

## COST OF UTILITIES AND STREET IMPROVEMENTS

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paved roadway, 5½-ft. planting strips, combined concrete gutters and curbs, and 5-ft. sidewalks. Alleys are omitted. There are 24 houses in each block, making length of block 504 ft. and width 160 ft. There are approximately 42 such blocks in the townsite. Filtration plant and pumping station is assumed, two miles from townsite; sewage disposal plant, one mile away; and electric transmission line and gas trunk line each three miles long. Assumed that it will not be necessary to build electric plant or gas plant.

TABLE 1—ESTIMATE OF ASSUMED TOWNSITE

Item	Cost Per House	Percent of Total Cost	Including Overhead
House .....	\$3,000.00	54.85	64.0
Land .....	336.00	6.14	7.2
Lot improvements .....	232.64	4.25	4.9
Street improvements .....	463.29	8.48	9.9
Water system .....	190.15	3.48	4.1
Electrical system .....	26.33	0.48	.6
Gas system .....	101.18	1.85	2.1
Sewers—Storm and sanitary .....	202.48	3.70	4.3
House connections .....	138.50	2.53	2.9
	\$4,690.57		
Engineering and supervision at 10% .....	469.06	8.58	
	\$5,159.63		
Interest at 6% .....	309.58	5.66	
	\$5,469.21	100.00	100.0

It will be noted house is 64% of total cost, including distribution of overhead; land with lot improvements, 12.1%; street improvements, 9.9%; water, electrical, gas and sewer improvements, with house connections, 14%. Engineering, supervision and interest charges, which are distributed in these statements, are 14.24% of the whole.

Figures shown in Table 2 are cost per lineal front foot of side yard and per lineal foot depth of front and rear yards. Costs per lineal foot lot frontage and depth would be greater, as cost of house meters, shut-off valves, etc., would be included in this cost.

TABLE 2—COST OF UTILITIES AND STREET IMPROVEMENTS PARALLEL TO YARD SPACE

	Cost for Length Parallel to 20-ft. Side Yard	Cost Per Lin. Front Foot of Side Yard	Cost for Length Parallel to 50-ft. Front and Rear Yard	Cost per Lin. Foot Depth of Front and Rear Yard
Street improvements ..	\$178.60	\$ 8.93	\$ 55.00	\$1.10
Water system .....	36.40	1.82	13.00	.26
Electrical system ....	4.20	.21	.00	.00
Gas system .....	17.40	.87	6.50	.13
Sewers — Storm and sanitary .....	54.00	2.70	17.00	.34
House connections ..	.00	.00	32.50	.65
	\$290.60	\$14.53	\$124.00	\$2.48

Results in Table 2 show that if space between houses on main streets is increased one foot, cost of utilities and street improvements per house is increased \$14.53. If front or rear yard is increased one foot in depth, cost of street improvements and utilities per house is increased \$2.48. These comments and utilities per house is increased \$2.48. These computations bring out the interest fact that in so far as street improvements and utilities are concerned, 5.86 ft. can be added to depth of front or rear yard for same cost of adding one foot to width of side yard.

Assuming for sake of comparison a lot 42 ft. front by 80 ft. deep, the combined cost of land and lot improvements is \$568.64, or \$13.54 per front foot. (See Table 1). If, for this lot, costs of main and minor street improvements and utilities are combined and quoted as cost per lineal front foot

of side yard parallel to yard space, they equal \$20.73 per lineal foot.

If the cost of land and lot improvements be combined with cost of utilities and street improvements on main street parallel to side yard, the cost per lineal front foot of side yard is \$28.07. Assuming rents based on 10% return, rent for each front foot of side yard is 23 cents per month, of which 12 cents is for street improvements and utilities, and 11 cents is for land and lot improvements. This is the cost of air and sunshine, or \$4.60 per family per month.

While no sweeping conclusions can be made, because we have discussed only one assumed townsite, it is interesting to note that cost per lot for "street improvements and utilities" is \$1,121.93, compared with \$568.64 for "land and lot improvements," the latter being 50% of former. If, however, we compare cost per front foot of those elements of street improvements and utilities directly related to size of lot, with cost per front foot of lot improvements and land, they are respectively \$20.73 and \$13.54, the latter being 65% of the former.

## Some Suggestions

Following are some suggestions on economical design and construction:—

Use contour streets.

Grade lots and streets at same time.

Design street widths and pavements to meet demands of traffic.

Compare cost of reducing grades with cost of pavements suitable for steeper grades.

Do not make sidewalks unnecessarily wide.

Use combined gutter and curb.

Study relative merits of alleys and easements.

Study carefully location of utilities.

Use combined trenches where suitable.

Substitute direct sewer connections for catch basins.

Use combination manholes.

Connect roof leaders to gutters.

Omit storm sewers near summits of streets.

Install house connections at one time.

Carry house wire services on brackets attached to rear of house.

## RULES OF PRACTICE FOR THE ESTABLISHMENT OF STREET WIDTHS AND THEIR SUBDIVISIONS

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**S**TREETS should be divided into the following four classes, based upon their immediate and future purpose and service: Main, secondary, minor and special service streets.

Main streets will form the principal routes for the immediate or future use of large volumes of mixed traffic moving between important centres within a community or from community to community.

Secondary streets will be those of lesser traffic importance, supplementing the main streets and serving to distribute mixed traffic to and from the latter and between centres of lesser importance.

Minor streets will be those laid out for purely local traffic use or to facilitate the subdivision or development of property.

Special service streets will be those designed and laid out for special purposes and restricted to special uses.

## The General System

The location, width and subdivision, and also the grade, of main and secondary streets should be based upon their present and future value as traffic carriers. They will form the primary net of the street system and should be planned in advance of urban improvements as the controlling elements in the general development of the transportation and other circulatory facilities of the city and the adjacent region, and consideration should be had in their layout for the economic development of those facilities. At least a primary scheme of zoning for use should precede or accompany their layout.