. Depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for the off-street service and parking facilities required by the type of use and development contemplated (Fig. 7).

3. Concerning setback lines in general, Tippecanoe County permits a minimum setback of 20 feet. Marion County permits minimum front setbacks varying from 60 feet to 20 feet, depending on the type of thoroughfare the structure fronts upon.

4. Regulations governing the access of lots must consider fire protection, the layout of utility systems, and garbage and trash collection.

5. The planting screen or buffer zone prevents lots from fronting on traffic arteries and also serves to insulate those houses near the traffic artery from noise, dust, trash, etc. A typical planting screen easement width is 10 feet.

F. Public Sites and Open Spaces

Public open spaces, recreational areas, schools, and the like are important considerations in land development. Ideally, the Master Plan delineates those areas which are to be set aside as public sites; as each new subdivision is proposed, the Planning Commission, by reference to the Master Plan, requires the subdivider to dedicate the necessary land. No subdivider should be required to dedicate more than his fair share; however, where such circumstances arise, the subdivider should receive some sort of money adjustment.

Section IV

REQUIRED IMPROVEMENTS

A. Monuments

Typical materials are concrete or pipe (iron, steel, galvanized or wrought iron). Typical minimum dimensions range from 4 to 6 inches in diameter (or 4 to 6 inches square) for concrete to 1 to 2 inch diameter for pipe. A common minimum length is 36 inches.

3. Corner lots for residential use shall have extra width to permit appropriate building setback from and orientation to both streets.

4. The subdividing of the land shall be such as to provide, by means of a public street, each lot with satisfactory access to an existing public street.

5. Double frontage, and reverse frontage lots, should be avoided except where essential to provide separation of residential development from traffic arteries or to overcome specific disadvantages of topography and orientation. A planting screen easement of at least ----- feet, and across which there shall be no right of access (Figs. 3 and 7), shall be provided along the line of lots abutting such traffic artery or other disadvantageous use.

6. Side lot lines shall be substantially at right angles or radial to street lines.

F. Public Sites and Open Spaces

1. Where a proposed park, playground, school or other public use shown in a General County Plan is located in whole or in part in a subdivision, the Planning Commission may require the dedication or reservation of such area within the subdivision in those cases in which the Planning Commission deems such requirements to be reasonable.

2. Where deemed essential by the Planning Commission, upon consideration of the particular type of development proposed in the subdivision, and especially in large-scale neighborhood unit developments not anticipated in the General County Plan, the Planning Commission may require the dedication or reservation of such other areas or sites of a character, extent, and location suitable to the needs created by such development for schools, parks, and other neighborhood purposes.

Section IV

REQUIRED IMPROVEMENTS

A. Monuments

1. Monuments shall be placed at all block corners, angle points, points of curves in streets, and at intermediate points as shall be required by the County Engineer. The monuments shall be of such material, size, and length as may be approved by the County Engineer.

B. Utility and Street Improvements

2. Another method of linking dwelling type with one of these standards is by specifying that areas with certain dwelling or family densities fall under a particular standard; for instance, those areas containing less than say, two dwellings or families per acre might come under standard C; those areas with more than two dwellings or families per acre but less than some upper limiting number, might come under standard B, and so on.

b. The figure used here would vary, probably between 50 and 70 feet, depending upon the value determined for minimum lot width—see Section III E.

C. Schedules for Required Utilities and Street Improvements

General—As noted by the HHFA, proper utilities and street improvements are essential elements in the creation and maintenance of stable and attractive residential areas.

This section of the subdivision ordinance should be drafted in collaboration with the county engineer or some other qualified engineering agency; it must be remembered that the figures listed below are *only typical minimum values*.

The word “per” which appears in the ordinance refers to established legislation or standards; for example, “Public water per standard plan . . . as approved by the County Engineer.” If no standards exist, physical details and dimensions may be specified in the ordinance.

1 and 2. Many counties have no county engineer and the job of approving plans for utilities and street improvements must be done by the county planning commission or the county commissioners. In such cases, the aid of a qualified engineer should be sought in determining the adequacy of such plans and their conformity to the General County Plan.

3 and 4. The requirements for adequate water supply and waste disposal should be inserted here. If standards for water supply and waste disposal are set forth in other existing legislation, reference to those standards should be made here.

6. a. 80 ft. right-of-way, two 18 ft. pavements, 5 ft. sidewalks. The width of the separation strip may vary over a wide range but the strip should not be less than 4 ft. wide to provide efficient separation of traffic.

b. 60 ft. right-of-way, 42 ft. pavements with 5 ft. sidewalks.

c. 60 ft. right-of-way, 20 ft. pavements, 5 ft. sidewalks.

B. Utility and Street Improvements

1. Utility and street improvements shall be provided in each new subdivision in accordance with the standards and requirements described in the following schedules.

2. The standards and specifications for each general type of development shall be as follows:

a. For *apartment, row house*, and similar multifamily residential types, improvements to be in accord with STANDARD A.

b. For *one-family* detached dwellings with typical lot widths of ---- feet, or less, improvements to be in accord with STANDARD B.

c. For *country homes* with typical lot widths greater than "b" above, improvements to be in accord with STANDARD C.

d. For *commercial, industrial* and other types, as determined by the Planning Commission with the advice of the County Engineer.

C. Schedules of Required Utilities and Street Improvements STANDARD

A B C

- | | | | |
|---|---|---|--|
| x | x | x | 1. Grading and centerline gradients: per plans and profiles approved by County Engineer. |
| x | x | x | 2. Storm sewer system and other drainage improvements: per plans approved by County Engineer. |
| x | x | | 3. Public water per ----- |
| x | x | | 4. Public sewer per ----- |
| x | x | x | 5. Arterial streets: cross sections in accordance with the General County Plan and as determined by the County Engineer and the County Planning Commission |
| | | | 6. Collector streets: |
| x | x | | a. ---- ft. r.o.w., two ---- ft. pavements, ---- ft. separation strip, ---- ft. sidewalks per ---- |
| x | x | | b. ---- ft. r.o.w., ---- ft. pavement, ---- ft. sidewalk per ---- |
| | | x | c. ---- ft. r.o.w., ---- ft. pavement, ---- ft. sidewalk per ---- |

7. a. 60 ft. right-of-way, 36 ft. pavements, 5 ft. sidewalks.
 b. 50-60 ft. right-of-way, 26 ft. pavements, 4 ft. sidewalks.
 c. 50 ft. right-of-way, 20 ft. pavements, 4 ft. sidewalks.
8. 40 ft. right-of-way, 18 ft. pavement for one-way operation, 26 ft. pavement for two-way operation, 4 ft. sidewalks.

11. 18 in. high, 5-6 in. top, 6-8 in. base; it is advantageous to utilize reinforcing steel in curbs to prevent displacement due to soil settlement.

12. a. 12 in. high, 6 in. top, 18 in. gutter, 6 in. thick, 24 in. base.
 b. 12 in. high, 6 in. top, 17 in. radius, 14 in. gutter, 6 in. thick, 24 in. base.

13. 9 in. high, 3 in. deep, 6 in. thick, 24 in. base.

14, 15, and 16. Because the factors effecting pavement design vary widely from one area to another, no typical minimum values for base course thickness, wearing surface thickness, or pavement thickness will be presented. When considering criteria for minimum pavement design, the need for professional engineering guidance is obvious. When considering construction practices, some subdivision ordinances refer to appropriate sections in *Standard Specifications for Road and Bridge Construction and Maintenance*, a publication of the State Highway Department of Indiana. It should be noted that arterial streets require a thicker pavement than do collector streets. It may be advantageous, therefore, to vary the required pavement thickness with the street classification; for example, number 16 might be stated as follows:

16. Pavement:
 - a. For arterial streets, ----" P.C.C. per ----
 - b. For collector streets, ----" P.C.C. per ----
 - c. For minor streets, ----" P.C.C. per ----
17. 6 in.
18. 4 in.
19. 2½ in. caliber, 40-50 ft. apart.

7. Minor streets:
- x a. ---- ft. r.o.w., ---- ft. pavement, ---- ft. sidewalk per ----
- x b. ---- ft. r.o.w., ---- ft. pavement, ---- ft. sidewalk per ----
- x c. ---- ft. r.o.w., ---- ft. pavement, per ----
8. Marginal access streets:
- x x a. ---- ft. r.o.w., ---- ft. pavement, ---- ft. sidewalk per ----
- x x b. ---- ft. r.o.w., ---- ft. pavement, ---- ft. sidewalk per ----
- x x x 9. Streets along development boundaries and streets connecting development with existing improved street system; Cross sections as determined by County Engineer and County Planning Commission
- x x x 10. Alleys: paved full width per ----
- x x 11. Curb: ----" x ----" x ----", battered, P.C.C., (Portland Cement Concrete), per ----
12. Curb and gutter:
- x x a. ----" x ----" x ----" P.C.C., per ----
- x b. ----" x ----" rolled, P.C.C. per ----
- x 13. Valley gutter: ----" x ----" P.C.C. per ----
14. Pavement base:
- x x x a. ----" gravel per ----
- x x x b. ----" crushed stone per ----
- x x c. ----" P.C.C. per ----
15. Wearing surface:
- x x a. ----" asphaltic concrete plant mixed per ----
- x x b. double bituminous surface treatment per ----
16. Pavement:
- x x x a. ----" P.C.C. per ----
- x x x 17. Driveways: ----" P.C.C. per ----
- x x x 18. Sidewalks: ----" P.C.C. per ----
- x x 19. Street trees: ----" caliber, ---- ft. to ---- ft. apart per ----
- x x x 20. Seeding of planting strips: per ----
- x x x 21. Street name signs: at all intersections, per ----

Section V

PLATS AND DATA

The requirements of this section should be in agreement with the procedures of the Planning Commission (Section II).

When drafting this section, it should be remembered that many agencies, both private and governmental, are involved either directly or indirectly in the processes of planning and building subdivisions; in many cases, these agencies require the same information as the Planning Commission. Insofar as practicable, the requirements of the Planning Commission should be drawn up to coincide with similar requirements of other agencies.

B. Plats and Data for Conditional Approval

1.

d. Such information is usually available in city and/or county records.

PLATS AND DATA

A. Pre-application Plans and Data

1. General Subdivision Information shall describe or outline the existing conditions of the site and the proposed development as necessary to supplement the drawings required below. This information may include data on existing covenants, land characteristics, and available community facilities and utilities; and information describing the subdivision proposal such as number of residential lots, typical lot width and depth, price range, business areas, playgrounds, park areas, and other public areas, proposed protective covenants and proposed utilities and street improvements.

2. Location Map shall show the relationship of the proposed subdivision to existing community facilities which serve or influence it. Include development name and location; main traffic arteries; public transportation lines; shopping centers; elementary and high schools; parks and playgrounds; principal places of employment; other community features, such as railroad stations, airports, hospitals and churches; title; scale; north arrow; and date.

3. Sketch Plan on topographic survey shall show in simple sketch form the proposed layout of streets, lots, and other features in relation to existing conditions. The sketch plan may be a free-hand pencil sketch made directly on a print of the topographic survey. In any event the sketch plan shall include either the existing topographic data listed in B-1 below or such of these data as the Planning Commission determines is necessary for its consideration of the proposed sketch plan.

B. Plats and Data for Conditional Approval

1. Topographic Data required as a basis for the Preliminary Plat, in B-2 below, shall include existing conditions as follows except when otherwise specified by the Planning Commission:

- a. Boundary lines: bearings and distances.
- b. Easements: location, width and purpose.
- c. Streets on and adjacent to the tract: name and right-of-way width and location; type, width and elevation of surfacing; any legally established center-line elevations; walks, curbs, gutters, culverts, etc.
- d. Utilities on and adjacent to the tract: location, size and invert elevation of sanitary, storm and combined sewers;

location and size of water mains; location of gas lines, fire hydrants, electric and telephone poles, and street lights; if water mains and sewers are not on or adjacent to the tract, indicate the direction and distance to, and size of nearest ones, showing invert elevation of sewers.

e. Ground elevations on the tract, based on a datum plane approved by the County Engineer: for land that slopes less than approximately 2 per cent show spot elevations at all breaks in grade, along all drainage channels or swales, and at selected points not more than 100 feet apart in all directions; for land that slopes more than approximately 2 per cent either show contours with an interval of not more than 5 feet if ground slope is regular and such information is sufficient for planning purposes, or show contours with an interval of not more than 2 feet if necessary because of irregular land or need for more detailed data for preparing plans and construction drawings.

f. Subsurface conditions on the tract, if required by the Planning Commission: location and results of tests made to ascertain subsurface soil, rock and ground water conditions; depth to ground water unless test pits are dry at a depth of 5 feet; location and results of soil percolation tests if individual sewage disposal systems are proposed.

g. Other conditions on the tract: water courses, marshes, rock outcrop, wooded areas, isolated preservable trees one foot or more in diameter, houses, barns, shacks, and other significant features.

h. Other conditions on adjacent land: approximate direction and gradient of ground slope, including any embankments or retaining walls; character and location of buildings, railroads, power lines, towers and other nearby nonresidential land uses or adverse influences; owners of adjacent unplatted land; for adjacent platted land refer to subdivision plat by name, recordation date and number, and show approximate per cent built-up, typical lot size, and dwelling type.

i. Photographs, if required by the Planning Commission: camera locations, directions of views and key numbers.

j. Zoning on and adjacent to the tract.

k. Proposed public improvements: highways or other major improvements planned by public authorities for future construction on or near the tract.

2. Typical preferred scales are 100 or 200 feet to 1 inch.

4. Data Sheet 40, revised April, 1959, a part of Land Planning Bulletin Number 3, published by the FHA, presents useful information on the drafting of protective covenants.

1. Key plan showing location of the tract.

m. Title and certificates: present tract designation according to official records in office of appropriate recorder; title under which proposed subdivision is to be recorded, with names and addresses of owners, notation stating acreage, scale, north arrow, datum, benchmarks, certification of registered civil engineer or surveyor, date of survey.

2. Preliminary Plat (Preliminary Subdivision Plan, General Subdivision Plan) shall be at a scale of ---- feet to one (1) inch or larger. It shall show all existing conditions required above in B-1, Topographic Data, and shall show all proposals including the following:

a. Streets: names; right-of-way and roadway widths; approximate grades and gradients; similar data for alleys, if any.

b. Other rights-of-way or easements: location, width and purpose.

c. Location of utilities, if not shown on other exhibits.

d. Lot lines, lot numbers and block numbers.

e. Sites, if any, to be reserved or dedicated for parks, playgrounds, or other public uses.

f. Sites, if any, for multi-family dwellings, shopping centers, churches, industry or other nonpublic uses exclusive of single-family dwellings.

g. Minimum building setback lines.

h. Site data, including number of residential lots, typical lot size, and acres in parks, etc.

i. Title, scale, north arrow, and date.

3. Other Preliminary Plans. When required by the Planning Commission the Preliminary Plat shall be accompanied by profiles showing existing ground surface and proposed street grades, including extensions for a reasonable distance beyond the limits of the proposed subdivision; typical cross sections of the proposed grading, roadway and sidewalk; and preliminary plan of proposed sanitary and storm water sewers with grades and sizes indicated. All elevations shall be based on a datum plane approved by the County Engineer.

4. Draft of Protective Covenants whereby the subdivider proposes to regulate land use in the subdivision and otherwise protect the proposed development.

C. Plats and Data for Final Approval

1. Typical scales are 50 or 100 feet to 1 inch.

C. Plats and Data for Final Approval

1. Final Plat shall be drawn in ink on tracing cloth on sheets ---- inches wide by ---- inches long and shall be at a scale of ---- feet to one (1) inch or larger. Where necessary, the plat may be on several sheets accompanied by an index sheet showing the entire subdivision. For large subdivisions the Final Plat may be submitted for approval progressively in contiguous sections satisfactory to the Planning Commission. The Final Plat shall show the following :

- a. Primary control points, approved by the County Engineer, or description and "ties" to such control points, to which all dimensions, angles, bearings, and similar data on the plat shall be referred.
- b. Tract boundary lines, right-of-way lines of streets, easements and other rights-of-way, and property lines of residential lots and other sites; with accurate dimensions, bearings or deflection angles, and radii, arcs, and central angles of all curves.
- c. Name and right-of-way width of each street or other right-of-way.
- d. Location, dimensions and purpose of any easements.
- e. Number to identify each lot or site.
- f. Purpose for which sites, other than residential lots, are dedicated or reserved.
- g. Minimum building setback line on all lots and other sites.
- h. Location and description of monuments.
- i. Names of record owners of adjoining unplatted land.
- j. Reference to recorded subdivision plats of adjoining platted land by record name, date and number.
- k. Certification by registered land surveyor certifying to accuracy of survey and plat.
- l. Certification of title showing that applicant is the land owner.
- m. Statement by owner dedicating streets, rights-of-way and any sites for public uses.
- n. Title, scale, north arrow, and date.

2. Cross Sections and Profiles of streets showing grades approved by the County Engineer. The profiles shall be drawn to County standard scales and elevations and shall be based on a datum plane approved by the County Engineer.

3.

b. This bond (or check) is commonly known as the performance bond and serves to safeguard the County from having to complete the installation of required improvements at County expense.

4. This bond (or check) is commonly known as the maintenance bond; its purpose is self-explanatory. A reasonable period of time should be specified, two to three years being common.

3. A Certificate by the County Engineer certifying that the subdivided has complied with one of the following alternatives:

a. All improvements have been installed in accord with the requirements of these regulations and with the action of the Planning Commission giving Conditional Approval of the Preliminary Plat, or

b. A bond or certified check has been posted, which is available to the County, and in sufficient amount to assure such completion of all required improvements.

4. A bond or certified check in an amount determined by the Planning Commission insuring that for a period of ---- years after the required improvements have been accepted for public maintenance, the subdivider will, at his own expense, make all repairs to the improvements which may become necessary by reason of improper workmanship or materials.

5. Protective Covenants in form for recording.

6. Other Data: Such other certificates, affidavits, endorsements, or deductions as may be required by the Planning Commission in the enforcement of these regulations.

Section VI

VARIANCES

A. Hardship

Where the Planning Commission finds that extraordinary hardships may result from strict compliance with these regulations, it may vary the regulations so that substantial justice may be done and the public interest secured; provided that such variation will not have the effect of nullifying the intent and purpose of the General County Plan or these regulations.

B. Large Scale Development

The standards and requirements of these regulations may be modified by the Planning Commission in the case of a plan and program for a new town, a complete community, or a neighborhood unit, which in the judgment of the Planning Commission provide adequate public spaces and improvements for the circulation, recreation, light, air, and service needs of the tract when fully developed and populated, and which also provide such covenants or other legal provisions as will assure conformity to and achievement of the plan.

C. Conditions

In granting variances and modifications, the Planning Commission may require such conditions as will, in its judgment, secure substantially the objectives of the standards or requirements so varied or modified.

Illustrations

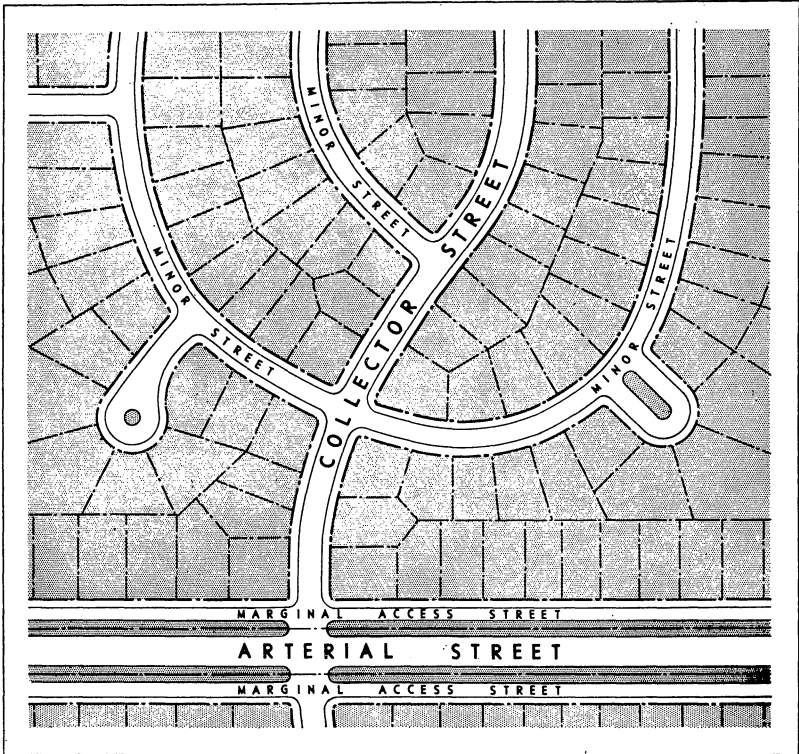


Fig. 1. Subdivision Street Types.

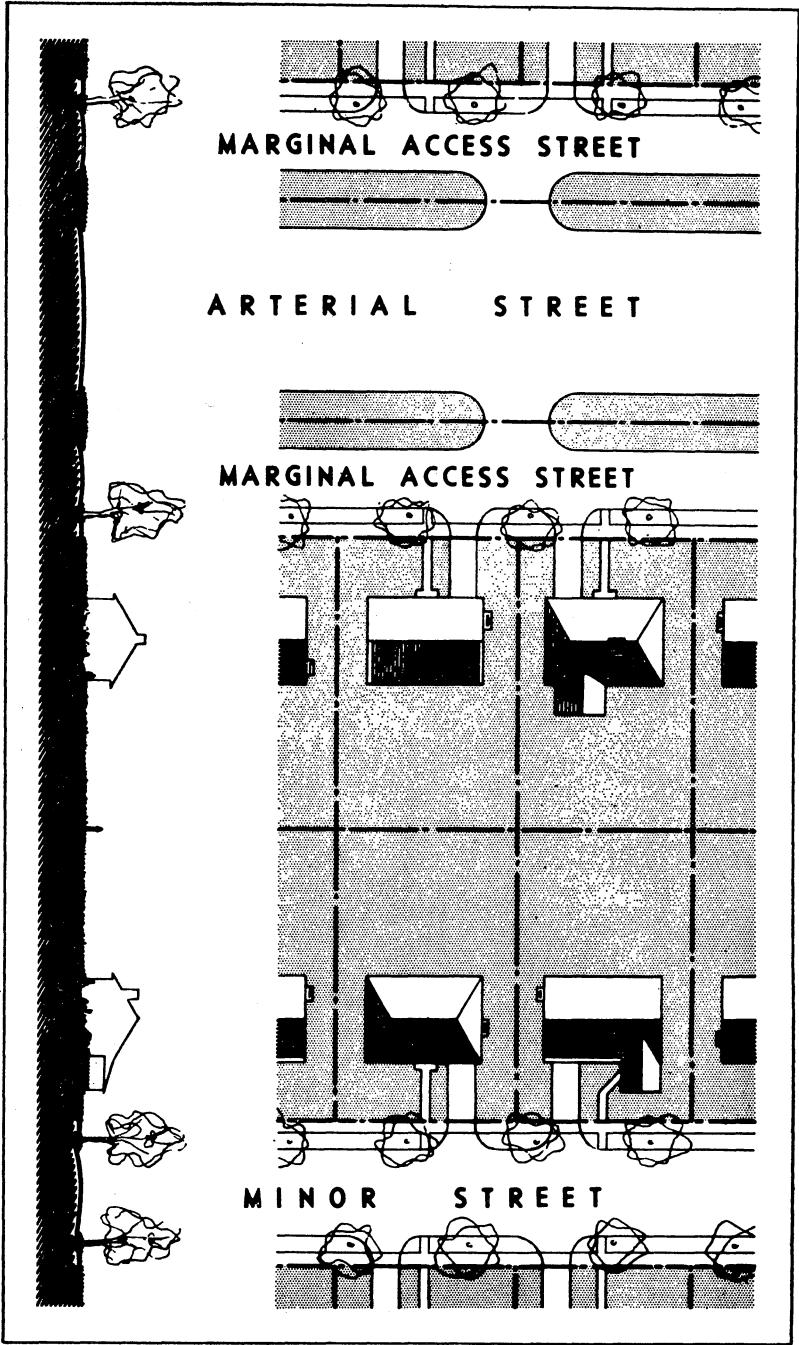


Fig. 2. Marginal Access Street.

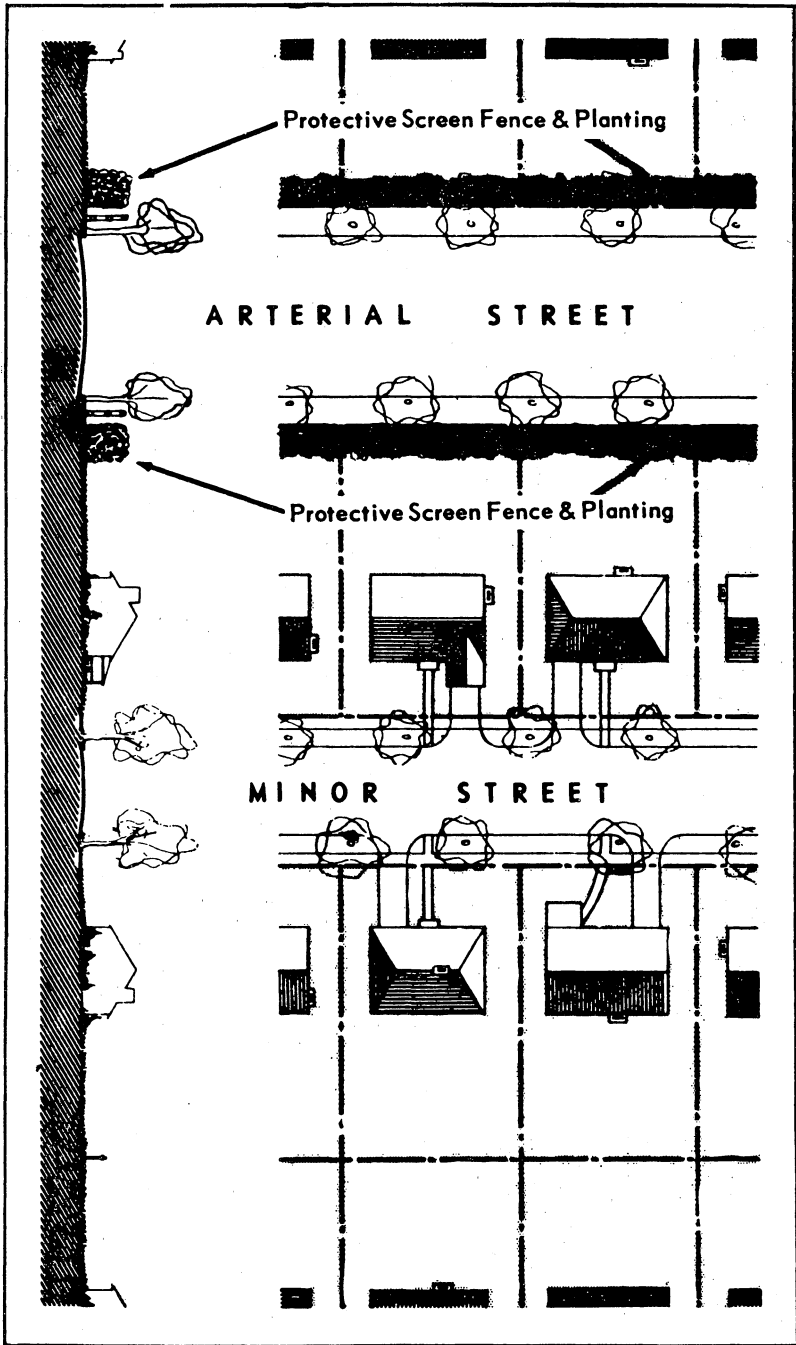


Fig. 3. Reverse Frontage With Protective Screen Easement.

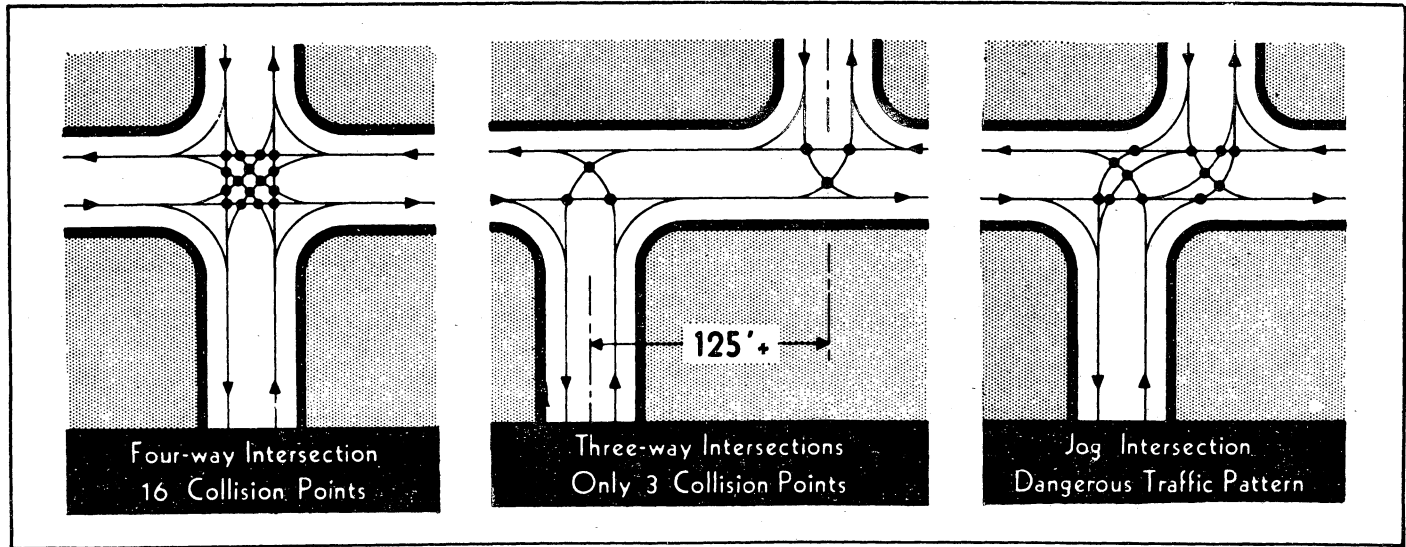


Fig. 4. Street Intersection Types and Resulting Traffic Patterns.

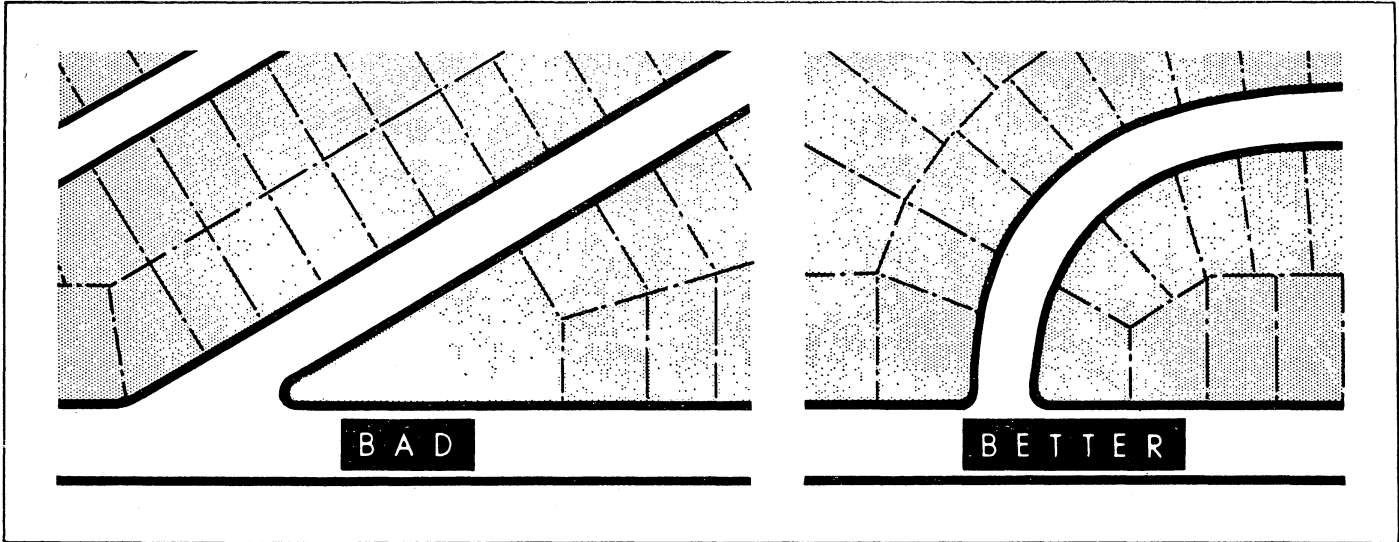


Fig. 5. Streets Should Intersect at Nearly Right Angles.

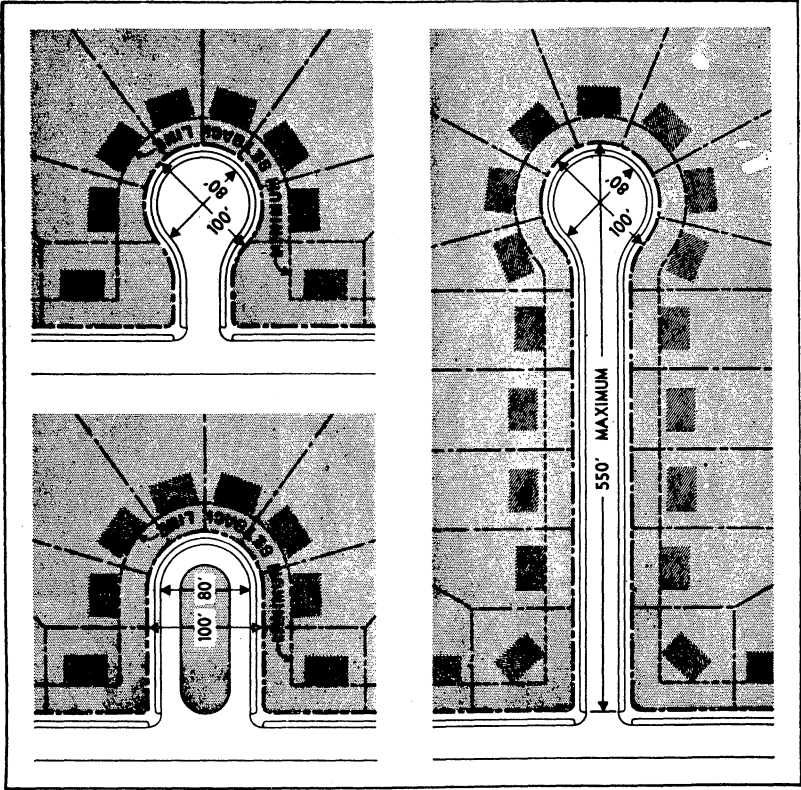


Fig. 6. Long and Short Dead-End Streets With Turn-Arounds.

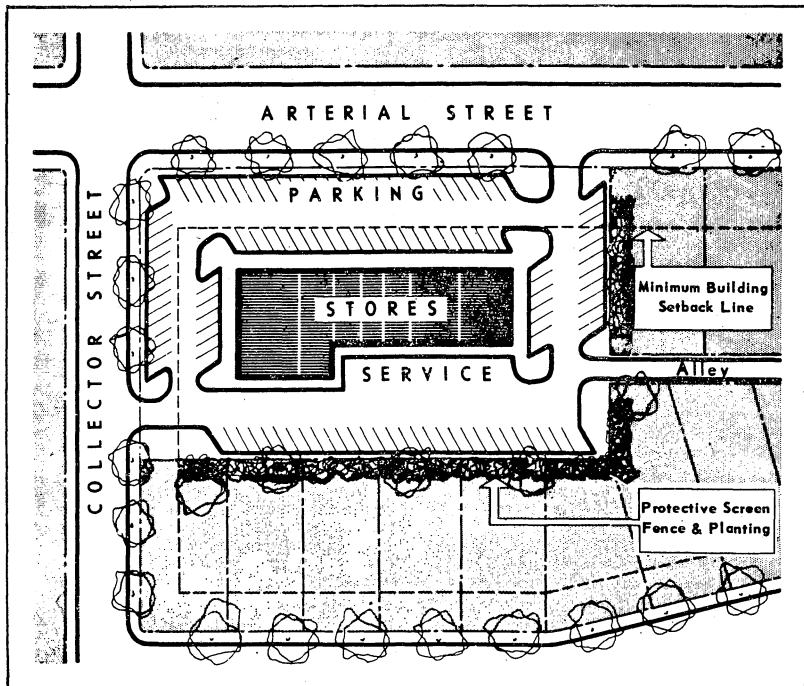


Fig. 7. Typical Shopping Center.

THE SCHOOLS OF ENGINEERING
AND THE DIVISION OF MATHEMATICAL SCIENCES
AT PURDUE UNIVERSITY

Graduate degrees are offered in the fields of aeronautical and engineering sciences, in agricultural, chemical, civil, electrical, industrial, mechanical, metallurgical, and nuclear engineering, and in mathematical sciences.

The research activities in these fields are conducted as a part of the program of graduate instruction with students participating under the direction of their professors. As the engineering profession faces increasing responsibilities for dealing with problems whose solutions lie at the frontiers of knowledge, the programs of graduate research and education in the engineering schools are increasingly concerned with the fundamentals of the physical sciences and mathematics.

L. County Subdivision Control: Model
Ordinance with Discussion
County Highway Series - No. 3

INDIANA LTAP

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