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SUBDIVISION DESIGN -- SOME NEW DEVELOPMENTS*

The basic source book on regulation of land subdivision in the United States was published in 1941. This book -- Subdivision Regulations, by Professor Harold W. Lautner -- analyzed nearly 300 regulations. The collection included superseded as well as current ordinances and some that had never been adopted, which were put in "on the theory," the author says, "that an idea is an idea wherever it may be found."

The book is still a gold mine of ideas. That it is of contemporary value is a little surprising when it is remembered that the material for it was collected during 1937 and 1938. Most of it is now at least 20 years old. Looking back, we cannot avoid the conclusion that the period before 1940 was one of exploration of new territory. Ideas brought forth in this period and enacted into ordinances were original and experimental.

In the period since then, many of these ideas have been consolidated and extended to apply to new situations. For instance, the requirement that neighborhood parks be platted and dedicated is an extension of the idea of mapped, dedicated streets -- though it is not yet so firmly established in law. Big gains have been made in procedure, an outstanding example the requirement of bond to guarantee the installation of improvements.

In analyzing recent subdivision ordinances to find out what the new ideas are in the realm of design, we have come to another unavoidable conclusion: the ten years before 1940 were much more prolific than the 17 years since have been. Nevertheless, some new developments of considerable merit have taken place in recent years. To make a general statement about them we can say that for the most part they reflect the impact of construction on a large scale. Of these, the design regulations that deal with the physical relation between residential subdivisions and arterial highways are probably the most advanced in technique and detail. Other provisions, which concern business and industrial subdivisions and new towns, for instance, are rudimentary and perhaps experimental.

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This report is limited mainly to actual subdivision ordinance provisions. At the end is a short bibliography of recommended books and articles on subdivision design.

Relation to Traffic Arteries

Emphasis on control of subdivision borders characterizes several new subdivision developments. Probably the most important of these are provisions that regulate the location and orientation of lots adjacent to arterial streets and highways. These provisions have two indispensable requirements: (1) There shall be no direct vehicular access from residential lots to the arterial street or highway; (2) residential lots shall be separated from the arterial street by a strip of land wide enough to constitute a buffer.

Although highways built with federal highway funds will be limited-access, many other highways are and will continue to be open to encroachment by bordering land uses. These roads cover thousands of miles along the outskirts of urban areas where most residential building takes place. Because a highway of any sort offers an unparalleled opportunity for the merchant to make a direct visual appeal to potential customers, highway parcels are highly desired for business use. Consequently, pressures on local officials to place highway-bordering lands in commercial zones will continue to be strong.

For instance, a market analyst testified in a recent public hearing in a Kentucky community that there is a tendency "to zone highways commercially their entire length."* And from states as widely separated as Utah and Missouri, planning commissions have reported that the proponents of commercial zoning claim that highway lands are unfit for residential use and hence should be zoned for business.

Experience with strip commercial zoning shows that it is uneconomic, distracting to the motorist, and likely to be unsightly. Many studies have demonstrated these facts. Outstanding are the following: Land Acquisition and Control of Adjacent Area (Bulletin No. 55. Highway Research Board, 2101 Constitution Avenue, Washington 25, D. C. 1952. 90 cents); Roadside Protection (American Automobile Association, Pennsylvania Avenue at 17th Street, Washington 6, D. C. 1951. \$1.50); and various articles in Traffic Quarterly (Eno Foundation for Highway Traffic Control, Saugatuck, Connecticut), especially "The Effect of Roadside Features on Traffic Accidents" in the April 1952 issue; and "Access Control Will Relieve our Highway Strangulation," July 1955.

With freeways, the advantages to the merchant of being located on the highway are less direct. Nevertheless, certain businesses such as motels,

*The fact is, in spite of poor design, many miles of land along highways are being developed residentially. A "free" pavement seems to be an important inducement.

gasoline stations, and drive-in restaurants, which offer services needed by the motoring public, seek such sites. And in addition, other establishments, both commercial and industrial, recognize the advertising advantages of being seen from a freeway.

The argument that lots adjacent to highways are not suitable for houses because of traffic danger, fumes, noise, and glare from street lights and headlights, is reasonable IF: access is not restricted and an adequate buffer is not provided. However, it loses all weight if these requirements are met -- assuming, of course, that comprehensive planning considerations indicate that residential zoning is desirable. Therefore, the proper design of streets and residential lots in relation to traffic arteries is a critical factor.

In some communities, subdivisions have been kept away from major thoroughfares without specific authorization from the enabling act or the subdivision ordinance. A leading case upholding both the validity of the particular requirements and the authority to impose them is Ayres v. City Council of City of Los Angeles, Supreme Court of California, in Bank, June 14, 1949, 207 P.2d 1 (reviewed in the ASPO NEWSLETTER for September 1949).

In this case, the plat under litigation consisted of 13 acres in the Westchester District of Los Angeles. The district itself contained 3,023 acres and was cut by two important boulevards. The planning commission attached four conditions to its approval of the plat. Petitioner objected to the four conditions, two of which were:

1. That a 10-foot strip abutting Sepulveda Boulevard be dedicated for the widening of that highway.
2. That an additional 10-foot strip along the rear of the lots be restricted to the planting of trees and shrubbery for the purpose of preventing direct ingress and egress between the lots and Sepulveda Boulevard.

The property was subdivided so that lots backed up on Sepulveda Boulevard, which has a width of 110 feet in parts of it. The proposal for a planting strip was in keeping with the general policy for the area.

The court gave a well reasoned opinion from which the following statements have been selected because of their applicability to the present discussion.

Questions of reasonableness and necessity depend on matters of fact. They are not abstract ideas or theories. In a growing metropolitan area each additional subdivision adds to the traffic burden. It is no defense to the conditions imposed in a subdivision map proceeding that their fulfillment will incidentally also benefit the city as a whole. Nor is it a valid objection to say that the conditions contemplate future as well as more immediate needs. Potential as well as present population factors affecting the subdivision and the neighborhood generally are appropriate for consideration.

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. . . both the statutory provisions and the local law indicate that the subdivision design and use should conform to neighborhood planning and zoning requirements. Here the greater than average depth of the lots minimizes the land loss and street improvement cost. In fact, it may be said that the petitioner's position would seem to be greatly improved by this type of subdivision and its related requirements in conformity with neighborhood planning and zoning.

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It is the petitioner who is seeking to acquire the advantages of lot subdivision and upon him rests the duty of compliance with reasonable conditions for design, dedication, improvement and restrictive use of the land so as to conform to the safety and general welfare of the lot owners in the subdivision and of the public.

In recent years, more and more local governments have made explicit what was implicit in the authority and practice of the Los Angeles city planning commission at that time. This has been done by the adoption of specific subdivision ordinance provisions. Of considerable influence has been the manual published by the Housing and Home Finance Agency, Suggested Land Subdivision Regulations (1952). The particular section on reverse frontage and access control in it reads:

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

Arterial streets and highways are defined as "those which are used primarily for fast or heavy traffic." A footnote explains that: "This is meant to include all those frequently termed major and secondary thoroughfares, freeways, etc., which normally need to be defined in and for the purpose of the general community plan, but not necessarily for the purpose of these regulations."

Marginal access streets are defined as "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."

The buffer-access control idea can be put into effect in several ways. The major ones are analyzed in an article in the April 1956 issue of Ontario Planning (published by Community Planning Branch, Ontario

Department of Planning and Development, 454 University Avenue, Toronto 2, Ontario, Canada). This article, titled "Residential Subdivision Design along Major Urban Arterial Roads," divides peripheral lots into two main groups, depending on orientation, and lists the advantages and disadvantages of each.

All techniques, the article points out, share the following advantages, although not to the same degree:

- Prevent direct vehicular access to arterial road.
- Reduce points of intersection between local street system and artery.
- Separate residences from rapidly moving traffic.

But each technique has distinctive advantages and disadvantages:

EXTERIOR ORIENTATION -- Lots face outward toward arterial road.

1. Marginal Access Streets

Advantages:*

Disadvantages:

Streets serve only one tier of lots.

Vehicular movement along access street may be confusing to arterial traffic, especially at night.

Applicability, without engineering modifications, is limited to situations where difference in elevations between arterial and access streets is slight.

INTERIOR ORIENTATION -- Lots face inward toward the center of the tract; reverse frontage.

2. Unusually Deep Lots (peripheral lots abutting artery)**

*In addition to those common to all techniques, two other advantages of the marginal access street come to mind. In a situation where an unusually wide highway right-of-way exists, the marginal access street can be placed within it, provided the highway authority approves this arrangement. It is proposed in the thoroughfare plan of Carleton, Michigan, for instance, to establish 180-foot rights-of-way for this purpose. Marginal access streets can be built even in developed areas. They are one of the most effective methods of converting a land-service into a limited access road. The other advantage of the marginal access street is that a good wide space separation between houses and the highway results, willy-nilly.

**An alley may also be appropriate in this situation, according to HHFA's Land Subdivision Regulations.

Advantage:

Minor streets within subdivision serve two tiers of lots.

Disadvantages:

Lots, to create an effective buffer, must be deeper than ordinarily considered desirable.

Since lots are in private ownership, rear portion might not be kept up in appearance.

House should be designed so that sleeping rooms are as far from arterial traffic as possible.

3. Park Strip Buffer (implies public ownership)

Advantages:

Optimum shielding of residential area (because of width of strip and plantings).

Minor streets within subdivision serve two tiers of lots.

Peripheral lots of normal depth.

If buffer is maintained like a park, the value of adjoining lots will be enhanced.

Disadvantages:

Lineal public park might be relatively costly to maintain. However, since it will not be used for utility lines or for recreation, screen planting that needs little care will reduce maintenance costs.*

Quite a few subdivision ordinances adopted recently contain the wording in the HHFA manual (quoted on page 4). Others add further requirements or considerations. For instance, the New Rochelle, New York (1957) ordinance states that in addition to the suggested treatment for lots that abut an arterial street, there shall be ". . . due regard for the requirements of future approach grades and grade separations."

The purpose of special design requirements for properties along arterial roads is emphasized in the Butler County, Ohio (1957) subdivision ordinance:

Land abutting highways or principal thoroughfares shall be platted with the view of making the lots, if for residential

*In the United States, park boards are reluctant to take on the responsibility of maintaining and policing lineal parks.

use, desirable for such use by cushioning the impact of heavy traffic on such trafficways; and with the view also of minimizing interference with traffic on such trafficways, as well as the accident hazard.

On the other hand, procedure is emphasized in the almost identical subdivision regulations of Alameda (1956) and Los Altos (1953), California:

When conditions require that the rear or side lines of any lots border a major highway or parkway, the subdivider may be required to execute and deliver to the City an instrument which allows the city to prohibit the right of ingress and egress to such lots, across the sidelines of such highway or parkway. When the rear or sidelines of any lots border any freeway, state highway or parkway, the subdivider may be required to dedicate, fence, and improve a planting strip adjacent thereto with approved landscaping; provided, however, no such dedication, improvement or fencing shall be required when the abutting freeway, state highway or parkway has been independently fenced and improved.

The choice of design technique will depend on a number of factors, such as topography, design of local street system, and whether the authority exists to require the developer to dedicate an access-control park strip. Consideration should be given to the efficacy of whatever technique is chosen. It is questionable, for example, whether a strip only ten feet wide will be much of a protective buffer between a residential neighborhood and an interstate freeway, even if heavily planted.

Width of Streets that Adjoin Future Business Areas

Frequently, though not always, subdivision ordinances require that streets along business frontages be made wider to accommodate greater traffic. Lautner, in Subdivision Regulations, mentions a number of cases where dimensions are given or where authority is granted to the planning commission to require greater width under these circumstances.

Emphasis in the two examples chosen for this report is on the prevention of congestion caused by vehicles emerging from parking spaces.

The widths of streets adjacent to areas designed, proposed or zoned for non-residential use, may be increased as deemed necessary by the Planning Board to assure the free flow of through traffic without interference from parked or parking cars, and to provide adequate and safe parking space.

New Rochelle, New York

Streets at Business Centers: In front of areas zoned or designed for commercial use, the street

width and the roadway width shall be increased on the side or sides on which the property for commercial use is located by a merging lane at least fifteen feet wide. This is to insure the free flow of traffic without interference by vehicles entering or leaving parking areas. This is not a parking space requirement and shall in no way affect or diminish requirement by zoning ordinance or otherwise for off-street parking facilities; neither shall fulfillment of this requirement and its acceptance by the Plan Commission be deemed approval or endorsement of any change in zoning necessary for such commercial use.

Oak Lawn, Illinois (1956)

Business and Industrial Subdivisions

In view of the tremendous number of new shopping centers and planned industrial districts that have been built in the last decade, it is surprising to find relatively little in the way of special subdivision provisions for them. Most provisions dealing with nonresidential developments are fairly general, leaving to the planning agency the authority to approve necessary details.

For instance, the subdivision ordinance of Grant County, Indiana, makes specific reference to possible business or industrial use, but within a general frame of reference:

The /planning/ commission shall give careful study to the preliminary plat, taking into consideration the requirements of the community and the best use of the land to be subdivided, together with its prospective character, whether residential, business or industrial. Attention shall be given to:

- (a) Street width, arrangements, and circulation.
- (b) Surface drainage and sanitation.
- (c) Lot sizes and arrangement.
- (d) Such neighborhood and community requirements as those of parks, school and playground sites, and main thoroughfare widths and locations.

Nothing on size of lots in industrial and commercial subdivisions has been found, though it is not uncommon to see the proviso that block sizes shall be adequate to the purpose:

Blocks for Industrial or Commercial Use: Blocks intended for industrial or commercial use shall be designed specifically for such purpose, with adequate space set aside for off-street parking and loading and meet minimum ordinance requirements for parking.

Oak Lawn, Illinois

Purpose of the next provision, which appears in the Carleton, Michigan (1956) regulations is to encourage development of a planned shopping center:

Platting for Commercial Purposes. Platting of lots for commercial purposes should be avoided in favor of the comprehensive design of a balanced shopping center providing for off-street parking and loading facilities.

Where an over-all design for a business section is submitted for an area of three (3) acres or more, the Planning Commission may avoid the platting of individual lots. In such case, the development plans for the aforementioned business development shall be submitted to the Planning Commission for consideration and approval prior to the filing of the application for building permits.

Specific regulations for streets and alleys in nonresidential subdivisions are a new development. In both Alameda and Los Altos, California, a service road may be required, similar to the marginal access street recommended for residential subdivisions abutting arterial roads:

When lots proposed for commercial or industrial uses front on any major or secondary street or highway, the subdivider may be required to dedicate and improve a service road to provide ingress and egress to and from such lots, or in lieu thereof; if approved by the Planning Board, the subdivider may dedicate for public use and improve an area adjacent to such lots for off-street parking purposes.

Rear alleys to be used by delivery trucks are an important factor in keeping streets free from congestion. Alleys may be required in commercial and industrial subdivisions, even though an ordinance prohibits them in residential subdivisions.

Alleys: Paved rear alleys not less than . . . wide will be required in all business and industrial districts of subdivisions except where special conditions make alleys impracticable; in such cases adequate off-street loading space, suitably surfaced, shall be provided. Dead-end alleys shall be avoided, or if provided, include a turnaround.

Oak Lawn, Illinois

Large-Scale Developments

Residential developments that are designed around a series of central green areas (instead of a street system) require special consideration because the lots do not necessarily front on streets and the houses and apartments usually are not placed squarely on such lots, and

typical light and air dimensions do not apply. One such development is described in the Anne Arundel County, Maryland regulations (1954) as a "superblock," which is described as:

A planned block of exceptionally large size in both length and width, with access to interior building sites (usually for multiple housing of the garden apartment type) being provided by cul-de-sac streets, parking areas, walks or looped service drives branching inward from surrounding streets. One or more open spaces intended for joint use are usually included within a superblock.

On a still larger scale, such a development may constitute a neighborhood or in some circumstances a whole new town. The following provision from the Carleton, Michigan ordinance takes into account this possibility. (It appears in the section in the ordinance on "variances," rather than under "design requirements.")

Large-scale Developments. These regulations may be modified by the Planning Commission in the case of a plan for a new town or a complete community or neighborhood unit, with a building and development program which, in the judgment of the Planning Commission, provides and dedicates adequate public open spaces and improvements for the circulation, recreation, education, light, air and service needs of the tract when fully developed and populated. The Planning Commission shall ascertain that the proposed project will constitute a desirable and stable development, and it will be in harmony with development in adjoining areas; and that the plans for such proposed development includes such covenants, restrictions, financial guarantees and other legal assurances to guarantee that the plan will be followed and will be fully achieved.

Preservation and Protection of Natural Features

To persons interested in preserving scenic areas, no matter how small in scale, and to those who believe that they enhance value as well as livability, some of the new subdivision regulations will be encouraging, indeed.

In former farm country or in arid sections of the country, a stand of trees may be the difference between monotony and a view. In such cases, a clause, "Valuable large trees shall be preserved whenever possible" (Oaklawn, Illinois), may be enough to achieve that difference.

Embracing more situations is the following provision taken from the Carleton, Michigan subdivision regulations:

Due consideration shall be given to preserving outstanding natural features such as scenic spots, watercourses or exceptionally fine groves of trees. Dedication to and acceptance by a public agency is usually the best means of assuring their preservation.

And in a slightly different version, the subdivision regulations of Briarcliff Manor, New York (1956) say:

Existing features which would add value to residential development, such as trees, watercourses and falls, historic spots, and similar irreplaceable assets, shall be preserved, insofar as possible, through harmonious design of the subdivision.

Where the landscape is distinguished by watercourses, more specific regulations may be desirable:

Natural Features. At the discretion of the Plan Commission, streets or roadways along streams, rivers, ravines, bluffs or similar other natural features, shall be at least 50 feet distant from each edge of such natural feature and the intervening land shall be dedicated to the City or County of Waukesha, or said streets may be located one lot depth away from said natural features, and proof shall be submitted that the City or County of Waukesha shall have been given an opportunity to acquire the land between the roadway and the stream, river, ravine or other similar natural feature prior to the final plat approval.

Waukesha, Wisconsin (Proposed 1953)

Where there are a number of lakes or bays and inlets in the undeveloped sections of a city or county and when residential development is likely to take place on their shores, as much thought needs to be given to development of water areas as to that of land surfaces. The following provision is aimed at control of dredging and filling -- a control of great importance where artificial peninsulas are built out into the water, creating lots for houses and channels for boating.

Water areas in proposed subdivisions shall be reviewed by the Planning Board as to proper design and improvement, form and dimensions, and relationship to street and lot design and proposed and existing land uses in the proposed subdivision and adjoining areas.

Plans for water areas shall include the following which shall be subject to Health Department and Engineering Department approval:

(1) Scale plan of water areas, indicating proposed depths of water; normal water levels; slopes and types

of bank retention; types, locations, dimensions, and grades of water conduits.

(2) Data as to storm drainage area and runoff volumes under normal and extreme conditions, water area capacity for storm drainage storage, details of water level controls and pumping, methods of flushing and filling said water areas.

(3) Data as to water quality, methods of controlling insects, water growths and vegetation.

(4) Proposed method of maintenance and operation of water areas, including control points and other features and methods of access.

(5) Proposed restrictions and covenants governing the use of such water areas.

(6) Proposed easements or rights-of-way to be dedicated for storm drainage or other public purposes.

Alameda, California

Provision for lot lines extending into bodies of water is made in the following, which is taken from the regulations of Briarcliff Manor, New York:

If a tract being subdivided contains a water body, or portion thereof, lot lines shall be so drawn as to distribute the entire ownership of the water body among the fees of adjacent lots. The Planning Board may approve an alternative plan whereby the ownership and responsibility for safe maintenance of the water body is so placed that it will not become a Village responsibility. No more than 25 per cent of the minimum area of a lot required under the Zoning Ordinance may be satisfied by land which is under water.

Subdivision and Street Names

Everyone is familiar with the common requirement that new street names must not duplicate or cause confusion with the names of existing streets. More recently similar provisions have been written that apply to names of subdivisions.

A. The proposed name of the subdivision and proposed street names shall not duplicate or too closely approximate, phonetically, the name of any other subdivision or street in the area covered by this ordinance.

B. House or building numbers shall conform to the system established for the City of Raleigh.
Raleigh, North Carolina (1956)

Similar requirements appear in the subdivision regulations of Fairfax County, Virginia (1954) and Columbia, Missouri (1955).

A simple device that will help achieve consistency in naming streets is a schedule of street types, such as the one that follows. Such a schedule should, of course, follow the street naming system in effect in the rest of the city or county.

Names and Numbers. No street names will be used that will duplicate or be confused with the names of existing or platted streets. Streets that are now or will eventually be continuations of existing or platted streets shall be called by names of the existing or platted streets. All new streets shall be named in the following manner:

| <u>General Direction</u> | <u>Long</u> | <u>Short (less than 1,000')</u> |
|--------------------------|-------------|---------------------------------|
| North and South | Streets | Places |
| East and West | Avenues | Courts |
| Diagonal | Roads | Ways |
| Curving | Drives | Lanes or Circles |

House numbers shall be assigned in accordance with the house numbering system now in effect in the Village of Carleton, Carleton, Michigan

Land Unsuitable for Subdivision

Subdivision regulations that prohibit residential construction on land subject to flooding have been discussed in other reports. (See especially PLANNING ADVISORY SERVICE Information Report No. 53, Flood Plain Regulation, and Flood Problems and Their Solution Through Urban Planning Programs, by Robert Wilson Siler, Jr., Tennessee State Planning Commission; 1955.) Two of the numerous more recent provisions are included here because of the importance of this new development.

Land, which the Planning Commission has found to be unsuitable for subdivision due to flooding, bad drainage, and other features likely to be harmful to the safety, welfare, and general health of the future residents, and which the Planning Commission considers inappropriate for subdivision, shall not be subdivided, unless adequate methods are formulated by the developer and approved by the City Engineer and the Planning Commission.

Portsmouth, Virginia (1956)

Flood Plain

1. If any portion of the land within the subdivision is subject to inundation or flood hazard by storm water, such fact and portion shall be clearly indicated on the final plat by a prominent note on each sheet of such map whereon any such portion shall be shown. Natural watercourses shall be indicated on the final plat in like manner
2. Land subject to flooding and land deemed by the Planning Commission to be otherwise uninhabitable shall not be platted for residential occupancy nor for such other uses as may increase danger to health, life or property, or aggravate the flood hazard.
Carleton, Michigan

Other kinds of inappropriate lands are singled out in the subdivision ordinance of Marple Township, Pennsylvania (1954)

Land subject to hazards to life, health or property, such as quarry land, open ditches, etc., shall not be subdivided for residential purposes until all such hazards have been eliminated or unless adequate safeguards against such hazards are provided by the subdivision plan.

SELECTED BIBLIOGRAPHY ON SUBDIVISION DESIGN

- BUILDING TRAFFIC SAFETY INTO RESIDENTIAL DEVELOPMENTS.** National Committee for Traffic Safety, 20 North Wacker Drive, Chicago 6. Undated. 40 pp., illus. \$1. An excellent pamphlet containing standards intended to produce safety for pedestrians and drivers in new subdivisions.
- PLANNING RESIDENTIAL SUBDIVISIONS.** 1954. 127 pp., illus. \$3.50.
- NEIGHBORHOOD PLANNING.** 1957. 157 pp., illus. \$4. V. Joseph Kostka. Available from the author, School of Architecture, University of Manitoba, Winnipeg 9. Two excellent references on subdivision design.
- SUBDIVIDING FOR TRAFFIC SAFETY.** Harold Marks. Traffic Quarterly, July 1957. Eno Foundation for Highway Traffic Control, Saugatuck, Connecticut. A factual article on the relation between street design and accidents. Eighty-six subdivision tracts were studied during a five-year period. Highly recommended.
- SUBDIVISION REGULATIONS -- An Analysis of Land Subdivision Control Practices.** Harold W. Lautner. Public Administration Service, 1313 East 60th Street, Chicago 37. 1946. 346 pp., tables. (Out of print.) Although not up to date, this is still a valuable source of information on subdivision control. It is the only comprehensive analysis of the provisions contained in municipal and county subdivision regulations.
- SUGGESTED LAND SUBDIVISION REGULATIONS.** Housing and Home Finance Agency. U. S. Government Printing Office, Washington 25, D. C. 1952. 65 pp., illus. 45 cents. An indispensable guide. Contains an excellent introduction on the necessity for subdivision regulation, as well as model regulations and samples of protective covenants and preliminary and final plats.
- UTILITY EASEMENT GUIDE.** Michigan Bell Telephone Company, 118 Clifford, Detroit, and the Detroit Edison Company, 2000 Second Avenue, Detroit 26. 1954. 13 pp., illus. Recommended practices in planning easements in subdivisions.