

SELECTION OF BUILDING SITES FOR CENTRAL OFFICES

1. GENERAL

1.01 This section covers factors to be considered in the selection of central office building sites that will allow the developing of buildings with well balanced elements of utility, economy and appearance.

1.02 This section is revised and reissued to include additional recommendations and important considerations with respect to offices located in cities which have been designated as critical target areas and/or which serve important military or atomic energy installations. Arrows are used to indicate changes throughout the text.

1.03 Although the information contained in this section is applicable in general to sites for other types of telephone buildings, factors to be considered specifically for such buildings will be outlined in separate sections. Certain special considerations in connection with the location of and the selection of sites for garages and garage work centers are contained in Section H20.222, H50.015 of Bell System Practices, Checking Routine, Garages and Garage Work Centers, Project Planning and Design. Recommendations regarding the selection of an Accounting office location and site are contained in section one, "Selection of an Accounting Office Location and Site" of the notes entitled "Accounting Space and Building Requirements." This section of the notes was issued to all Chief Engineers and Comptrollers by letter of July 30, 1953. The defense considerations recommended in Paragraph 3.19 are equally important and applicable to the location of non-equipment space as well as equipment space. The locations of storerooms and garages are important in planning for disaster operations. It is to be expected that all available Company vehicles and supplies will be needed in the event of a disaster whether natural (such as storms, earthquakes or floods) or otherwise (such as enemy air attacks, sabotage, conflagrations or explosions). Storerooms or garages in target area cities are included in defense planning as possible locations for emergency switchboard positions, rendezvous points for off-duty Company employees returning to work after a disaster, Company operating centers for directing restoration work, etc.

1.04 The time factor inherent in acquiring land, with the attendant processes of negotiation, title search, survey, zoning and subsoil tests, should be recognized.

1.05 Experience has indicated the importance of selecting a definite plot sufficiently early in the project schedule to permit ample time for the preparation of surveys, test borings, test pits, etc. On the other hand, it is usually not desirable that land for a new location be acquired years in advance of its need because of the probability of changes in outlook as to future development and other similar changes during the period the property is held. To avoid possible inflation of prices, investigations of sites and purchase of property are carried out on a confidential basis.

1.06 Generally speaking, the economical location of the central office site is determined from the indications of the fundamental plan.

1.07 Where new central offices are contemplated, early consideration should be given to the location of the wire center. This will greatly facilitate the search for real estate, particularly in those cases where there is little vacant property available or where modification of zoning regulations may be necessary. For a number of reasons it may not be practicable to secure a suitable site at the theoretical wire center, in which case a selection is usually made by weighing the outside plant considerations for each available lot against the advantages the proposed lot may offer as a site for the new building.

1.08 The proper size of a lot is of equal importance to the matter of its location. In addition to being properly located, the lot should be of liberal size to provide for orderly expansion to the ultimate building and for unforeseen contingencies. The area of the site required to accommodate a given central office building is determined largely by consideration of the equipment space required in the new building ultimately. The space required for other than equipment purposes and the indications of the fundamental plan as to possible changes in the exchange boundaries are also important factors to be considered. In determining the

→ suitability of available sites it is highly desirable to have in hand a well considered tentative floor plan layout for the ultimate building. This layout would embody an estimate of the space units which must be housed, the relationship these bear to each other and the extent to which each one must be enlarged eventually.

↳ 1.09 In general, the acquisition of a liberal amount of land affords opportunities for orderly expansion to accommodate growth and unforeseen contingencies, provides ample light and air, reduces fire exposure, permits flexibility in arranging the building on the lot and allows for appropriate landscaping. In this connection, the need for employee parking facilities, particularly in residential sections, is not overlooked.

1.10 Corner locations and sites partly or entirely surrounded by streets have certain advantages over interior locations such as:

- (a) Greater opportunities for favorable public attention.
- (b) Increased natural light and air.
- (c) Decreased fire exposure.
- (d) Better facilities for bringing in outside cables.
- (e) Opportunities for flexibility in providing electric, water, gas and drainage services to the building.
- (f) More flexibility in arranging entrances to the building.

1.11 In the case of building sites for community dial offices, consideration is given to available locations on secondary streets in order to obtain maximum economy in these small offices; possible fire hazards on adjacent property, however, are to be minimum.

→ 1.12 The selection of central office building sites in cities which are likely targets for an enemy attack or near installations which are likely to be subject to attack or sabotage, require special considerations in addition to the usual factors. Some of the more important considerations are outlined in Paragraph 3.19. It is not suggested that the selection of building sites be based primarily on defense considerations, however, it is suggested that defense factors be included along with the usual considerations that are normally applied.

2. PLOT SIZES

2.01 While the size of a plot selected for a given project is usually dependent on numerous factors, it is desirable as mentioned under Paragraph 1.09 that the lot area be liberal for the structure involved, particularly in the case of an interior plot. Except for community dial office buildings in outlying districts, experience indicates that a minimum length (or depth) for a plot is about 150 feet, and for the larger offices 200 feet is preferable. Plot widths are usually determined by considering the fundamental layout plans with a view of obtaining generous surrounding light and air space, driveway and parking facilities. For a community dial office building, a plot of about 50 feet by 100 feet generally is sufficient.

3. FACTORS TO BE CONSIDERED

3.01 Deed, zoning and building code restrictions, fire regulations and possible reaction from neighbors are limiting factors.

→ 3.02 In purchasing new lots consideration is given to the marked tendency on the part of many municipalities and other governing authorities, such as County Planning Commissions, to restrict the use to which property within certain boundaries may be put, the heights of buildings, the proportion of the total lot area which may be occupied by the completed building including requirements for certain minimum setback distances from the property lines to the building, and to require, in certain instances, the provision of off-the-street parking facilities in connection with the building.

↳ 3.03 The theoretical ultimate wire center serves as a guide in determining the general vicinity considered most desirable for a central office location. In many instances, however, because of lack of sites, excessive high prices for those that are available, or for other reasons, it may be advisable to acquire land at some distance from the designated center. The search for such sites is preferably directed toward that portion of the area which offers the best potential prospects for future development.

3.04 It is suggested that comparisons be made of all properties to be considered with regard to:

- (a) Propriety of location with respect to wire center of central office area, i.e., distance removed, etc.
- (b) Cost of plots.
- (c) Cost of building at each site.
- (d) Outside plant considerations at each site.

- 3.05 Proposed or possible future civic improvements which might affect the lot by changes in the width or grades of the sidewalk or street are considered.
- 3.06 Probable future change in the character or development of the neighborhood is important.
- 3.07 The proximity of unfavorable surroundings productive of dirt, noise and vibration, such as a heavily traveled street intersection, a traction line, a noisy or dirty industrial plant, or general lack of neighborhood cleanliness is taken into account. Clean and quiet surroundings are most desirable.
- 3.08 The proximity of electric power installations such as electric traction lines, power generating stations or substations, the ground potentials of which may impair transmission, is an important factor. This condition is usually more serious in outlying districts where ground potentials may be higher and tend to extend over wider areas due to the absence of subsurface piping, etc.
- 3.09 Exposure to fire or other hazards on adjacent property are to be minimum. From the standpoint of eliminating gas leaking into buildings, particularly from high pressure mains and especially into community dial offices, either following along Telephone Company underground cable duct or permeating through the soil, selection of a site not in proximity to gas mains is important. If it is impractical to select a site away from gas piping, a plot is chosen, if possible, so that the underground cable duct into the building does not cross gas lines. This insures against gas leaking through ducts over and above plugging and sealing the ducts at the building.
- 3.10 Drainage conditions of the site and surrounding area with particular reference to possible flooding due to inadequate sewers, overflowing streams or other abnormal surface water conditions are not overlooked.
- 3.11 Availability and capacities of water and gas mains, electric distribution systems and storm and sanitary sewers are evaluated.
- 3.12 Natural and established grades and levels are compared with reference to their effect on both the proposed floor elevations and the cost of the proposed building, including any excess excavation or fill for grading.
- 3.13 Subsurface conditions as they affect the excavation, foundation and basement floor level with respect to grade, also as regards subsurface conduit, gas and water lines are important. Particular attention is given to the bearing capacity of the soil, to subsurface water conditions and to the presence and character of rock as related to cost of sheet piling, pumping or caisson foundations. Data are usually available in offices of local civic authorities. If, however, such data are inadequate or if subsurface conditions are otherwise in doubt, it may be desirable, if possible, to obtain an option on the property until test pits or borings may be made.
- 3.14 Sites having bed rock at or near grade usually possess maximum stability against quake movement.
- 3.15 The size and shape of the plot with regard to future extensions to the building and the desirability of landscaping treatment are factors.
- 3.16 The influence of surroundings upon the architectural design of the building are considered from the standpoint of developing favorable public reaction and, also, for the suitability of a public business office if one is contemplated.
- 3.17 The general situation with respect to comfort and safety to employees, parking facilities for employees' automobiles and accessibility to public transportation is important.
- 3.18 Plots located near aircraft landing areas and airways, which might require night lighting together with painting for daytime marking or limitations on height of structures, preferably are not selected for central office building sites when other properties are available.
- 3.19 In designated critical target area cities, areas serving atomic energy installations, key military installations or other locations as deemed necessary, selection of building sites to the extent practical in accordance with the following factors:
- (a) Dispersion Plans
- (1) Consideration of dispersed locations to the extent practicable with sufficient separation so that the chance of severe damage to more than one building is greatly lessened in the event of an enemy air attack, sabotage or other disasters. Separation of five miles or more is desirable, however, separation to a lesser degree is better than none at all.

➤ (2) Consideration of areas away from installations that are likely to be sabotaged or which are likely targets in the event of an enemy attack.

(3) Consideration of locations away from defense plants, air bases, oil refineries, etc, which constitute likely targets or which are hazards from the standpoint of explosions and fires.

(b) Fire Storm and Conflagration Potentials

(1) Consideration of residential areas where the building density is less than 20 per cent and likely to remain this way by reasons of zoning laws, etc.

➤ (2) Consideration of locations away from highly congested areas where most of the buildings are not of fire-resistant construction. Such areas may burn in a

➤ fire storm or conflagration as a result of an enemy attack through the initiation and spread of fires from an atomic, high explosive or incendiary attack.

(3) Consideration of the particular part of the more congested areas where the surrounding structures are predominantly of fire resistant construction.

(4) Consideration of areas free from places where explosives and flammable materials are manufactured, stored or used.

(5) Consideration of areas with wide streets that would serve as possible fire breaks.

➤ 3.20 Careful check of these factors should be made by the Building Engineer before making commitments.