

PROGRESS REPORT

RESIDENTIAL MARKET ANALYSIS

PART IV

COSTS TO THE COMMUNITY;

CONTROLS BY THE COMMUNITY

TABLE OF CONTENTS

	<u>Page</u>
Preface	1
Zoning	3
Vacant Land	4
Infrastructure	8
Reducing Infrastructure Costs	9
Study 1: Effects of Clustering and Increased Densities on Open Space and Costs	11
Clustering	12
Open Space	13
Costs	14
1. Single Family Development	15
2. Group Housing	16
Study 2: Effects of Subdivision Regulations and Engineering Specifications on Costs	18

PREFACE

In September 1962, the Regional Plan Association* sounded the following warning:

The most important element in the New York Metropolitan Region's land policy is the composite of 509 municipal zoning ordinances.... These local laws call for a much larger residential lot size than ever before. The average lot size in tracts subdivided in the past decades had been rising fast, but the average lot size required in the remaining vacant land in the Region is even higher. Each one-family home to be built on the Region's vacant land will be on a lot averaging two-thirds of an acre under present zoning....

Recent and projected development follows an entirely new pattern which Regional Plan has called "spread city". It is not a true city because it lacks centers, nor a true suburb because it is not a satellite of any city, nor is it truly rural because it is loosely covered with houses and urban facilities.

In the spread city decreed by present zoning, people will be living and working too far from each other to use public transportation or to walk to most places they want to go, or even to car-pool. This adds to the spread by increasing the roads and highways needed. It also limits everyone to one mode of transportation and increases the time and cost of bringing people together.

Choice of housing types and lot sizes is restricted by present zoning. Young people starting adult life and older people whose children have grown cannot find suitable housing in suburbs restricted to one-family homes on large lots. Families in their middle years appear to prefer smaller lots than are allowed by present zoning.

Costs of spread-city, especially for transportation, will be much higher than costs making full use of the older cities.... Municipalities will be more than ever inclined to indulge in "fiscal zoning" trying to zone out tax users (families with children) and zone in tax providers (industry). Tax considerations, in short, will play an expanding role in land development decisions, weakening the chance of planning for the best possible use of the land, unless the sources of local government revenue are modified....

* - Spread City, (New York, N. Y., Regional Plan Association, 1962) pp. 2-3

By spreading and scattering.... we fail to build communities....
The Region's new form, in sum, will give most of us neither the
benefits of the city nor the pleasures of the countryside -- if the
present policies and trends continue.

It is now six years since these words were written; the trend towards spread-city
has continued, even accelerated. The following studies, which deal with certain
specific aspects of zoning and subdivision regulations, should be read in the light
of the Regional Plan Association's warning.

Recommendations based on these studies are incorporated into the overall recommenda-
tions of the Residential Market Analysis, "A Housing Program for Nassau and Suffolk
Counties", found elsewhere in this volume.

ZONING

Although Nassau County municipalities have been zoned for decades, (Hempstead since 1928) zoning has come only recently to some of the towns on Long Island; the five eastern towns all adopted their first zoning ordinances between 1957 and 1959.

Since adoption of the ordinances in both counties, numerous zoning changes and amendments have been made. Two trends have been conspicuous in these changes:

1. Zoning changes requiring larger lots, thereby lowering the residential density. For example, Huntington rezoned all of its large undeveloped residential acreage in two stages, one in 1947, the other in 1953). Where, formerly, single homes could be built on lots of one-quarter acre or less, after the zoning was changed, lots of one-half, one, and two acres were required, depending on the particular location of the property. Huntington also prohibited new apartment construction. (There has been a recent change to enable the construction of a public housing project).
2. Zoning changes resulting in pockets of commercial or industrial establishments in residential areas. Examples of this were cited in the "Profile Area"* studies of Regis Park, North Amityville, and the Franklin Street area of the Village of Hempstead.

Neither of these two trends has fostered planned development; both have encouraged spread city and urban sprawl by spacing homes farther apart and by scattering industry -- i.e., employers -- into single-family areas, away from mass transportation.

* - "Study of Deficient Housing", Progress Report, Residential Market Analysis (Hauppauge, N. Y. : Nassau-Suffolk Regional Planning Board, 1967).

Vacant Land

Under present zoning policies, the vacant* land on Long Island which is zoned for residential use will, if developed according to zoning, result in a spread city pattern. In 1962, the Regional Plan Association computed that, based on existing zoning, the residentially zoned vacant land in the two counties could theoretically hold 3,000,000 additional persons. The vacant land remaining today - shrunken through new development and with its capacity diminished through lower residential densities - could only support an additional 2,200,000 persons under existing conditions.**

The vacant land which is available for residential development today is primarily located in Suffolk County, however, the supply is shrinking fast. The five western towns, growing rapidly, have accounted for 70 percent of the new residential acreage developed in Suffolk County in the past five years. The eastern towns are still too far removed from centers of employment to experience such rapid growth.

Only 7 percent of the land in Nassau County is classified as "vacant" or "agricultural" on Table 1; half of the land in Suffolk is so classified. The result is that of the 354,000 vacant and agricultural acres in Nassau and Suffolk Counties, 95 percent are in Suffolk County.*** Not all of this land is zoned for residential use; large tracts, particularly along the rights-of-way of the major highways, are zoned for commercial and industrial uses.

Except for Mitchell Field, where a planned complex of residences, offices, educational facilities is under way, only scattered, small areas are vacant in Nassau County;

* - Includes agricultural land, buildable portion of oversized lots and estates, and other vacant land.

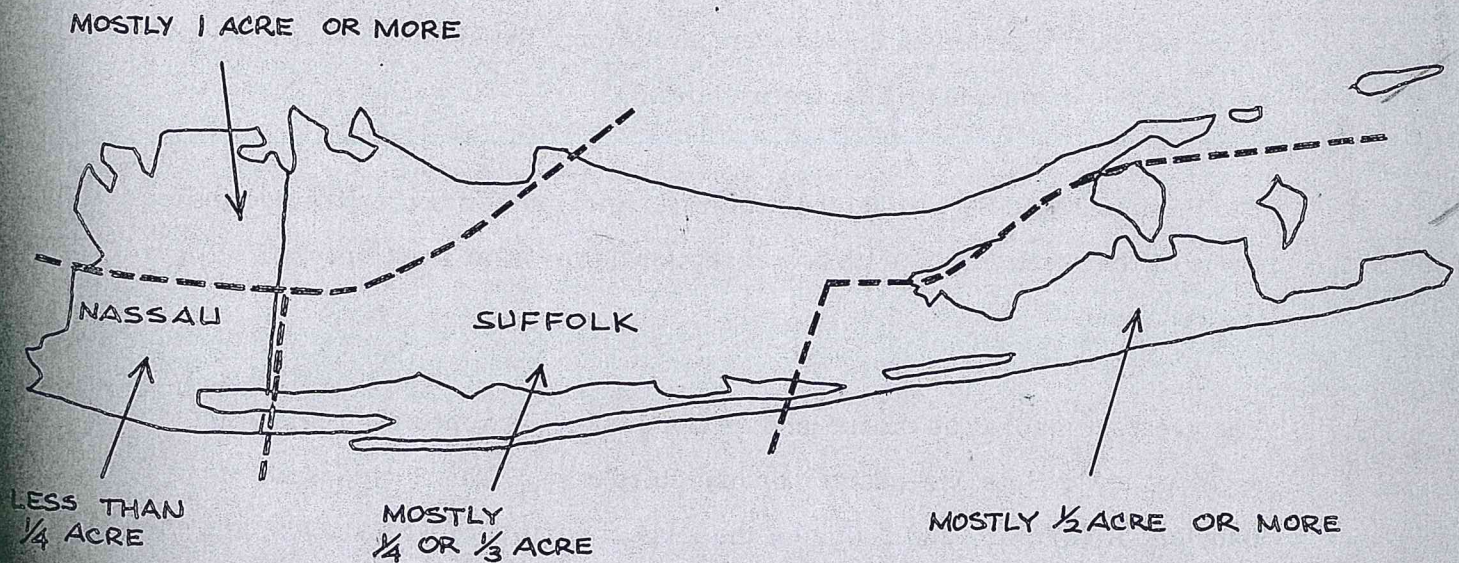
** - Existing Land Use (Hauppauge, N. Y., Nassau-Suffolk Regional Planning Board, February, 1968) p. 27.

*** - Note, however, that almost all of Suffolk County, at present, is without public sewers; the installation of sewage facilities is required, however, for new subdivisions of 100 or more homes. The lack of sewage facilities does mitigate against very small lots, although some parts of Long Island are considered "ideal" for cesspools.

large areas are available throughout much of western Suffolk and in eastern Suffolk, two-thirds of one town (Riverhead) and three-quarters of another (Southold) are vacant.

What patterns of residential development are mandated by the present zoning of vacant land? In 1962, the Regional Plan Association noted the "incidence of smaller lot zoning in the far reaches of the (metropolitan) region -- two-acre zoning and higher is located relatively close in with denser zoning beyond. This pattern is especially evident on Long Island..."* The pattern still holds today, for although the accompanying diagram (a highly generalized picture of the residential zoning of vacant land) shows that southern Nassau County is zoned for small lots or multi-family development, the diagram does not show that there is very little vacant land left in southern Nassau County on which multi-family development can occur.

RESIDENTIAL ZONING OF VACANT LAND:



* - Spread City, p. 13

Under present zoning the residential development pattern that is called for is as follows:

1. The largest lots (forcing the "city" to spread) are required along the north shore within commuting range of New York City. In general, the vacant land in the northern half of Nassau County - North Hempstead and Northern Oyster Bay - and the western edge of Huntington can only be developed for single-family homes on lots of two acres or more. In most of the rest of Huntington minimum lot sizes of one to two acres are required.
2. The shore areas in the five towns of western Suffolk have been generally earmarked for large-lot (one to two or more acres) residential development; the exception is Babylon, where all the residentially zoned vacant land can be developed in one-quarter or one-third acre lots (7,000-19,000 square feet).

In the northern quarter of Brookhaven, away from the shore, lots of one-half acre (20,000 square feet) lots are permitted.

3. The Hamptons and Shelter Island require larger lots for homes than do the towns of the north fork. With few exceptions, lots of at least one-half acre are required.
4. The greatest amount of vacant land on Long Island is zoned for residential development on lots one-quarter or one-third acre. This includes all of Babylon, Riverhead, and Southold; the largest portion of Brookhaven; and substantial portions of Islip and Smithtown; as well as scattered acreage in the remaining towns.

5. The greatest density of development is possible in the southern part of Oyster Bay, where less than 7,000 square feet is required for each dwelling unit and frequently apartments are permitted. However, the amount of vacant land so zoned is not extensive.

INFRASTRUCTURE

What are the fiscal implications of the predicted population growth in Nassau and Suffolk Counties under present zoning policies? An increase in population requires an increase in infrastructure, defined in "Spread City" as the "network of supporting facilities...for transportation and communication, water supply and sewerage, electric power and gas supply, education, health and welfare services, recreation, and all sorts of other public and quasi-public activities provided by governments, private utility companies and religious, community and similar organizations."

Approximately 367,600 additional households are expected in Long Island by 1985;* of these about 70 percent will be added in Suffolk County. In order to supply necessary local community facilities, an expenditure of about three billion dollars** will be required by county and local governments and by private sources. This estimate of three billion dollars does not include regional infrastructure costs for items such as mass public transportation, limited access highways, colleges, state parks, state hospitals, etc.

Of the estimated three billion dollars for local infrastructure costs, approximately one billion would be required in Nassau County, two billion in Suffolk County. Nassau County costs per additional household (estimated at \$9,395) are higher than those in Suffolk County (\$7,615) because of higher land prices. Large land-users, such as schools and parks are more expensive to provide in Nassau; in fact, county and municipal parks and recreation are estimated to cost eight times more in Nassau (See Table 2.).

* - See Households and Housing Units, 1960-1985, in this volume, Table low household projection for 1985 and estimated 1965 households.

** - Derived from unpublished work sheets of Regional Plan Association, 1962. The RPA - estimated infrastructure cost per additional household was multiplied by the Raymond & May estimates of household growth, 1965-1985. The RPA estimates of infrastructure costs, based on RPA household projections 1960-1985, was approximately four billion dollars.

At the same time, the existing infrastructure facilities in Nassau County - many of which were built to accommodate the post World War II boom are more complete and in better condition than those in Suffolk. The estimated costs for such items as local roads, water supply and sanitation facilities are thus estimated to be higher in Suffolk County. In Nassau County 41 cents out of every dollar spent on local infrastructure would be for new facilities which are needed to accommodate growth; the rest would be for replacement and modernization of existing facilities. In Suffolk County more than twice as much - 85 cents out of every dollar - would be for new facilities.

About four-fifths of the monies spent for local infrastructure would be supplied by local governments (albeit aided in many cases by State and federal funds); the rest - primarily for voluntary hospitals, private schools, churches and miscellaneous other non-public facilities - would be supplied privately.

Infrastructure costs, of course, are ultimately paid by the homeowner or renter, in the form of a higher purchase or rental price, a charitable contribution, or, most frequently, higher taxes. The estimates above represent "the magnitude of the capital requirements likely to accompany...growth to 1985, providing existing trends and policies continue". *

Reducing Infrastructure Costs

Infrastructure costs can be lowered substantially by such planning techniques as clustering of single-family homes, permitting increased densities, and by combining the effect of these two in a technique known as "density zoning", whereby a density of about four dwelling units per acre is permitted; on a ten-acre site, the forty-odd dwelling units permitted can be located in a single high-rise tower, or spread among forty single-family detached homes.

* - Spread City, p. 46.

Infrastructure costs cannot be lowered by setting low standards - by not requiring, for example, well-paved roads - because these lower costs are illusory; the exorbitant cost of maintaining inadequately-built facilities leads to greater cost in the long run.

More than one-third of the total projected local infrastructure costs in both counties are for local roads and streets, for local water supply, and sanitation facilities, and for county and municipal parks and recreation. Substantial economics can be affected in these items, with no loss in quality whatsoever. The following chapters discuss two studies which provide some indication of (1) the magnitude of savings possible under clustering and increased densities, and (2) the effect of different subdivision and engineering standards for roads and utilities upon initial capital cost. In both cases the costs which were computed were the "public" costs of roads, recharge basin utilities, etc., i.e., those costs which would be considered community infrastructure costs, rather than chargeable to the individual home.

STUDY 1:

EFFECT OF CLUSTERING AND INCREASED DENSITIES ON OPEN SPACE AND COSTS

A study was undertaken of alternative subdivision designs that can compete with typical Long Island housing developments, on the grounds of greater livability as well as greater economy. To highlight the choices available to the community and builder, a series of subdivision designs were prepared that deviate from most present practice on Long Island; these alternatives represent feasible design types, successful examples of which can be found throughout the country.

One of the major aims in developing these alternatives was to show how housing types and designs can be varied within an acceptable zoning density. In some communities, there may be some resistance to higher single-family densities (i.e., smaller lots) or to apartments at any density. Nonetheless, the schemes shown here represent, from the planner's viewpoint, reasonable housing environments for Long Island - not every scheme in every community, but a variety of densities and housing types in a variety of locales.

In order to make realistic comparisons, a 36-acre portion of a subdivision now under construction in the Town of Brookhaven was selected. The subdivision as it is being built contains several hundred single-family homes on 15,000 square foot lots, roughly one-third of an acre. A real effort has been made to save trees; there is a community center, including a pool. All in all, it is a good place to live.

Using the selected 36 acre portion of the subdivision, two groups of designs were prepared: the first to compare single-family conventional with "cluster" developments; the second to explore the effect on costs and design of increased densities (up to 40 dwellings to the acre) of different types of group housing. Under the second scheme, a comparison was also made, at a variety of densities, between different housing types; for example, between row houses and garden apartments at a given density.

Clustering

In a "conventional" single-family subdivision each house has its own lot of, say 15,000 square feet. In a "cluster" development, the same number of houses are "clustered" on smaller lots, say 10,000 square feet, and the remaining land, 5,000 square feet from each lot, is accumulated to form a park or open space. For example, in Design "3"* the conventional and the clustered plan both produce 79 home on 36 acres; but, by cutting the lot size from 15,000 to 10,000 square feet, $14\frac{1}{2}$ acres of parkland are gained.

Clustering can result in cost reductions because there are fewer roads to be built, shorter lengths of utilities, less ground to disturb. Not only are initial capital construction costs lower, but operation or maintenance costs are lower.

Builders approve of clustering because costs are lower; at the same time the homeowner and community benefit from the increased parkland. Nevertheless, clustering has not gained wide acceptance on Long Island. Only a few developments in Huntington and Smithtown have used this technique, usually when some unusual feature, such as a stream or ravine, interferes with traditional lot layout. In such cases, clustering permits the developer to build as many houses as he could if the land were level and featureless; and saves the natural feature as a park, thus benefiting both developer and community.

Some communities are wary of clustering: afraid that the common parkland may eventually be put to another use, that it will not be maintained, or will somehow become a tax drain; afraid that the savings effected will lower the "quality" of the houses, the buyers, the community. Experience, amply documented elsewhere,** has

* - Each pair of designs is illustrated at the end of this section; the approximate net density per acre is indicated by a large encircled number in the upper corner, which is used to identify the design: for example, Design "3" illustrates two possible designs at a net density of 3 dwelling units per acre.

** - Carl Norcross and Sanford Goodkin, Open Space Communities in the Market Place (Urban Land Institute, Technical Bulletin #57, Washington, D. C. 1966).
William H. Whyte, Cluster Development (American Conservation Association, New York, 1964)

demonstrated that clustering enhances the value of a development and that the regulations to protect the common parkland have been effective.

Open Space

Recent conventional subdivisions frequently contain some community facilities, partly because such facilities make the residential areas more desirable homes, more saleable, and partly because the subdivision regulations of Nassau County and of the ten Suffolk towns generally require a builder either to dedicate three to ten percent of his subdivision acreage for parks or to make a cash payment in lieu of such dedication. Such provisions - which, until recent years, were usually waived - are bitterly opposed by builders, who consider them confiscatory. The provision for a cash payment, in lieu of a dedication of land is important; unless a subdivision is large, (so that the required park is large) or adjoins an existing or proposed park, a required dedication of land will tend to create small unconnected parks, which may or may not be of value to the community. Tot lots, for example, require little land and are valuable in urban surroundings or poor areas but superfluous in middle class suburbs where each family has a large yard with swings and a sand box; in contrast tennis courts or community swimming pool are of positive benefit in a suburban atmosphere because few families can provide their own - but the cost and upkeep runs high even to a community. If, as sometimes happens, the "park" is actually an inaccessible and unusable and unattractive acre of rock on a hilltop then no one benefits.

Cluster development provides more open space than conventional development, but, more than that, the open space provided has to be designed so that it is useful. In large subdivisions - or, better yet, in planned communities - the open space thus gained can provide: (1) walkways and bicycle paths behind each house, so that it is possible to walk or bike safely and pleasantly through the community, from house to house or to community facilities and shopping; (2) places for sitting, for mothers to meet and watch their young children, for a few families to picnic; (3) larger open areas for



ILLUSTRATIVE OPEN SPACE DESIGN

RESIDENTIAL

MARKET

ANALYSES

PREPARED FOR:
RAYMOND & MAY

NASSAU — SUFFOLK
ASSOCIATES *** PLANNING

REGIONAL
CONSULTANTS ***

PLANNING
WHITE PLAINS

BOARD
NEW YORK

school-age children to play actively, for impromptu ball games; (4) a community park in the largest space - community-wide facilities, such as ballfields, tennis courts, swimming pools.

Using one of the row-house designs for the 36 acres under study, an Illustrative Open Space Plan has been developed, showing the wide range of facilities which can be gained by clustering and group housing even on a comparatively small (and hilly) site (see following page). Nevertheless, one softball field, several playlots and a multi-purpose field are easily accommodated in the level area, and a picnic area and nature trail utilize the gentle hillside.

Costs

Sixteen alternate development schemes are illustrated; one of these, the conventional subdivision with single-family homes on 15,000 square foot lots, is the particular scheme which is now being built in Brookhaven. For each of the sixteen designs, the following were computed: the street and utility costs for clearing, grading, paving, drainage, sanitary sewers, water supply, recharge basin, trees, and signs and miscellaneous engineering costs. The costing solutions were based on the requirements of the subdivision regulations of the Town of Brookhaven.

If a different piece of land had been used for these schemes, the particular numbers might vary somewhat. In other words, the specific 36 acre site which was used for these studies suggested certain design solutions. On another piece of land, the amount of road needed to serve say 79 homes at a density of three per acre, might be somewhat more under a conventional scheme; the savings attainable under clustering might be greater (or less). The costs cited are thus precisely applicable only to the particular site chosen, but the particular numbers do indicate the general magnitude of savings possible through the use of clustering.

1. Single-Family Development

Of the sixteen schemes prepared, eight were for developments of single-family detached homes. Designs were prepared at four different densities: one, two, three, and four dwelling units to the acre (Designs "1", "2", "3", and "4").

At a net density of one dwelling per acre as the overall density, the houses in the conventional scheme were on individual lots of 40,000 square feet; those in the cluster scheme were on lots of 20,000 square feet, half as big. At overall densities of two and three per acre, lots were reduced by 5,000 square feet for the cluster scheme: from 20,000 to 15,000 square feet, and 15,000 to 10,000 square feet respectively. The smallest reduction, from 10,000 to 8,000 square feet, was possible at an overall density of four per acre.

The per-house cost of streets and utilities encompasses a range from about \$2,500 (cluster development at a density of one dwelling unit per acre) to \$7,600 (conventional development, four units per acre). At each density, however, clustering produced considerable savings, ranging from about \$600 per house (at one per acre) to \$2,600 per house (at four per acre) or ranging from about one-sixth of the per-house cost of public utilities to about one-third. (See Table 3).

The greatest savings from clustering were possible at the greatest density although the reduction in lot size achieved under clustering was smallest. At a density of approximately four dwelling units per acre, a conventional pattern, where each house is set on a lot of about 10,000 square feet, results in street and utility costs of \$7,600 per house; a cluster pattern, where the lots are reduced to 8,000 square feet, results in costs of \$5,000*. The reason

* - All figures cited in text assume that debris is carted away, not burned on the site.

for the cost difference is readily apparent by looking at the Design "4": much more road is needed for the conventional scheme.

2. Group Housing

A second group of eight development schemes varied both the density and the housing type, but used the same 36 acre site. Four different net densities were used: four, ten, twenty, and forty dwelling units per acre.

The lowest density used for the group housing designs, four units per acre, was the same as the highest density of the detached single-family schemes, but semi-detached houses (two-family) and town houses (also called row houses or attached houses) were chosen for the group housing designs; the total number of dwelling units remained the same at 115-116 (Design 4a). Clustering of detached single-family homes is not practical at densities greater than four per acre; lots become very small and houses are crowded unless they too are very small. Even at densities of four per acre, a change of dwelling type to semi-detached or town houses may yield more pleasing designs. Although there has been some resistance to these dwelling types on the part of the public, planners and architects feel that such attached houses frequently offer great financial and aesthetic advantages. Note that per unit street and utility costs drop from \$7,600 and \$5,000 for conventional and clustered detached single-family development respectively to \$1,690 and \$1,340 for semi-detached and row house development. (See Table 4).

At densities of ten units per acre, semi-detached houses in turn become so crowded that they are impractical. Design "10" therefore compares row houses and garden apartments. Garden apartments, in turn, are compared to three-story apartments at a density of 20 units per acre; there is a readily apparent loss of open space when garden apartments are built at this density.

The final comparison made at a density of 40 units per acre, appropriate to an urban setting is of six-story apartments and twenty-story apartments. At this density the 36 acres contain 1,142 apartments, and a sizeable portion of the lot must be used for parking.

The public costs per unit vary enormously under these eight schemes. As the density increases, the per unit cost drops dramatically. There is a less dramatic difference between each of the two housing types developed at the same density. Thus, for town houses at a density of four per acre, road and utility costs are \$1,340; for semi-detached houses at that density, the costs are \$1,690, only \$350 greater per unit. But by increasing the density to 40 units per acre, the per unit costs for a twenty-story apartment house are only \$185.

The total street and utility costs, for all the units on the entire 36 acre parcel, range from about \$150,000 to about \$300,000. The twenty-story apartment houses, providing many more units than garden apartments or three-story apartments, cost less. The 576-unit garden apartment development (Design 10) is the most expensive, but part of this expense is peculiar to the particular site and layout which requires an extra-long road.

STUDY 2:

EFFECT OF SUBDIVISION REGULATIONS AND ENGINEERING SPECIFICATIONS ON COSTS

The subdivision regulations of Nassau County and the towns in Suffolk County were also studied to develop cost data relative to public improvements to be installed by developers.* The Nassau County regulations, currently being revised, primarily apply to the unincorporated areas, although the towns may set higher standards. Suffolk County has no similar county-wide authority. Each town, however, has adopted subdivision regulations which apply to the unincorporated areas of the town. Most subdivision regulations studied contain similar improvement requirements as a condition for approval of plans and acceptance of streets. The items generally covered include right-of-way and street pavement widths, block dimensions, location of electric lines, sidewalks, curbs, drainage, recharge basins, water distribution, sewage, parks, street signs, street lighting, street trees, monuments.

A few regulations were very detailed and contained standard procedures for engineering design, complete specifications for construction, etc. Others did not describe the specifications but referred to standards of the Town Engineer, Highway Department, other agencies, or "as approved by Planning Board".

For many items, the standards were similar whether specified in the regulations or on file in the office of the engineer or highway department. These include drainage, sewage (to conform to Health Department standards) and water supply. On the other hand, there was non-uniformity as to right-of-way and roadway widths; requirements as for sidewalks; recharge basin capacity; and specifications of street paving.

* - Village subdivision regulations were not studied. However, most of the land which is vacant and thus available for subdivision development is located in the unincorporated areas of the towns.

For example, minimum pavement widths now required in the various subdivision regulations vary from 34 feet to 24 feet (or in the case of "alleys", 18 feet). Standards of construction vary as greatly as the required widths; take three streets in residential subdivisions in three different towns. The traffic might be the same, but the streets would be different - different widths, different construction:

1. In Huntington the subdivision regulations differentiate between "through" streets, "other" streets, "service roads parallel highways", and "alleys". The streets of a residential subdivision would normally be classified as "other" streets; with the following standards: a minimum width of 34 feet of pavement (asphaltic concrete compacted to $1\frac{1}{2}$ inches, laid over $4\frac{1}{2}$ inches of penetrated broken stone), curbs, and sidewalks on both sides of the street.
2. Riverhead requires 32 feet of pavement (approved road oil applied to a 6 inch subsurface plus a blotter coat of sand, plus a second application of oil and grits or chipped blue stone), no sidewalks.
3. East Hampton requires 24 feet of pavement (asphaltic concrete compacted to $1\frac{1}{2}$ inches laid over a subbase of 8 inches of compacted sand-silt-clay), no sidewalks.

In order to compare realistically the initial capital costs of streets and utilities, these costs were computed for a specific development scheme using three different subdivision regulations. The particular location chosen was the 36-acre site in Brookhaven which was used for the previous study; the particular development scheme chosen was the conventional single-family pattern at a density of three units per acre (Design "3") - the exact scheme, in fact, which is actually under construction.

The three subdivision regulations chosen (Huntington, Brookhaven, and Riverhead) represent a wide range of requirements:

1. Huntington: these subdivision regulations are among the most stringent and detailed on Long Island. They require particularly high-quality pavement; they also require sidewalks, and closer tree-spacing than in many other regulations. Although the additional cost was not computed, Huntington's regulations also require all electric and telephone lines to be underground.
2. Brookhaven: these subdivision regulations (under which the subdivision is actually being built) can be considered moderate for Long Island, and represent a middle range of requirements among those studied.
3. Riverhead: these subdivision regulations are among the most lenient studied and reflect the rural character of the town. Initial costs are lower because of lower requirements for roadway paving and because street trees and sidewalks are not required.

The initial cost per lot of public improvements* was:

\$4,600 using stringent subdivision regulations;

\$3,800 using moderate regulations;

\$3,100 using rural regulations.

The identical subdivision house would therefore cost \$1,500 more in Huntington than in rural Riverhead. But "oiled" roads, such as are permitted in Riverhead require considerable maintenance - yearly repair and resurfacing for a number of years in

* - Costs computed by Eberlin and Eberlin, Consulting Engineers.

order to build a stable roadway. When new, this kind of road tends to crumble or disintegrate where cars turn or spin their wheels.

Over-design, therefore, results in higher initial charges to builders and home buyers; under-design leads to increased governmental maintenance costs which are ultimately paid by taxpayers by homeowners and renters.

The needs and philosophy of each community towards public improvements vary according to the degree of development which has occurred. As a community becomes built-up, it usually stiffens its engineering specifications, throwing a greater initial burden on the developer, lowering maintenance costs to the community and providing in general a better, more attractive product. Suburban and exurban homeowners, those whose homes boast extra large lots, usually object to the urban look of sidewalks; and, indeed, sidewalks are not necessary on little-travelled streets with virtually no pedestrians or cars. Few object, however, to street trees, or to a requirement that recharge basins be well-screened.

Rural areas, in time, become more suburban; streets which might have been adequate when built will not withstand heavier demands. The standards for improvements should be similar throughout Long Island, and should be related to the density of development and of traffic which is expected. For example, a cul-de-sac road, containing ten houses on one-third acre lots, will have the same amount of traffic whether built in a village center in Nassau County or on the eastern tip of the Island; the pavement width and section should be the same in either location. The requirements set forth and referred to in the subdivision regulations should therefore be a function of the permitted zoning density of the type of road (cul-de-sac, local, connector, arterial), and the volume of traffic it will serve. This applies in particular to street and paving widths, requirements for sidewalks, curbs, and the sizing of recharge basins.

It would be helpful and realistic, for planning and construction, if subdivision regulations, within the two counties, were to be standardized for all basic improvement items. In addition, the construction details and specifications should reflect the amount of traffic expected both in the immediate future and over time, maintenance costs, as well as good engineering practice. No definitive standards now exist which balance initial costs against maintenance costs, and relate both to anticipated degree of use.

An engineering study in depth should be made to determine which regulated elements should be standardized and how such a program could be implemented.

TABLE 1
RESIDENTIAL, AGRICULTURAL, AND VACANT* LAND, 1968
NASSAU AND SUFFOLK COUNTIES

	<u>Residential</u>		<u>Agriculture</u>		<u>Vacant</u>		<u>Total Area</u>
	<u>Acres</u>	<u>%</u>	<u>Acres</u>	<u>%</u>	<u>Acres</u>	<u>%</u>	<u>Acres</u>
BI-COUNTY	181,491	21	66,456	8	287,101	33	877,809
NASSAU COUNTY	89,701	45	2,056	1	15,281	7	200,949
Town of Hempstead	35,315	39	209	-	4,971	5	91,264
Town of No. Hempstead	18,478	54	179	1	2,555	7	34,422
Town of Oyster Bay	35,908	48	1,668	2	7,755	10	75,263
SUFFOLK COUNTY	91,790	14	64,400	9	271,820	40	676,860
Town of Babylon	8,380	18	370	1	8,820	19	45,380
Town of Brookhaven	22,720	11	11,560	5	92,210	44	208,370
Town of East Hampton	3,300	7	2,420	5	30,850	66	46,560
Town of Huntington	17,560	29	4,170	7	21,420	36	60,110
Town of Islip	18,150	21	640	1	24,240	28	86,890
Town of Riverhead	1,600	4	19,550	45	10,200	23	43,590
Town of Shelter Island	660	9	80	1	3,680	50	7,350
Town of Smithtown	8,640	25	1,240	4	14,760	43	34,480
Town of Southampton	8,500	8	12,450	12	51,710	47	109,530
Town of Southold	2,280	1	11,920	34	13,930	40	34,600

Source: Existing Land Use (Hauppauge, N. Y. : Nassau-Suffolk Regional Planning Board, February 1968), Table V.

TABLE 2

LOCAL INFRASTRUCTURE COSTS PER
INCREASED HOUSEHOLD

NASSAU AND SUFFOLK COUNTIES

	Nassau		Suffolk	
	\$	%	\$	%
For local roads and streets	\$1,387	14.8	\$1,525	20.0
For local water supply	536	5.7	577	7.6
For sanitation facilities	205	2.2	604	7.9
For county and municipal parks and recreation	1,596	17.0	201	2.6
For elementary and high schools	3,885	41.3	2,693	35.4
For public and voluntary hospitals and institutions	419	4.5	473	6.2
For miscellaneous public buildings and equipment	657	7.0	713	9.4
For churches and miscellaneous non-public facilities	714	7.6	829	10.9
Total Capital Requirements	\$9,395	100.0%	\$7,615	100.0%

Percentages may not add, due to rounding.

Source: Derived from unpublished worksheets of Regional Plan Association (1962),
Based on RPA population projections.

TABLE 3

STREET AND UTILITY COSTS

SINGLE-FAMILY DEVELOPMENTS:
CONVENTIONAL VERSUS CLUSTER SUBDIVISION DESIGN

Overall Dwelling Unit Density Per Acre	Total No. of Lots	Conventional Pattern			Cluster Pattern		
		Average Lot Size Sq. Ft.	Cost Per Lot (\$)		Average Lot Size Sq. Ft.	Cost Per Lot (\$)	
			On Site Burning*	No Burning		On-Site Burning*	No Burning
1	33	40,000	3,000	3,100	20,000	2,400	2,500
2	63	20,000	3,600	3,800	15,000	3,000	3,200
3	79	15,000	4,300	4,500	10,000	3,800	3,900
4	115	10,000	7,200	7,600	8,000	4,800	5,000

* - Refers to burning of debris on the lot.

Note: Costing solutions, prepared by the engineering firm of Eberlin and Eberlin are based on standards called for in the Town of Brookhaven Subdivision Regulations. The costs indicated here involve the street and utility costs for clearing, grading, paving, drainage, sanitary sewers, water supply, trees, signs and miscellaneous engineering costs.

TABLE 4

STREET AND UTILITY COSTS

GROUP HOUSING

Type of Housing	Overall Dwelling Unit Density Per Acre	Total No. of Dwelling Units	Total Cost (\$)		Cost Per Dwelling Unit (\$)	
			On-Site Burning*	No Burning	On-Site Burning	No Burning
Semi-detached houses	4	116	187,340	196,040	1,615	1,690
Town Houses	4	115	146,050	154,100	1,270	1,340
Row Houses	10	287	213,815	223,860	745	780
Garden Apartments	10	288	191,520	201,600	665	700
Garden Apartments	20	576	282,240	296,640	490	515
3-Story Apartments	20	576	213,120	224,640	370	390
6-Story Apartments	40	1,182	218,670	230,490	185	195
20-Story Apartments	40	1,182	206,850	218,670	175	185

* - Refers to burning of debris on the lot.

Note: Costing solutions, prepared by the engineering firm of Eberlin and Eberlin, are based on standards called for in the Town of Brookhaven Subdivision Regulations. The costs indicated here involve the street and utility costs for clearing, grading, paving, drainage, sanitary sewers, water supply, trees, signs and miscellaneous engineering costs.