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ABSTRACT

This paper attempts to spell out some possible solutions to major problems confronted by new town planners and local school districts faced with new towns suddenly appearing within their borders. A number of possible alternative routes that developers and school districts might explore in attempting to cope with such problems are also discussed. The problems considered concern the wisest approaches to planning educational systems for new towns; ways of providing educational space on short notice; ways of financing the educational programs and new facilities for new town children in the face of grave financial shortages; ways of governing the new town educational system; and possible problems created by the costly overlapping and duplication of municipal services. (Author/MLF)

Schools for New Towns

A Memorandum

to

New Town Planners and Their Local School Districts Concerning Some of the Options Available for Solving the Most Immediate Planning, Financing and Facilities Problems

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Introduction

The first working paper produced by the EFL Education in New Communities Project ("New Towns, New Schools?") attempted to define the state of the art of educational planning for new communities in this country.

A number of major problems were identified in that first working paper, problems common to most planners of new towns and to local school districts confronted by new towns suddenly appearing within their borders. These problems concern the wisest approaches to planning educational systems for new towns; ways of providing educational space on short notice; ways of financing the educational programs and new facilities for new town children in the face of grave financial shortages; ways of governing the new town educational system; and possible problems created by the costly overlapping and duplication of municipal services.

This second working paper attempts to spell out some of the possible solutions to those problems, or at the very least to present a number of possible alternative routes developers and school districts might explore in attempting to cope with such problems.

We consider all of the possible options we present here to be still tentative and exploratory. Many of the possibilities

described will not be appropriate to the very individual situations of particular new communities. Other options may be usable in many new towns and local districts only if adapted to the local realities.

It is also quite possible that we have not covered all of the available ways of coping with new town educational problems, that people on the local scene may have hit upon inventive solutions we have not imagined.

For all of these reasons, we hope that people out in the field -- new town planners, school administrators, local school board members and residents of new and existing local communities -- will supply us with their reactions to the ideas and options contained in this paper. A working paper, in our definition, is very much a work in progress. All of the suggestions, criticisms, corrections, revisions and new ideas gained from experience in the field will be incorporated in a final report prepared at the conclusion of the project's work.

This working paper has been prepared under the general supervision of the project director with the direct participation of a group of specialists in the variety of fields under discussion. Among these participants are:

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I.

Are You Planning the Right Amount of Educational Space for the Right Amount of People?

The Dilemma

Among the knotty problems facing the developer of a new community is that of providing sufficient school space within an uncertain time frame for a variety of student age levels. If school space is not ready when the children come, and in sufficient quantity, the resulting crush may scare away prospective residents. Consequently, a limited school plan may have negative marketing implications. However, overplanning may not work to a profitable advantage either since schools, as they are customarily built, require large amounts of land, generally in prime locations. They also require the commitment of large sums of money well in advance of the arrival of the new town's residents. Overplanning for schools can be just as hard on the taxpayer's pocketbook as on the developer's profits.

A developer's planning is complicated by the extended time over which many towns are built and by the uncertainty of the character of a new town population. When a new

community planner tries to estimate in the early 1970s the land requirements for schools that will not be built until the 1980s, he enters a veritable no-man's-land. Most of the children for whom he is planning are unborn. Given recent developments in birth control techniques, the widespread availability of legal abortions and changing attitudes toward marriage, can he safely assume that they will be born at all? On the other hand, since the birth rate at any time is the sum of many individual and private decisions, can he be any more certain that they will not? The chance for error is high and even small errors in estimating the ratio of school children to total population can snowball alarmingly as the total population mounts into the tens of thousands. Unfortunately, whether they belong to him or to the officials of the local school system, a developer must live with any mistakes in school planning for a long time.

How Do New Town School Planners Plan?

Faced with these dilemmas, new community planners generally rely on consultants to estimate future school requirements. These consultants base their estimates on data collected from whatever sources are conveniently at hand. For the most part, these sources cannot be other new towns since few new towns have been in existence long enough to establish a baseline of experience.

Consultants usually rely on average "pupil yields per dwelling unit," statistics derived from experience in nearby conventional communities or "typical" metropolitan settings. These anticipated pupil yields may be stated in terms of generalized averages for dwelling units of all types. Sounder estimates take into account the fact that dwelling units of different types tend to yield different numbers of children. School populations can therefore be expected to vary with the mix of dwellings constructed.

For example, the new communities of St. Charles, Maryland, and Flower Mound, Texas, are anticipating initial pupil yields at the elementary level (grades 1-5) of .67 children per dwelling unit from single-family detached houses; .45 per unit from townhouses; and .23 per unit from apartments. Based on assumptions as to the timing of child-bearing among resident families, the estimated yields are lower at the middle and high school levels. At the middle school level (grades 6-8), the pupil yield is estimated at .30 children per dwelling unit at initial occupancy for single-family attached houses; .25 per unit for townhouses; and 1.2 per unit for apartments. The same figures are given for grades 9-12.

Few new community planners, however, appear to anticipate that the average family size of their incoming populations

could fluctuate sharply over time. The Flower Mound projections assume that the characteristics of families leaving the development will be mirrored by those which replace them. Flower Mound projections also assume that the birth rate will remain at a constant level (19 births per 1,000 total population) for an indefinite number of years. The national rate has not been this high for years. Currently, it is around 16 per 1,000 total population and falling. The difference could be enough to cause an 18% overestimation of school needs, assuming that all other assumptions and calculations are correct. Clearly, current fertility level statistics must be analyzed and evaluated. However, the task of reevaluating planning assumptions on the basis of fertility levels is something like playing Russian Roulette with most of the chambers loaded.

The "Baby Bust"

The United States fertility rate has, in general, been going down steadily since before World War I. Planning a decade in advance for school populations on the basis of last year's fertility level is not made easier by the knowledge that the fertility trend has occasionally experienced fluctuations in the past. During the 1920s and 1930s, the fertility rate dropped close to its present low

and briefly reached 2.1 children per woman between 1933 and 1936. Well before World War II it began to rise. Since 1958, however, the average number of babies born per woman nationally has plummeted from the post-World War II high of 3.6 to a level of approximately 2.0 early in 1973. Fertility is now below the "replacement rate" of 2.1 children per woman and the birth rate is still declining.

Until a year ago, leading demographers had regarded the 2.1 rate as an unbreakable demographic barrier. On the assumption that fertility would never drop below the 2.1 level, demographers maintained that "zero population growth" -- the point at which the momentum of past growth has been overcome and deaths equal births -- could not possibly come in the United States until the middle of the next century at the very earliest. Many population statisticians, including those at the U.S. Bureau of the Census, are now revising their projections and predict that zero population growth can be achieved in thirty years. Actually, if fertility were to continue to decrease at its recent pace, zero population growth could easily arrive within the next two decades. Few experts regard that as likely, but fewer are willing to state categorically that it is impossible.

Zero growth seems to have already hit that segment of the population of greatest concern to school planners, although we do not know if this will continue to hold true in the future. The potential school population for the nation as a whole is in decline. All the figures are not yet in, but it now appears likely that U.S. births in 1972 totalled approximately 3.2 million -- the smallest number in 25 years -- despite the largest young adult population in the nation's history. This is a one-fourth decrease from the high of 4.3 million annual births reached in the early 1960s.

The 1970 Census already showed a drop of 15% in the preschool age population (0-4 years) -- a decrease that is beginning to be reflected in declining enrollments at the early elementary levels of many school systems across the country. Over the next few years at least, the downward trend of enrollments will continue and will move steadily up to higher grade levels. Furthermore, it will persist for at least five years following any future upward turn in the birth curve. This phenomenon has variously been called the "baby bust" and the "birth dearth."

The baby bust has important implications for the building and marketing programs of new community developers.

These programs will affect the demand for schools over the long run. Today's sharply decreased family size means there will be an increased demand for smaller dwellings, and the building programs of a number of developers across the nation are reflecting this demand. As the developer of a new community alters his planned "mix" of unit sizes to accommodate the shift in demand, the potential of the community for generating school population will also shift. In many ways, the problem of school planning in new communities is a chicken-and-egg problem with most of the "eggs" as yet unhatched.

The "Marriage Bust"

Another factor of profound importance for new community school planning -- and again, for new community planning generally -- might be called the "marriage bust." The institution of marriage and attitudes toward marriage have recently been undergoing widespread and startling changes. It is still too early to predict how far these changes may ultimately go, but already they are having demonstrable effect on population statistics. For example:

- The national average age at first marriage has increased by about half a year over the past decade. That change is much more significant than it might initially appear since historically the age at marriage has varied over a fairly narrow range. According to the latest available statistics, men are not marrying until they reach the average age of 23 years, 6 months; women are not marrying until they reach the average age of 20 years, 10 months. The marriage age has not been this high since before World War II.

- More marriages are breaking up. The divorce rate is now 68% higher than in 1963. At the same time, more people are remarrying than before; but during the interval between marriages they behave in most respects like single people.

- The combined effect of later first marriages and more marital breakups, together with general population growth, has been a very significant increase in the number of unattached adults or "singles,"

particularly at the younger age levels. The number of persons aged 20-24 who are currently unmarried is now 8.2 million or 50% of the total; in 1960 it was 4.7 million or 44% of the total.

- Before the "pill" and legalized abortions, perhaps as many as one-third of all marriages occurred after the woman became pregnant. As a consequence of better birth control techniques, there is good reason to believe that many of today's young singles have lost this incentive to marry.

- Unattached adults tend to congregate in metropolitan areas, particularly in rapidly growing ones. Through no great coincidence, these are the kinds of areas where new communities are most likely to be located.

Potentially, the singles market is a very promising one for new town developers -- provided that they furnish the kinds of housing and amenities likely to attract this group. Singles may choose to reside alone or with one or more unattached persons of either sex. Although they are likely to prefer smaller dwellings, they may be customers for either apartments or larger free-standing units.

Singles are free to go out nights and offer a good market for theatres, night clubs and other entertainments. They tend to be especially active in civic and community groups. Many, lacking dependents, have considerable discretionary income which they may use in buying clothes, furnishings and luxuries. Singles generally prefer an active and varied urban environment rather than the relative isolation, cultural sterility and quiet of most "bedroom" suburbs.

While most will not contribute burdens to the public schools, singles themselves may be good customers for educational services of some kind, i.e., adult and continuing education programs. Many married couples may also want educational services, and school systems that have been oriented almost wholly toward young children may soon find themselves with a very different kind of demand upon their services.

While the marriage bust and the baby bust have interesting implications for new community planning in general and for school planning in particular, comparatively few new community developers are planning a concentrated effort to attract and serve the rapidly growing population of singles and couples with no or few children. What developers do in this respect will, of course, have direct

impact on the size of the school population for which they must provide. It may have substantial implications for the success of their total marketing program as well.

Faced with all these uncertain trends, what can a new community developer do to protect himself and his residents against the consequences of either under-planning or overplanning for schools? Should he just plow ahead with the school population statistics he has now and hope for the best? If he does, he may be taking quite a risk.

Are New Community Populations "Typical"?

Just to confuse the matter further, there is one more unknown element in the equation. That is the question of whether new communities attract populations sufficiently similar to those of developments elsewhere to make it feasible to apply generally-derived averages in estimating the size of specific population groups. The case of Reston, Virginia, provides cause for doubt.

Residents of Reston are currently engaged in a battle with their local school system, the Fairfax County Public Schools. The issue is busing, but the problem is not

racial in nature. Reston has been racially integrated since early in its history, and race relations among its residents appear to be excellent. The conflict is over busing Reston students out of the community to schools elsewhere. Although the new community now has over 20,000 residents, it does not yet have junior or senior high schools. All secondary students must attend schools outside the community.

This situation is in the process of being corrected by the Fairfax County School Administration. A new county high school will be built in Reston. A new middle school is under study. Fairfax, like a number of other Washington area jurisdictions, has been hit by the baby bust and now has a surplus of classrooms in some of its schools -- though not, of course, in Reston. Residents of the county as a whole, rebelling against high taxes and questioning the need for still more costly school construction, are reluctant to approve school bond issues. Under these pressures, county school authorities are reluctant to build any new schools in Reston. Having available school space, they believe that it makes more sense to bus the students out to underused classrooms elsewhere.

The residents of Reston are concerned that their school shortage, even with the planned new schools, may get worse. Furthermore, they have evidence to prove it. In the fall of 1972, feeling that the school system's projections of their future school population were far too low, the Reston Community Association undertook a door-to-door survey of the entire 5,400-dwelling community.

This massive effort engaged over 160 volunteers and reached 94% of all dwellings. In each home, the surveyors noted the number of children and their ages, including preschool children. The surveyors also asked the number of bedrooms. They were further instructed to ask if the woman of the house was pregnant. Although some volunteers were reluctant to ask this question and some respondents refused to answer it, 148 women acknowledged that they were about to add another member to the preschool population.

Here, in condensed form, are the key statistics from the Reston Community Association's survey as of October, 1972, with Flower Mound and St. Charles data supplied for purposes of comparison.

Reston, Virginia

Children per Dwelling Unit by Level:

	Elementary	Intermediate	High School
Single-Family Detached	.92	.26	.37
Townhouse	.57	.15	.19
Apartment	.21	.05	.07

Flower Mound, Texas - St. Charles, Maryland

(based on 19 births per 1,000 total population)

	Elementary	Intermediate	High School
Single-Family Detached	.67	.30	.30
Townhouse	.45	.25	.25
Apartment	.23	.12	.12

The results of the survey surprised even the Community Association. There were 1,867 children of preschool age (over 2,000 if pregnancies were included). This is equivalent to 44% of the community's entire current population of school age children and 72% of the present elementary school population, or a projected school population growth of 6%. The figures indicated that despite the fertility declines elsewhere, Reston's school age population could be expected to hold steady or rise slightly for some years to come even if no new housing is added to the community.

With expected additions due to construction already underway as of October, 1972, and based on the child-per-unit counts discovered in the survey, the Association estimated that over 1,000 additional elementary classroom spaces would be required by the fall of 1974. Construction planned but not yet underway would add 1,649 more elementary children by that date if completed on schedule. Including those already being bused out, the anticipated total would be sufficient to fill three more 990-pupil elementary schools. In addition, the population of intermediate and high school age would approximately double.

There is still another surprise in the pupil yields per dwelling unit for Reston. They are substantially higher in some categories than those anticipated for such future new

communities as St. Charles and Flower Mound even though the latter are based on an assumed fertility level considerably higher than the current national rate.

The results of the survey indicate that Reston families are younger and larger, on the average, than expected. At the elementary school level, Reston townhouses and single homes are generating 27-34% more children than projected for Flower Mound or St. Charles; apartments are about equal. At the intermediate and high school levels, Reston homes generally have fewer children than projected for Flower Mound and St. Charles. The one exception is in the more frequent appearance of high school children in Reston's single-family homes than in those of Flower Mound and St. Charles.

Using the survey findings and projecting them several years into the future on the basis of the planned new construction and the known preschool and school age populations, the Reston Community Association is predicting a rapidly growing need for school space. It is pressing the Fairfax County Public Schools to build three more 990-student elementary schools plus the junior and senior high schools the community still lacks (but which will shortly be needed as the current elementary population reaches higher grade levels).

The large population of young children in Reston is more remarkable in light of the general decline in fertility in most of the Washington area. It is also surprising in view of the high average price level of Reston dwellings which are costly because of the community's exceptional quantity and quality of built-in amenities and services. Higher priced homes are supposed to attract older and smaller families. While Reston has a substantial proportion of more mature families, as evidenced by the large high school population, it also has a large proportion of younger and larger families. In fact, the community's expensive lakefront townhouses now house more young, large families than they did at initial occupancy -- despite an escalation in price of about 50%.

Why hasn't the Reston population developed along the lines that might have been expected? Reston Community Association leaders, who do a great deal of thinking about their community, believe they have an answer. They think that the high quality of the facilities and services, including a rich panoply of social and recreational activities, has attracted a predominantly young and affluent family population who wants the good life for themselves

and for their children. Reston's attractions for such a population, they believe, are enhanced by its lively urban quality (compared to the average suburban tract development) and the aesthetic excellence of its planning and design. Presumably, the more mature families with children in high school or college are attracted by the same qualities important to the younger group. So much for Reston.

How about Columbia?

Columbia, Maryland, another new town in the Washington area, has been in existence long enough to establish a baseline of experience. Columbia's population is now roughly the same size as Reston's. Here are the actual Columbia pupil yields for the fall of 1972:

Columbia, Maryland

	Children per Dwelling Unit by Level:		
	Elementary (K-5)	Middle (6-8)	High (9-12)
Single-Family Detached	.69	.25	.18
Townhouse	.43	.16	.15
Apartment	.19	.08	.07

These statistics were computed from figures provided by the Howard County Public Schools and are derived from the actual school enrollments produced by dwelling units of varying types. State school officials estimate that about ten percent of all school age children in Columbia attend private schools. No breakdown of this private school population by age and dwelling type is available.

Nevertheless, even if private school enrollments were added to public school enrollments, Columbia's elementary pupil yields are still lower than Reston's for single-family detached homes and for townhouses. Its pupil yields are lower for the same housing categories at the senior high level as well. Otherwise, the statistics appear fairly comparable.

Compared to Columbia, Reston has attracted higher proportions of larger families at both younger age levels (with children of preschool and elementary ages) and older age levels (with children in high school). Again, Reston community leaders credit this to Reston's attractive and well-run community facilities and services. These facilities are run mainly by volunteers who, according to Reston leaders, generally seem to be in excellent touch with the community's needs.

Comparing Columbia's pupil yields with those projected for Flower Mound and St. Charles (still unbuilt), the Columbia figures are comparable at the elementary level and somewhat lower at higher grades. (It must be remembered, however, that the statistics for Flower Mound and St. Charles are predicted on a somewhat higher fertility level than now exists.) It appears that Columbia, although to a lesser extent than Reston, is attracting a somewhat higher proportion of larger families with young children than might be expected. Columbia has not attracted the same number of mature families as Reston, nor even as many as expected for St. Charles or for Flower Mound. Thus, Columbia will not need a second new high school as quickly as it thought it might.

Columbia's families are predominantly young and seem to be participating in the current fertility decline more often than those in Reston. (Reston and Columbia, incidentally, seem to be starting to feel the impact of the baby bust and marriage bust. Some increase has been reported recently in the number of singles and childless couples moving to Reston. As yet there has been no appreciable dampening effect on the growth of the child population.)

What does all this mean for a new community developer and a local school district when development is not yet off the ground? It could be taken to mean that he should not plan precisely and well, at least not in the conventional way of setting aside sites for conventional schools and attempting to build them as separate entities and in sizes based upon past population estimates.

How, then, can the new community developer and his local school district gain a better fix on their future needs for school facilities, both short-range and over the total span of the development? What kinds of school programs and facilities does it make sense for a developer and a school district to be thinking about? Putting together the uncertainties with the facts, the following recommendations emerge:

1. Projections of school populations initially arrived at should be treated only as rough guidelines. Whatever the assumptions employed as to family size, these can only be speculative. Projections should be reviewed and adjusted at regular intervals in light of current trends in fertility and marital rates.

2. Several alternative projection series should be prepared for the developer and for the local board of education by a competent statistician, incorporating several different assumptions as to future trends in the factors affecting family size. This will provide a better notion of the range of possibilities. There seems to be no reasonable justification for the single-minded projections with which some developers and school districts apparently are now afflicted. These are even less justified when they incorporate an assumption of a constant fertility level, a patent absurdity in view of the unpredictable fluctuations in U.S. fertility during the last half-century.

3. In line with the first two recommendations, the developer and the school district should preserve a high degree of flexibility in their planning for future stages of development -- not merely as to needed school capacity, but also as to the mix of housing unit sizes the developer may produce in later stages.

4. For the moment, at least, fertility is at an all-time low and the marriage rate is down also. New community developers and those who provide them with the statistics they use in planning for capital investment should be conversant with the lastest trends in population dynamics. There is no need to rely upon statistics several years out of date when current figures are readily available. (The National Center for Health Statistics of the U.S. Department of Health, Education and Welfare publishes a "Monthly Vital Statistics Report" containing up-to-date figures on births, marriages, divorces and deaths.)

5. New community developers should be prepared to take advantage of the market potential inherent in the mounting population of singles and childless couples. This is a strong and rapidly growing market at the moment, and for reasons indicated earlier there are good prospects that it will continue to be large for some time. Schools can hedge against overcapacity by planning more continuing education programs for this group.

6. Whatever the trends in the general population, the experience in Reston -- and to a lesser extent in

Columbia -- suggests that the developer of a well-planned new community may attract a resident population that is somewhat selective and not completely representative of the market as a whole. While this compounds his uncertainties in some respects, it is also an important strength.

7. What all of these facts and uncertainties add up to is that nothing is more certain than uncertainty. Indeed, it is possible that the riskiest thing a developer and a school district could do is to make firm projections of their school population over the next fifteen years and to proceed to build conventional schools on conventional school sites to house that expected population.

What, then, do a developer and a local district do if they agree that overly precise, overly specific planning might turn out to be dangerous and costly? Are there alternatives available; ways of planning; ways of not simply building conventional schools; different ways of financing; different approaches to providing usable school space? The answer is "Yes, there are indeed ways of recovering equity as demand subsides."

The chapters that follow attempt to spell out what some of these alternatives might be.

II.

What Are the Choices for Educational Governance?

Every new community, whether it be in-town, satellite or free-standing, finds itself inside some existing, incorporated school district and sometimes more than one school district.

One of the first questions a developer must face is simply this: Who is going to provide and operate the schools and the school system in my new town? The most common answer -- but not necessarily the only one -- is equally simple: Your schools, my friend, are going to be run by the legally constituted local authority (or authorities), i.e., the local board of education within whose jurisdiction you have chosen to buy your land.

The hard fact is that while education is a legal function of state government, most states (Hawaii is an exception) have chosen to delegate the bulk of this authority to local, territorially-defined boards of education. The public school students in any given district belong to the local board of education and not to

anyone else. Thus, any new town developer concerned about education -- either as a way of selling houses or because he simply believes in good education (or both) -- must first deal with the reality of the local school district, its board of education and its appointed school administrators.

No new town developer should expect to be greeted by the local district with enthusiasm and the glad hand. After all, the new town will bring the school district nothing but what it sees as unpleasant problems -- more children, the need for more teachers, more school buildings, a higher budget and perhaps a higher tax rate. Unless the developer can show exactly how all these additional costs are going to be paid for by the new town itself, without additional cost to the existing local taxpayers, there is no particular reason why the local district should be anything but wary -- or at least out to lunch -- when a developer appears on the doorstep. The fact is, of course, that few developers will be able to show how the costs will be met, at least during the early years of the new town's development, the years before the town's commercial and industrial properties are underway and are helping to make up for the inadequacy of the taxes levied on the housing.

This situation of the early new town being a distinct drain on the financial structure of its local municipality

can lead, as it has in several cases, to rather strong reactions against the full and rapid growth of new towns and even against all large-scale real estate development.

In Charles County, Maryland, for instance, the county commissioners have clamped a 500 unit per year growth ceiling on the development of the new community of St. Charles. They have also ordered that the development of the community be "balanced." This means that for every 500 units of housing there must be proportionate growth in the industrial park and the commercial centers to insure that there is a sufficient tax base to cover the municipal service needs (including schools) of the new residents.

In Fairfax County, Virginia, as we have seen in the Reston case, there is a strong anti-growth feeling spreading throughout the entire county. Indeed, it is now almost certain that one proposed new town in the county -- New Franconia -- will not happen at all.

What all this means is that educational governance -- the question of who owns and operates the schools -- is not one that either new town planners or local school districts should lightly gloss over. The eventual success or failure of a new town will depend in no small measure upon whether the developers are able to provide during the

full 15- to 20-year development period all of the services and amenities -- the "better" life -- that people seem to expect from a "new" community. If "good" education is seen as a large part of that better life in the community and it is not provided, then there is that much less reason for a home buyer to choose the new town over some nearby (and probably cheaper) suburban housing development.

If these problems exist and the students are owned by the legal local school board, what then are the options that new town planners and local school districts have available to them? Here are the basic ones:

Option I: The new town becomes a separate and independent school district.

The most common reaction of a local school district to the sudden emergence of a new town is the natural, territorial response. The board sees the new town as a possible threat to the stability of the existing school system (or a massive additional contribution to an already unstable and difficult situation). Most local school boards exhibit a strong urge not to surrender any of their powers or prerogatives to anyone else, especially not to an entrepreneur seeking to design a whole new community inside the district's borders.

Clearly, then, the very first contacts between the developer and the local school district, no matter how tentative and exploratory, are probably the most crucial. No matter what the ultimate educational aims of the developer may be, unless he is able to get the local district board and school officials to relax and to see the new community and its planners as nonthreatening friends rather than enemies, the developer is going to find himself plagued forever by problems. This means paying close and continuous attention to the local district, exhibiting enormous sympathy for the district's existing problems and an acute awareness of and sympathy for the problems the new town is causing.

Since the new town inevitably is causing or will soon cause problems for the school district, it is during these initial discussions that the possibility of a separate, independent school district should be discussed. The framework for this discussion, obviously, should not be all the wonderful educational things the developer would be able to do if only the local district would let him, which of course it won't, so wouldn't it be better to set up a separate district. Rather, the framework should be: Yes, the new town is going to grow rapidly and cause problems. Does the existing district want all those

headaches? If so, fine. If not, then it might actually make some sense to see if a separate district is feasible.

Although the common reaction on the part of school districts may be to defend their territory and prerogatives, this is not always the case. Some local school boards take the position that they would prefer not to have all those headaches. This is sometimes particularly true if more than one school district owns a piece of the new town. Indeed, the fact that a new town falls into more than one school district is probably the best argument for carving out a separate one. Most school districts are quite able to see the inevitable complications that will arise for themselves and for the developer if the new town is divided among two or more school jurisdictions.

If the developer does desire to become a separate district and if the local school officials are willing to discuss the matter as one possible solution to their own problems, the time has come to begin seriously to address the legal and legislative questions. The help of legal counsel, the local state legislators and the state education department are all essential here, since each one of these agencies and people will be required to support (and support enthusiastically) the legislation creating the new district.

Has this ever been done? Yes, in Gananda, a new town outside of Rochester, New York. As explained in the following chapter, Gananda now has its own separate district. The new law creating the district is contained in Working Paper No. III, "Legislation Pertaining to New Communities." A much more detailed examination of the Gananda planning process is contained in Working Paper No. V, "The Imperative of Planning Together."

Option II: The new town remains a part of its local school district but acquires a special status within the larger district and uses special legal devices to operate and/or to provide facilities.

This is probably the most radical option that the typical new town can expect to achieve, given the normal political realities and the reluctance of most local districts to preside over their own dissolution.

Most local school districts, no matter how strongly they may wish to maintain their territorial prerogative, are fully aware of the financial and educational problems a new town presents. Neither the developers nor the local school officials are able to explain exactly how all those children are going to be housed or how the teachers are going to be paid.

Given this kind of crisis, some developers and school districts have been casting about for alternative mechanisms for providing funds for school space and even for school programs. Some of these involve using preexisting legal devices. Others involve passing brand new laws aimed specifically at solving the problems of new towns. (See the collection of such legislative devices in Working Paper No. III.)

One of the primary legal and financial problems that most local districts face is the limitation on their bonded indebtedness and thus a restriction on their ability to provide conventional school space. The actual percentage figure varies from state to state (excluding such states as Hawaii and Maryland where the state builds the schools), but the general figure usually runs about ten percent of a community's assessed valuation. Most local school districts with new towns are in suburban or rural growth areas. In other words, they and their school population are growing rapidly even without the added growth provided by the new town. In Texas, the Lewisville Independent School District, which contains the new town of Flower Mound, expects to grow from its present 5,000 students to a minimum of 9,500 by 1976. The new town itself predicts it will be producing some

2,000 school age children by 1976. Thus, even assuming some disagreement between the Flower Mound and Lewisville predictions, the district's school population will grow by some 2,000 students even if Flower Mound never happens. Lewisville is already up to its ten percent limit just paying off its existing school building program. Its assessed valuation is rising slowly (presumably, Flower Mound will eventually contribute significantly to this rise). However, no one imagines that the assessed valuation for the district is going to rise fast enough to cover the costs of providing all of the conventional school space soon to be needed. The problem thus becomes one of finding legal ways to circumvent the ten percent (or whatever) debt limitation.

Similarly, no one imagines that the tax base of a district such as Lewisville is going to rise rapidly enough to cover the costs of operating such a rapidly growing system without a rise in the tax rate. Such a rise, however, will probably be inevitable <u>if</u> the district hopes to maintain its existing level of support in terms of cost per pupil and to run its schools in the conventional ways. Indeed, a central question here is whether school districts in new towns and other rapidly growing areas will be financially able to continue to operate and house their

educational systems in the conventional ways. Thus, the question of "special arrangements" or "special status" for a new town within the larger district becomes a question of considerable importance. Without such "special arrangements" it is possible that the financial load placed on a local district by the rapid growth of a new town will cause a form of fiscal and educational bankruptcy that will be harmful both to the district and to the ultimate success of the new town itself. The problem here becomes one of finding alternatives to the conventional dependence upon the local tax base and tax rate for operational funds.

There are examples of situations where "special arrangements" are possible under existing state laws -- or laws (somewhat similar to the Gananda laws) which were passed specifically to assist the development of new communities. The simplest example dealing only with facilities is the kind of law currently on the books in Alabama and Arkansas (and perhaps other states as well) which permits the creation of "public corporations for municipal authorities." The Arkansas law (Chapter 51, Sections 19-5101 to 19-5122, of the State Codes) is based upon the earlier Alabama law (Act No. 493, S. 24.3, Cooper, as amended by Act No. 538, S. 328, Roberts). In both instances, a public, nonprofit corporation may be formed by no less than three private individuals (and bonds may be issued) to design and

construct "municipal" facilities and to sell or to lease them (or to rent sections of the building to) municipal agencies. The Alabama law does not specifically mention schools, and a town such as Huntsville (where the Goddard Space Center has caused a boom) has not used the law to build schools. The Arkansas law does specifically mention schools, although no one has yet used the law for this purpose.

The new town of Maumelle, outside Little Rock, and its school district, the Pulaski County Special School District, face almost exactly the problems of Flower Mound and Lewisville. They do not have a sufficient tax base to allow them to build schools in Maumelle under their existing debt limitation. Nor will the taxpayers, in their present mood, pass a bond issue for schools in Maumelle. Thus, Maumelle and Pulaski are looking into the possibility of establishing a public building authority for the new town. At the moment, it appears to be the only way the school space will be created in Maumelle.

The public building or facilities authority law, as written in Arkansas, permits the contraction of public school space mixed with other kinds of public space such as town halls, parking garages, convention centers, recreation facilities, libraries, hospitals, fire and police

stations, colleges, stadiums, office space for state or federal agencies, courthouses or even airports. It would be quite possible under this law for the authority to design and build a school/community center and to rent to the school district whatever parts the school district needed for whatever periods of the day, week and year the district needed them (the idea of "time-sharing").

What the Arkansas law does not allow is the creation of commercial, income-producing private space built jointly with public space. Thus, the authority's bonds must be paid off in full by the rent received only from public agencies. What this means is that while the use of school space built by the public authority may allow a district to rent or lease rather than build in order to get around its debt limitations, it does not really reduce the cost. The cost is merely transferred from capital outlay debt service to the district's operating budget. Costs can be reduced by using the time-sharing principle which allows a school district and its other public partners to share space and thus to require less space to be built by all concerned and thus less debt service for each agency to carry. However, the law does not specifically make it possible for such an authority to build commercial space and to use the income to pay the total cost -- or part of the cost -- of the public space.

A much more comprehensive law -- and one aimed specifically to help Title VII and only Title VII communities -- is Ohio's "New Community Authority" act (Sections 349.01 to 349.16 of the Ohio Revised Code) which is also contained in Working Paper No. III.

This law not only allows a Title VII new community to set up a facilities authority similar to the Arkansas system, but empowers such a new community authority to "provide, engage in or otherwise sponsor recreational, educational, health, social, vocational, cultural, beautification and amusement activities and related services primarily for the residents of the district."

Under this law, the new town community authority could -- if the various school and municipal agencies agreed -- not only build multiple-use, time-shared public and private facilities mixes, but could also operate the town's school system as well as its recreational and community programs.

This Ohio law has been used (so far) just once, in the case of Newfields, a new Title VII community just outside Dayton, Ohio, almost surrounding the existing town of Trotwood. The developer is Donald Huber who was primarily responsible for getting the community authority legislation passed.

Newfields has set up such an authority. It is not yet clear just how much genuine municipal power the authority will assume (or be allowed to assume). The Madison Township School District, which includes most of Trotwood, shows no sign of being eager to surrender its educational authority over the new town. Neither the district nor the developers have prepared any clear ideas explaining how the educational space or program in the new town is going to be paid for. But the law is there, and it is certainly the most comprehensive and powerful enabling legislation of any state in the union.

Option III: The new town remains a part of its local school district without special legal devices but acquires "special status."

This may well be the most universal situation for new towns as we know them at the present time. The act of creating new districts or passing special new town laws is complicated and requires considerable forethought and planning on the part of the developers. Experience so far shows that, in general, educational (and social) planning is not something that most developers do naturally and early. Educational planning usually comes far down the

list, long after sewage, open space, water and the new golf course. Thus, many developers find that their plans are well advanced and, in some cases, they are ready to start building homes only to discover that the local district will not, after all, be able to produce the schools that should be there.

Assuming that the existing local district will be in charge and that no special legislation is available to help solve the problem, what then? If we also assume all of the normal problems -- insufficient tax base, rigid debt limitations, a taxpayer reluctance to raise taxes to pay for the expanded operational costs -- then the situation can rapidly become abrasive for the developer and for the local district.

There are a number of alternative solutions to the problems discussed later in this working paper -- found and nomadic space, joint use of community facilities, careful incremental planning, cooperative schools relying on parents and older students and so on. But the basic necessity would appear to be the new town and the local district realizing that they face a grave crisis, that it is a crisis for <u>each</u> of them and that the crisis will require <u>each</u> of them to think about unusual ways to conduct the educational enterprise.

In some new town cases, this realization of crisis is leading developers and school districts to begin to think of "special" arrangements that do not require legislation. Every local school district has, for instance, considerable power it can use to meet emergencies. A local district has the power to lease or rent emergency space to relieve overcrowding. Again, in an emergency, the district can often make unusual arrangements concerning staff -- the hiring of part-time teachers, the use of substitute teachers, the use of older students, community people and parents as adjunct teachers.

None of these "temporary" arrangements cost more money. Indeed, many of them cost less and, used in moderation, can help to stabilize costs without diminishing quality. It is also quite possible that some of these notions do not need to be and should not be thought of as "temporary" solutions. Many of them may turn out to make a great deal of financial and educational sense as continuing adaptations if the problems persist.

The important thing here is for the new town and the local district to agree that the problem of providing education for the new town is a special crisis and will

require doing things in special and unusual ways. It also requires that this be a formal understanding carefully worked out between the developer and the district and formally ratified by the board of education. Such an agreement might even specify the kinds of unusual ways that the developer and the district propose to use to solve the crisis, a set of rules about what is permissible and what is not and how the two parties intend to proceed.

A further reason for working out such a clear agreement is the simple unpredictability of what is going to happen. As has been pointed out in a previous chapter, no one can be very sure how many school age children a new town is going to produce.

In addition, new town planning is planning for people who are not there yet. No one can safely say what these mysterious future inhabitants are going to want the schools to do for their children. Experience so far indicates that many of them do not want and are quite unhappy with what the district offers in its existing schools.

It is perhaps wise, therefore, not to prescribe exactly what the new town schools will be like before the new town people arrive. Perhaps one of the rules that the district and the developer should agree upon is that the new town

schools can be different from the existing schools, that new town people, as they begin to move in, will be able to participate in the planning of what those schools are going to be like. In other words, part of the agreement could be that the new town educational system will be a system that offers options and the participatory planning of those options by both new town people and people already living in the district. This has actually been accomplished in the case of Cedar-Riverside, the new town inside Minneapolis, Minnesota. This option system is described in Chapter V.

Under this kind of governance arrangement, it would appear that each of the interested parties -- the local district, the developer, the existing taxpayers and the new residents -- may be able to find a satisfactory solution to the crisis created by the new town if they all sit down and reason together with the common aim of achieving not only schools and schoolhouses but the kind of education that will best serve the differing needs of many different kinds of people.

Option IV: The new town and its local district follow normal procedures, doing little or no unusual planning.

This is certainly an option. Indeed, it is an option that some new towns have taken. In almost every case, such a decision has not proved fruitful, even if the developer carefully

sets aside sites for schools in his land-use plans and even if he donates such sites to the school system. There are some cases where a developer has given the land, others where the developer has sold land to the district for his original purchase price and even cases where the developer has sold land to the district (or tried to sell land) at the inflated price he would charge a subdeveloper for home building purposes.

Option IV -- essentially doing nothing -- does not appear to be a winner. Actually, it is a loser for the whole new community movement and is a technique not unknown to certain tract developers who built houses, sold them and walked away. These unplanned developments which have "left the school problem to the town" just exacerbate the growing resistance nationally to any kind of growth, rational or irrational.

III.

Is There a Case for Reasoning Together?

Once a new town developer and the local school district have worked out (or at least begun the cooperative process of deciding) how the schools in the new town will be governed, the even more complicated task of actually planning the schools can begin.

Although this process may, on paper, seem relatively simple and straightforward, it rarely turns out that way in reality. No matter what the school district and the developer may decide or want, there are a lot of people around who are going to want -- and who have a right -- to have a say about the plans; people who are going to cause a great deal of trouble for everyone concerned if they are left out of the process or are given even the smallest chance of feeling that they have been left out.

Although this wish to participate may apply in the early planning stages to the people who are already there, such as the existing local residents and municipal officials, it applies also to the people who are <u>not</u> there, i.e., the

people who are going to buy houses in the new town and send their children to the new town schools. The problem is one of how these people can be substituted for in the early stages and moved into participation as they themselves move in.

There is considerable evidence from the new towns already in existence that nonparticipatory planning can have disastrous results. Some of this history has been described in the various chapters of Working Paper No. I ("New Towns, New Schools?"). What we would like to describe here briefly are two examples of successful (or at least potentially successful) participatory planning. We think these examples also demonstrate the advantages of such planning in producing more effective and economical solutions to the problems rather than simply producing the conventional solutions more efficiently. Each of these cases is discussed in much greater detail in Working Paper No. V, "The Imperative of Planning Together," along with a case study of Cedar-Riverside.

Case No. I - Gananda, New York

In Gananda the developers were anxious to have their own community schools and decided to pursue the Option I approach to educational governance -- The new town becomes a separate and independent school district.

Gananda's 8,705 acres straddle the Palmyra-Macedon (Pal-Mac) and Wayne-Central school districts. Neither district was brimming with eagerness to undertake the massive problems involved in providing schools for Gananda's projected population of 50,000 by 1992.

The developers of Gananda, New Wayne Communities, Inc., worked very carefully on their own and with the two school districts to decide whether or not to set up a new district. In order to do this, financial, legal and political problems had to be settled to the satisfaction of the two existing school districts.

Since the new town's land is primarily rural, it has only a farm and residential tax base. Consequently, the new district would also have very little income. Through astute and careful negotiation, the developers solved their political problems by gaining the consent and support of the two local school districts, the local state legislators and the New York State Department of Education to establish a separate new town school district. Two bills were drawn up, one bill asking for the creation of a "Gananda Educational Construction Fund." The second bill was intended to create a nonprofit public benefit corporation with the power to issue bonds for the

construction and operation of all public and community facilities and spaces within the new town. These could be either separate or joint occupancy facilities. They could be multi-purpose and multi-use educational, recreational, commercial, civic, social, religious, health and "personal enrichment" facilities.

The first Gananda bill was passed by the New York State Legislature on the last day of the 1972 legislative session and was signed by the Governor that June. The second bill, for a variety of technical reasons was never submitted, but may be at a later date. Both bills are included in Working Paper No. III, "Legislation Pertaining to New Communities."

This was only the first stage for the developers, however. The creation of the new district still had to be officially approved by the two existing districts and by a referendum of the existing voters. A joint committee of school board members and board presidents; lawyers and superintendents of the two districts; the district superintendent; and representatives of the developer was set up to organize this final approval process. This committee prepared the agreements and resolutions for the school boards, and, after approval by the state legal counsel, the boards passed them unanimously at the end of September, 1972.

The developer hired a local resident to act as community liaison. She contacted many area residents to explain the referendum that would be conducted in November. After two public hearings and extensive publicity, the referendum passed overwhelmingly in both districts in favor of the creation of a Gananda school district.

While the final political steps toward the creation of a separate and legal Gananda school district were being completed, the developer began to plan for the community's first educational facilities and services. The general educational planning for Gananda was prepared by the Educational Policy Research Center (EPRC) of Syracuse University as a supplement to the developer's HUD Application. However, the EPRC ideas were meant to provide a flexible background of information rather than a definitive plan for a permanent educational system. One aspect of the planning that was defined is a section in Gananda's HUD Application which provides for the combination of Gananda's elementary schools and its neighborhood centers. Each neighborhood center will provide a variety of social, cultural, recreational and commercial services. The developer hired architect David Lewis of Urban Design Associates to design the first of these centers. Together with the developer's staff and personnel from EPRC, Lewis designed a

series of participatory planning "games" to help determine what the center should be like.

The participants in the games were chosen to represent all the people who would be involved in the life of a neighborhood center. They included local and state agency officials, professional educators, people presently living in the area, university and institutional representatives, people who would be working at Gananda during its construction, prospective residents and people on the developer's staff. The participants were chosen by the developer's staff with the help of the community liaison and other contacts in the area. There were three sessions of games and sixty to seventy people participated in each one.

The games began with the entire group developing a general inventory of the kinds of spaces they would like to see in a neighborhood center and a plan for how the spaces would be used. The large group then broke up into small groups of six or seven, and the participants analyzed the list of spaces and activities in terms of their purposes for individuals, the human relationships and sizes of groups involved and the times and places in which the activities would occur. Each session lasted an evening and a day. Lewis collected the material produced at the three meetings

in order to analyze and interpret what the program and the design of the neighborhood center should include. Eventually, he met with the game participants in sessions open to the public in order to review and refine the center's design development.

Another stage in the planning process began with the January, 1973, election of the first Gananda School Board. This brought into existence a body legally responsible for education in the new community. The developer's staff worked with the board to review the previous educational planning efforts and to expose them to various educational models that helped them develop ideas about curriculum, faculty and administration. The Gananda School Board also established two task forces. One concerned itself with education and includes school board representatives, the developer's staff and the district superintendent. The other task force was concerned with programs and includes local residents, one school board member and the developer's staff. These task forces have worked on programming, staffing and administrative and budget questions for the neighborhood center.

Since there are as yet (March, 1974) no Gananda new town residents, the community task forces are really acting as surrogates for the membership of Gananda's future

Community Association. The Gananda Community Association is intended to be a quasi-governmental structure able to provide community programs and services. By gradually shifting the balance of representation in the Association, the control of the planning will be transferred from the developer and consultants to the residents. As in any new community, the composition of the participatory planning groups must change to reflect the political reality of the growing new resident population.

In the case of Gananda, it was assumed from the start that no legally binding decisions could be made until the creation of the official Gananda School Board. All the work done previously by EPRC and the planning games participants was viewed as a resource for the Board's decisions. Perhaps due to the effective community liaison work done in selecting the participants, three of the seven school board members are people who attended the games. They are enthusiastic about the results of the games and see the work of the board meshing compatibly with the previous planning efforts.

Even though the "come, let us reason together" approach seems like such an obvious way to avoid or to resolve conflict, it is all too easy to disregard the ideas of others

when captivated by one's own. The development of joint planning groups serves to decrease friction and encourage flexibility by educating individuals about the viewpoints of others who may have a valid stake in the decisions being made.

The usefulness of a joint educational planning group does not, however, have to end either with the arrival of new community residents or with the completion of initial planning decisions about new community schools. While a planning group may first function as an organizing agency and, perhaps, as a mediator, it can evolve into a managerial body which directs the operation of decisions and continues to provide educational plans. It can serve as an organization open to the views of new community residents and able to reflect the changing needs of a rather unpredictable population.

The specific arrangements for funding and organizing planning groups will differ from one new town to another. However, there are a few general ideas about things to do that have emerged from previous planning experiences. It is not a good idea to rely primarily on public hearings to involve the people concerned with educational planning. This is a traditional but usually inadequate way of

including people in the planning process. Hearings generally fail to allow the people who go to them any real influence since the fundamental decisions are substantially made before any public hearings take place. A more successful approach is to invite to planning meetings those people who are interested in and have the power to influence educational decisions.

The views of the new town residents should also be part of the educational planning. This may be accomplished by including representatives of the new town governance body, or of residents' or homeowners' associations, or of other unofficial groups within the community. In the new communities which do not have any residents, it may be useful to provide "surrogates" for those who will eventually live in the new community. The surrogates should be drawn from the expected market region of the new community, the local metropolitan area. However, their views should be used only as a resource since they are at best approximations of the opinions of those who will be the real users of the educational system.

Case No. II - Park Forest South, Illinois

Park Forest South is another new town which is experimenting with participatory planning in an effort to ease their school planning difficulties. The historical process

in Park Forest South has produced an Option III approach to school planning - The new town remains a part of its local school district without special legal devices but may acquire a "special status." The historical difficulties in Park Forest South have been described in Working Paper No. I, "New Towns, New Schools?" (pages 24-29), and are discussed in greater detail in Working Papers IV and V.

In February, 1973, a Joint Planning Committee was set up in Park Forest South to deal with the growing problems of providing educational and social services. The Committee came about through the assistance of personnel from EFL's Education in New Communities Project. It is the first time in the turbulent six-year history of the community that all the conflicting interest groups have sat down together to deal with their problems face-to-face.

The Committee was convened by the Village Board of Park Forest South, the new town's official governing body. The group includes the Village Board president, several trustees and several board members as well as the president of the school board and the superintendent of School District 201-U, a very large, predominantly rural district in which the new town is located. The inclusion of these official decision makers is crucial for the potential success of the

Committee's efforts. The group also includes representatives of the developer (New Community Enterprises), Governors State University, Rush-Presbyterian St. Luke's Hospital, the Park Forest South Park and Recreation Board, the Public Works Department, the Library Board, the Inter-Faith Council and a youth group called "Teens Taking Interest." The meetings are reported in the local press and are open to any other interested group or individual in the community.

The open discussion meetings operate under the direction of a chairman and have concentrated on several specific issues confronting the community -- a new junior high school, a community services building, the use of existing resources for other educational and social functions, a community information system and potential vehicles for providing community facilities and services. These issues are delegated to five subcommittees which report to the larger group at its tri-weekly discussions.

So far the meetings have been active and productive, and the participants seem receptive to considering the many ideas that have emerged. The main area of concentration is currently (March, 1974) the creation and funding of a school/community services facility involving all of the public agencies, including a new high school, and commercial space

to help pay for the public side. The participants seem to appreciate the opportunity to openly discuss their concerns and to work together toward solutions.

One can learn a number of things from the Park Forest South experience. When planning with a group that includes a broad range of interests and many people who are not professional educators, it seems more productive to concentrate on specific issues rather than generalities. Lay participants often find it difficult to get involved in broad educational concepts or overall planning approaches. This proved true in Gananda as well, and the planning games concentrated on analyzing very specific activities.

It is also important to structure the meetings in order to use the group's energies efficiently. In Park Forest South, the subcommittee agendas organize the work into specific subject areas. In Gananda, the directed games organize the participants' time.

The cost of running a participatory planning process is not unreasonable and does not require a large infusion of outside money. Experience in Gananda has shown that most of the effort can be covered by existing staff and resources. The major costs are operational. These include leadership training, dissemination of information, consultant services,

provision of meeting space and clerical and administrative services. Also, participants should be paid for their time unless they are present due to job requirements or official obligations.

Many of these activities can be handled by the developer's regular planning staff, and the developer should reserve a portion of his budget for the express purpose of coordinating planning. This is acceptable to HUD as part of the total to be included in the loan guarantee. Some of the staff and financial costs might be included in the regular budgets of the local school system and town governments, or the developer might make a grant to the school system to cover some of the planning costs.

Generally it would be futile for a developer or school system to seek special funding for planning from foundations or from federal or state governments. HUD has no funds to support planning at present -- as the School Board President of the 201-U district at Park Forest South has noted, with some annoyance.

Coordinated participatory planning probably provides a better use of resources than other planning activities. The benefits of lay or professional group consulting -- better relations for the development with nearby neighbors and

influential officials, avoidance of conflict and potential obstruction of plans, more appropriate and manageable plans and more appealing facilities for incoming residents -- should be counted as financial gains that far outweigh the costs of the planning process.

IV.

Should the School System Be Free-Standing or Community-Based?

First, some definitions:

We define a "free-standing" school system as basically the kind we have now. Students are housed in separate buildings called schoolhouses where the educational process is conducted from approximately 8:00 a.m. to 3:00 p.m. for 180 days a year by specially credentialed people called teachers. This process goes on, both physically and to some extent intellectually, independent of life in the local community.

We define "community-based" as a system which, in varying degrees, is mixed, both physically and intellectually, with the local community and the rest of society. This mix or nonseparation can take many different forms. The integration can be largely physical -- the housing of educational services in the same building or on the same site as recreation, health and social services; arts and

other cultural activities; family services; commercial activity; etc. Or, the integration can be largely programmatic and the various parts of the community can be used for educational purposes, whether they are located together or not, by students and teachers or any combination of the above.

The question of choosing free-standing or community-based schools is first and foremost a question of economic productivity: Which of these approaches to the design of a school system is likely to produce the greatest return on the shrinking educational dollar? The question has obvious and important educational implications as well: If we wish to help young people become functioning adults, what are the most effective (as well as the least expensive) ways of doing this?

The productivity question is particularly crucial for new towns, if only because rapidly growing new communities and their local school districts face such severe financial problems. It is becoming clear that the attempt to solve the problems of rising school population and costs by building more conventional schoolhouses and hiring more conventional teachers to teach in the traditional ways is simply not going to work. The tax base under normal circumstances simply does

not expand with the necessary rapidity to meet these costs. One possible answer to this problem is the strong limitation on a new town's growth and an insistence on balanced residential, industrial and commercial development; restrictions similar to those imposed by Charles County, Maryland, on its new town of St. Charles. This solution, however, does not ease the nation's housing shortage, nor does it plead the new communities' case with any noticeable eloquence.

There is, too, the problem of the continuing rise in the cost of education per pupil, quite independent of whether or not the school population is going up or down. Between 1965 and 1970, the cost per pupil nationwide rose from $537 to $668. The 1971-1972 cost per pupil rose to $934. Thus, even in many cities and towns where the total number of students is going down, the cost per pupil and the total school budget is still going up. In Princeton, New Jersey, for instance, the proposed school budget for 1973-1974 calls for an increase of $101,800 (1%) from $7,840,900 to $7,942,700 in order to educate 170 fewer students (the cost per pupil rising by $133 from $2,133 to $2,266). Even though many teachers will be dropped,

salary increases for the remaining teachers will still force the total staff budget up $58,700. This is typical. Costs continue to rise while enrollment shrinks, and there is nothing in the picture that suggests a reversal in the foreseeable future.

While it may be too early in the game to say anything definitive about new town educational economics, we do have a fairly firm grasp of free-standing old town educational economics, discouraging as such a grasp may be.

We do know, for instance, where most of the money goes (see tables on following pages).

The President's Commission on School Finance, after several years of exhaustive study, has proposed a series of adjustments and new approaches that can reduce the cost of education in a typical American school system by about 11 percent. These include differentiated staffing; different ways of purchasing; better ways of providing support services such as maintenance, transportation, health and food; and ways of cutting down the need for and the cost of school building (many of these ways are discussed later in this working paper). However, the Commission's report does not tell a school system how to keep its educational dollar from inflating.

ESTIMATES OF EXPENDITURES, BY PURPOSE

1970-1971

(Billions of Dollars)

	Expenditures*	% of Total
Salaries		
Classroom teachers	$19.5	43.9
Principals, supervisors and other instructional personnel	3.1	6.9
Clerical, service and district administrative personnel	7.8	17.5
Subtotal	$28.4	63.9
Purchases of Supplies and Equipment	$ 5.0	11.3
Other Expenditures		
Contracted services for plant maintenance, transportation, health services	$ 1.0	2.3
Fixed charges	2.3	5.2
Interest on debt	1.3	2.9
Telephone, travel, postage, other	2.2	4.9
Construction of school buildings	4.2	9.4
Subtotal	$11.0	24.7
TOTAL NET EXPENDITURES	$44.4	100.0

* Totals may not add because of rounding.

ESTIMATES OF EXPENDITURES, BY CATEGORY

1970-1971

(Billions of Dollars)

	Expenditures*	% of Total
Instruction		
Salaries of teachers and other instructional personnel	$22.6	50.9
Books, equipment and other instructional expenses	2.5	5.6
Subtotal	$25.1	56.5
Support Services		
Operation of plant	$ 2.9	6.5
Maintenance of plant	1.1	2.4
Pupil transportation services	1.4	3.1
Health services	0.3	.7
Food services, net	0.5	1.1
Subtotal	$ 6.3	14.1
Other Operating Expenses		
Administration and miscellaneous services	$ 2.7	6.1
Current expenditures for other programs	1.6	3.6
Fixed charges for employee retirement funds, rents, etc.	2.3	5.2
Interest on debt	1.3	2.9
Subtotal	$ 7.9	17.8
Capital Outlays		
School land and buildings	$ 4.2	9.5
Capital equipment	0.9	2.0
Subtotal	$ 5.1	11.5
TOTAL NET EXPENDITURES	$44.4	100.0

* Totals may not add because of rounding.

Any economy is worthwhile, but a reduction, even if implemented, of 11 percent in the cost of a rapidly growing new town school district is not going to solve the average new town's problems that much.

To take a new town case, in the Lewisville District in Texas, which includes the new town of Flower Mound, the 1971-1972 operating budget for a school system of 4,283 K-12 students was $2,739,100 or $726 per pupil. This figure includes debt service and transportation costs; without these figures the net operating cost was $607. The Lewisville District average of $726 is considerably below the 1971-1972 national average of $934. (These averages do not include capital outlay expenditures except for debt service charges.)

Lewisville expects to grow from its present 4,283 students to 13,658 students by 1977-1978 without counting any students coming from the new town of Flower Mound. The district just passed an $11,500,000 bond issue for new schools which, they hope, will enable them to handle the non-Flower Mound rise in the school population for the next five years. (Interestingly enough, this hope is based on the assumption that school construction costs will remain what they are now, with no inflation.)

Lewisville also figures that the primarily residential tax base will expand sufficiently to allow them to issue those bonds and build the schools.

What will happen in Lewisville, then, when Flower Mound begins to produce children? Assuming the new town's student population projections are accurate (and assuming Lewisville's are accurate), Flower Mound expects to be producing about 3,000 K-12 students by 1978. The new town will thus increase the Lewisville school population by about 23%. Even in terms of today's dollars and today's cost per pupil (without taking any inflation into account), Lewisville's additional 3,000 students will cost an extra $2,178,000 a year (including debt service and some transportation).

A further point: Included in that 1971-1972 Lewisville per pupil cost of $726 is $105 for debt service. This represents Lewisville's current building program which includes an addition to the administration building, air-conditioning in all schools not previously air-conditioned, a gym and a vocational high school. This represents about 15% of the total per pupil cost now and does not include the new $11,500,000 bond issue. The national 1971-1972 average is $38 per pupil for debt service, which represents about 4% of the $934 national per pupil average.

If the debt service costs do continue to rise, the Lewisville district faces several unpleasant choices:

1. It can raise the tax rate (or attempt to raise it) to cover both the present level of operating costs (plus inflation) and the increasing cost of debt service.
2. It can pay for its new school buildings but reduce its educational services.
3. It can stop building new schools and try to cope in some other way with its space problems while maintaining its present level of services.
4. It can build some additional educational space and reduce its educational services only enough to cover such debt service.

It appears, then, although the case has by no means been proved, that the Lewisville district and Flower Mound New Town are facing an almost intolerable financial crunch.

Where is all this money going to come from? Some of it -- perhaps much of it -- will, one assumes, come from Flower Mound itself, from taxes on the housing that produces the students and from the new town's commercial and industrial development. This is not by any means assured, particularly in the early years of a new town's development

when it seems to be common practice that no new town is able to pay for all its own municipal services, much less produce a tax profit that will help pay for educational growth in non-new town areas of a school district.

The Lewisville district does not, at the moment, know how it is going to cope with the Flower Mound problem. Nor can Flower Mound itself say exactly at this point how all of these problems will be solved. The new town has, however, set up an intergovernmental educational and social services task force, involving the Lewisville district, the developer, regional HEW officials and local government and state agencies. Some of the answers may well emerge from this consortium of interested parties.

Indeed, the basic point of such an overall planning mechanism (similar to the devices coming into existence in other new towns such as Park Forest South, Riverton and Gananda) is to explore the possibility that the only available answers are going to lie in mixing educational services and space with many -- if not all -- other aspects of community life.

The first, although not necessarily the most important, reason for considering a community-based rather than a free-standing educational system is exactly this problem

of money. The question is straightforward: Can we reduce the cost of physical facilities and perhaps operating costs (while maintaining quality) by mixing the educational process with the rest of the community?

The most immediate possibility for saving money lies in finding and ruthlessly eliminating any and all duplication or overlap in either space or services. In other words, making sure that:

1. The school district does not attempt to provide services that some other municipal agency or the private sector might provide more efficiently and economically.

    Examples:

    health services
    food services
    maintenance and custodial services
    library services
    purchasing procedures
    recreation and physical education programs
    occupational or career education programs
    arts and cultural programs
    job counseling and employment services

Even small towns tend to have balkanized bureaucracies, each defending its own bit of turf. To take one small instance, almost every town supports simultaneously and independently a public library service and an extensive school library service. This means, in most cases, not only duplication of space and resources but also personnel and maintenance costs. In general, students need library services during the day, adults in late afternoon and evening. Not many towns or cities see this kind of balkanization and duplication as pure and simple waste of the taxpayer's dollar. A similar case can be made for a town's recreation program and a school system's physical education program, and/or the duplication of school and community health services, etc.

2. Making sure that all space designed and built by a school district (and other municipal authorities is really needed (that is, that it does not already exist somewhere in town or is also being planned by some other agency). Again, libraries and recreation facilities are excellent examples.

3. Making sure that whatever spaces the school system has or intends to build will really be used to their full capacity. The average school facility is used for its own educational purposes about 25% of the total available time (six hours a day for 180 days a year, as contrasted with 8:00 a.m. to 10:00 p.m. or fourteen hours a day, six days a week, all year round). True, most schools are used for a variety of other purposes as well -- adult education, recreation, community meetings, etc. But this is usually done on a first-come-first-serve or a renting-out basis which uses those regular school facilities that happen to be useful to other people. This is a far cry from jointly planning and constructing facilities to be jointly used by a wide variety of public or even private agencies.

What all these arguments tend to indicate is the economic and educational virtues of what is generally called a school/community center, a place where a variety of municipal agencies (plus private agencies if possible) join together to build and use only the space that is actually needed. An equal aim is to share in the provision of services with each agency doing

the job it is best suited to do but doing it for everyone, not just for its own select clientele.

We have several models of this kind of school/community center, none of them quite yet in new towns although such centers are being planned in Riverton, New York; The Woodlands, Texas; Gananda, New York; Park Forest South, Illinois; and Harbison, South Carolina. Specific examples of such centers, such as the Thomas Jefferson Junior High School and Community Center in Arlington, Virginia, are described in some detail in the new EFL publication "Community/School: Sharing the Space and the Action." The Gananda neighborhood center, now under construction and proposed to open in September, 1974, is described in Working Paper No. IV.

The school/community center is one way to integrate a school system with other parts of community life. Another way to approach this problem -- and one that is quite compatible with the school/community center notion -- is to approach the problem in reverse and to disperse school facilities throughout the community by housing them jointly with other structures and by having various public and private agencies pay only for the time they actually use in any given facility.

The best example we have of this is the Title VII new-town-in-town on New York City's Roosevelt Island, a project of the New York State Urban Development Corporation. This project was briefly described in Working Paper No. I, "New Towns, New Schools?" and is further described in Working Paper No. IV, "Dollars and Educational Sense," as are the other school/community centers being planned for new towns.

Although the concept of joint occupancy of facilities has not yet been worked out in detail for Roosevelt Island, it is an idea that every new town should be exploring. In a typical new town situation, given the rapid, continuing growth and the desperate need for space, the idea of coordination, either through the school/community center or dispersed space (or both), clearly becomes one that developers and school districts can ignore only at their own peril.

Community-based education combined with leasing and time-sharing is a particularly important idea for the following reasons:

1. It allows the needed educational spaces to be built by the developer when they are needed and as they are needed without reference to the limitations on a school system's bonded indebtedness.

2. The school district has to pay only for the space it needs at any one given time without committing itself to huge, long-term building programs and thus to convincing the taxpayers that large bond issues must be passed immediately.
3. Such an arrangement allows the school district to pay for space only for those times of the day (or year) when the district actually needs space for school purposes. Thus the district is not responsible for and is not paying for educational space when it is not being used.
4. If the school district and the developer can agree that school space can and should be provided in housing (high-or semi-high-rise), in village centers and in town centers, then commercial space can be included, producing income that will help carry the public portions of the space. The price to the school district can also be lower due to savings in construction cost which result from educational space being one part of a larger construction package.
5. Perhaps the most important -- or the potentially most important -- result of joint construction and time-sharing could be that it would enable a school

> district to acquire exactly the amount of space it needs at any particular time and to get rid of space when it no longer needs it. The nation's population situation, as we have indicated in Chapter I, is unfathomable at the moment, especially where new towns are concerned. This means that a new town and its school district can make only the roughest of guesses as to how much educational space will be needed over the next ten to fifteen years. It may be a great deal, or again, it may be much less than we now imagine.

A district, by not owning its buildings and by renting them on a time-sharing basis, could expand its rented space quickly and contract only for what it needs for the immediate future. It could then just as easily withdraw from unneeded space (which could be turned over to other public uses or to commercial, income-producing purposes).

There is another kind of overlapping and duplication (mentioned briefly earlier) that can and does have extraordinary impact on costs. This is the attempt to duplicate in school buildings (especially high schools), built and paid for out of public funds, many of the facilities and

kinds of instruction that already exist -- or will exist -- outside the school. One of the most obvious areas is that of career education -- auto mechanics, machine shops, business education, computer programming and maintenance, law, medicine, manufacturing, merchandising, banking, police and fire protection, the entire communications industry and, or course, all of the arts. No school system could hope to duplicate adequately all of these facilities and people. This holds true not just for "career" education (if that is in any way distinct from "education"), but for all students who wish to find out how the world operates and how it might be made to work better, not only for them as individuals but for all citizens.

This notion of the community becoming the school, at least for older students, has been and is continuing to be widely tested -- in Philadelphia's Parkway Program, in New York City's Park East High School and City as School Programs, in Boston's Copley Square High and in other communities, large and small, all across the country. Although costing methods vary, the savings on capital costs have been clearly demonstrated. The operational savings per student are less clear, but there is no evidence that community-based education would cost more than traditional ways of educating students. So

far, no new town has actually instituted this approach to save money and simultaneously to revitalize the educational process. Roosevelt Island will, perhaps, be the first.

It could be argued that a new town is, in fact, the ideal place to work out a truly community-based educational system, one that centralizes in school/community centers those activities it makes sense to centralize and uses the larger community for those activities it makes sense to disperse. New towns and their local school districts have a unique opportunity to plan this kind of system, at least within the new town itself. Part of the new town's original overall plan could be the creation of school/community centers rather than schools, the inclusion of educational space in industries, commercial malls and office space, municipal offices, recreation facilities, arts facilities, etc. Every new town has some form of incorporated community or residents' association, often with powers to build, own, rent, lease and otherwise provide facilities, even if no bonding power exists. In most cases, these are -- or could become -- prototypical public benefit corporations. (The school district, of course, would become a member of such a corporation, as would the other agencies involved in the school/community network.)

There is an even more unusual approach to the problem of lowering cost and increasing community and student involvement in the schools. This requires a school district (and the developer and the new town residents, especially the older students) to look closely at where the educational dollar is going now and to try to ascertain how much of it is being spent on doing things for students that they might be able to do for themselves.

Perhaps a great deal of responsibility for school operation could and should be transferred to students. Routine cleaning chores can be easily performed by even very small children. Students could share the work of preparing and serving food. This practice is followed by Mt. Anthony, a school in Bennington, Vermont. They could review menus and eliminate unpopular items that would only be wasted. Students are also perfectly capable of handling routine clerical tasks such as scheduling, keeping attendance records and correcting certain kinds of papers. This sharing of responsibility may not only result in small economies, but may significantly contribute to the development of a child's sense of involvement and commitment to a building that is too often viewed as the property of teachers, principals, custodians and school boards exclusively. Is there any particular reason why part of the job

of going to school could not be performing these routine responsibilities that most adults have to assume at some time in their lives? Some New England prep schools assign students to institutional duties, including working in the barn, quite routinely.

There are additional possibilities such as older or more advanced students tutoring younger students, or the use of parents and community people as part-time, adjunct teachers during the day or in the evening. All of these ideas -- although they may appear radical -- are being tested and seem to work in various parts of the country. If new towns and their local districts are going to prosper, perhaps some of these more unusual approaches to greater productivity will have to be explored and used. Many of the problems and possible solutions discussed briefly here are dealt with in much greater depth in Working Paper No. IV, "Dollars and Educational Sense."

V.

What Are Some Ways of Getting Started?

For the moment, let us make the following assumptions:

1. The new town and its local district have resolved their governance arrangement, probably in favor of maintaining the existing district. They both realize and agree that the new town presents a special problem and will have to be dealt with in special ways.
2. The new town, the district and the other relevant municipal and community agencies have set up an overall planning group and are at least willing to explore the possible economies and greater productivity involved in a community-based rather than a free-standing system.
3. Neither the developers of the new town nor the local school board and administrators know exactly how the financial problems are going to be solved.

Solutions are vague for the early years when the new town is not producing sufficient tax revenue and when the local district does not have the bond money to build schools in the new town. Even if schools could be built, there is very little in the way of operating funds to hire teachers and staff.

4. The developers and the local district have, however, worked out an agreement that will provide some capacity for joint thinking and planning. Perhaps the developer has made a grant to the local district (out of his loan-guarantee funds) so that the district can hire a planner. Perhaps the district has seen this as a long-range investment it is willing to make on its own. At any rate, some small capacity for planning exists.
5. The first stage of the new town is about to go into construction (or has already begun). Families with school age children will be moving in within a year, and everyone is wondering how those children will be educated.

The most common and immediate reaction on the part of most local districts is to bus the new town children to

existing schools in the district, assuming space for them exists. This is what has happened in Reston and Jonathan. It is what is being planned to happen in Cedar-Riverside, Maumelle, Riverton and perhaps others as well. This is a course of action that makes a great deal of sense. If such extra space exists, it would be foolish for the district to create additional space in a new town and let available space elsewhere sit idle.

But this is at best a stop-gap procedure. In many new town situations, of course, it is not even possible, since the existing schools are already overcrowded. Under normal circumstances, such "busing out" can reasonably handle the first year's production of new town children. The district, however, must still staff the schools and pay the going per pupil rate to educate them.

From the developer's point of view, this is not a desirable situation. Most new town planners (and most new town promotional brochures) attempt to project an image of the new town that is somewhat utopian. The new town dweller is supposed to live just a short bike ride away from recreation, shopping, community activities, jobs, cultural diversion and, of course, schools. It does not help the house salesman to do his job if, in answer to the

question, "Where do my kids go to school?" he has to answer, "Well, for now they will have to be bused to that school over in Oldtown."

Take the example of Park Forest South. Having a new school in the town was of such importance to Lewis Manilow, the new town's developer, that he offered to lend the Crete-Monee School District the $800,000 necessary to build the first elementary school in the new town. Meanwhile, junior and senior high students are bused out of Park Forest South to centralized junior and senior high schools. These schools will have been on double sessions as of September, 1973.

Robert Simon, the original developer of Reston and now the developer of Riverton, has agreed to put up the Rush-Henrietta School District's local share of the first school building in that new town, a contribution that will amount to almost $1,000,000. If most developers do not feel they are in a position to be able to do this, there are still other possible options for both educational space and the initial program operations.

Found Space

Contrary to popular impression, no new town has yet been created on virgin land. There is always something already

there. In most cases, even in the minimal ones way out in the country, there are farms, farmhouses and, above all, barns. True, it requires a little imagination to see a wooden barn or a frame farmhouse as a potential school, particularly as a safe school that might pass a fire marshal's scrutiny. With a little imagination, some architectural skill, a minimum amount of money (and perhaps a good sprinkler system), a barn can become a small school of considerable charm, charm not being the strong point of the typical American school building. Park Forest South has preserved one of its farms (Riegal Farm), and there is a good chance that it will become part of the Crete-Monee high school system. Similarly, Jonathan has converted an existing house and barn into a community arts center. And before the idea that good barns can make good schoolhouses is discarded as bizarre, consider that one of the most exciting community colleges in this country today is Brookdale Community College, Lyncroft, New Jersey, several of whose buildings were originally the horse barns of a wealthy estate.

Generalized Space

"Generalized" space is space that either exists or is constructed in such a fashion that it can be used simultaneously

or sequentially for several different purposes. The space is usually fairly open and could serve equally well as a warehouse, a factory, a business office or a school. The point is that, since the space is generalized space, it could serve any of these functions in any order the new town happens to need them.

Example: Governors State University, a new Illinois "senior" university, is now moving into a 700-acre campus in the middle of Park Forest South. For the past three years, Governors State lived in a building in the new town's industrial park. The building was put up by the developers expressly to house the university while the new campus was being designed and constructed. (The lease cost to the university for the raw space is about $2 per square foot per year.) The building was also expressly designed as a general purpose, open space structure that could be converted to industrial park purposes when Governors State moved out. Now that the university is moving, the possibility exists that it will not be used as a factory or as a warehouse, but leased as an annex to the Crete-Monee High School to solve that school's overcrowding problems and possibly to avoid double sessions.

The Ann Arbor, Michigan, school system used a similar approach and combined the advantages of generalized space

and leasing to solve its overcrowding problems and to avoid bond issue hassles. When the already overcrowded schools were confronted with the prospect of 950 additional students coming from newly constructed housing developments, it began looking for an alternative to hard-to-raise construction money.

Deputy Superintendent Phil McIlnay and financial consultant Gary Stonebraker found that although the district could lease portable classrooms for $5 per square foot, office and industrial space in the area was available for as little as $2 per square foot. Since a suitable building was not available, the district asked a commercial developer to buy a ten-acre site in the area and to build -- to the district's design and deadline requirements -- an office-type building that the district could lease for $2 per square foot each year.

The office building follows an open space plan and is capable of housing 320 students in a 24,000 square foot area. The annual lease is about $56,000, plus utilities. The building is carpeted, air-conditioned and meets all state codes for school use. The construction costs -- including land, fees, financing and modular furniture chosen by the district -- are $21.20 per square

foot. This compares quite favorably to the usual school construction costs for the district which run about $35.00 per square foot.

The advantages of using the leased space are several. The district gets outstanding facilities when and where they are needed at a price well within its budget. Moreover, because the lease comes out of current operating funds, no bond issue is necessary, and available funds can be used for other capital projects.

The district can choose to purchase the building within the next five years, but it can also continue to rent the space indefinitely -- a likely prospect in a rapidly developing area. When the district no longer wants it, the owner will have well-located office space available for rent. The arrangement suits everyone and the catch seems to be nonexistent.

The idea of generalized space, of course, can be applied in many different contexts -- for instance, to space in shopping centers or community buildings or in housing (perhaps ground floor space in apartment buildings or single townhouses or even single family detached houses). All of these structures can be put up and adapted initially to

school purposes and then later converted into space for housing, retail or community purposes. A reverse possibility: One of the first buildings a new town developer puts up is a building to house the operation of selling the new town to prospective home owners. Could not these buildings be designed in such a way that when the new town is sold they could easily and quickly become schools? If the interior partitioning is easily removable, the space can be reshaped to accommodate schooling. Whether the new "school" is a good place for learning will depend principally on how it is furnished. Furnishings, not roofs, make good places for learning.

Relocatable Space

A third possibility for providing usable school space quickly and with reasonable economy is to use prefabricated and (in many instances) prebuilt, "relocatable" classrooms. There are a wide variety of these movable classrooms commercially available. Just what may be available in any particular part of the country varies so widely that any information on availability and cost would have to be obtained locally.

The "relocatable" classroom, of course, is what used to be called the "temporary" or "movable" classroom. As such,

its reputation has suffered mightily because of the thousands of poor quality examples scattered all across the country, usually on asphalt covered playgrounds.

This does not mean that all relocatables are cheap and ugly or that they turn out never to be moved and thus become the permanent school facilities.

There are high quality relocatables, including such amenities as carpeting and air-conditioning, at prices that in general are no higher -- and are in many cases lower -- than comparable new construction. If such high quality units are specified, if they are artfully arranged on-site and especially if careful attention is paid to landscaping, relocatables can be an attractive solution to the space needs of fast-growing communities. They can be obtained and put up quickly without a year or two going by while new buildings are undergoing design and construction and children are being bused to other schools.

Perhaps the most attractive feature of relocatables for new towns, however, is the fact that in many cases they can be leased or rented rather than purchased, often on a lease-purchase or option-to-buy basis. These arrangements have several obvious advantages. The costs can often (depending on state laws) be charged off to operating expenses rather

than capital outlay, thus escaping the statutory limitations on bonded indebtedness. Eventually (at least under lease-purchase), the school district becomes the full owner of the buildings. They can also be moved to other fast-growing parts of the district as it becomes possible for new permanent facilities to be built.

Relocatable classrooms, since they are essentially industrialized building systems, can also be "put together" to form larger spaces, often with spans up to sixty feet to provide "open space" teaching areas.

The Charles County, Maryland, school system has a complex of relocatable classrooms in the first section of the new town of St. Charles. They have turned out to be quite workable as well as economical.

The Necessity for Planning

Most of these found and generalized space solutions to the new town financial crisis involve the school district renting or leasing space, usually from the developer. They also involve, in many instances, the school district and the developer planning <u>together</u> for just these purposes -- consciously and deliberately working out a carefully orchestrated program of providing space when and as it is needed,

even if it is not what everyone might immediately think of as a "school." To a very real extent, this kind of joint planning is essentially the kind of planning that leads to a cooperative and unitary rather than a single-purpose school facility. Although these solutions may at first seem only temporary and expedient, there is the distinct possibility that they could work so successfully that, as the new town continues to grow and more and more educational space is needed, combining the schools with the rest of the community could come to be viewed as a more sensible way to organize the entire new town educational process.

Some Options for Early Operations

Assuming for a moment that the school district and the new town have agreed on the necessity and desirability of solving some of their space problems by found or generalized space, what about the problem of finding ways of running schools on a severely limited school operating budget?

In a sense, this does not present as great a crisis as the space problem. The American educational creed (and state law) says that any child who lives in a school district and shows up at the school door is entitled to be educated.

Neither the creed nor the laws state that he must have fully adequate, uncrowded, single session schools in modern, up-to-date school facilities. In most localities, there are no legal limitations imposed on the size of the school operating budget as there are on a district's capital indebtedness. If the school population rises by 1,000 students, it is more or less assumed that somehow teachers will be hired to teach those children, even if class size must be doubled and classes held in the basement.

Although it may be true that the average single-family house does not produce enough tax revenue to pay for the education of the children it produces, every such house does produce some tax revenue. Thus, the early new town families, even if the new town is not yet paying its way, can expect that their taxes will provide them with public schooling in some form. As individuals, after all, they are paying at least as much in taxes as anyone else in the district.

Barring some form of legal limitation on the rate of a new town's growth or controls on the balance between residential, commercial and industrial development (such as Charles County, Maryland, has imposed on the new town of St. Charles), the new town and the families that move

in during the early years are probably going to have to face up to the fact that they are not going to have handsome conventional school facilities or school programs when they first arrive. They will probably have to choose between busing their children out to the overcrowded existing schools or adopting some of the temporary facilities and program solutions described here.

As with the facilities problem, the operational program crisis can also be looked upon not as a disaster but as a chance to invent some different and perhaps better ways of educating children and involving the parents and the larger community in the educational process. Assume for a minute that the local district is willing to provide the new town and its parents and children with the district's normal per pupil cost (although in most cases this will mean a rise in the local educational tax rate). The possibility then arises that the local district and the developers could agree that the new town should be considered as a special crisis case and that this money can be spent in unusual ways. The developers and the earliest residents might even agree that, rather than bus their children out to overcrowded schools, they would accept the idea that all expenditures, including facilities and operating costs, would

be paid out of the current per pupil cost allotted to the new town.

The problem for the new town and its people would then become how to run "schools," probably in odd, unusual buildings and in a way the new town people want. A further problem might be this: Are there unusual kinds of programs or institutional arrangements that might be sufficiently attractive to the new town residents and which might allay their fears as they accept the fact that they will not have conventional buildings and programs available when they move in?

Community Involvement and Participation

One thing the new town might offer (and adventurous early new town residents might be interested in) would be a chance for parents (and older students) to be intimately involved in the planning and operation of their new town schools. Many of the new town parents may well be recent city dwellers who have moved to the new town in part to escape what they perceived as a big city school system that tended to shut them out and wasn't very responsive to their desires. A chance to have some say about the local schools might appeal to a large number of these people.

This would involve setting up a system of planning that would encourage (perhaps even require) new town residents to become members. Perhaps this could be done through a community or a residents' association. The crisis would be explained to them along with the opportunities that were available or which might be developed.

Options and Choices

A further inducement might be the ability of the new town system (working closely with and as a part of the local district) to provide different kinds of educational options and different kinds of schools from which parents could make choices. One of the options, obviously, would be to opt out of the whole participatory planning scene and have their children bused out to the existing schools.

But different kinds of parents may want different kinds of schools, including conventional schools, relatively structured schools, team-teaching schools or "open education" schools based on the British primary school system or Montessori education.

Since in almost every case, additional teachers will be required to staff the new town educational system anyway, these teachers could be specially recruited and/or selected

to work in the kind of school they wished to work in and parents wished them to work in. They would, of course, be paid by the school district and be part of the general teachers' contract.

Collaboration to Reduce Costs

A system of options and choices and parent participation leads rather naturally to the idea of reducing the cost of schooling through the collaborative effort of teachers, students, parents, administrators, etc.

There is a genuine question in the minds of many people as to whether the current organization and structure (and the resulting costs) of American education are really the most rational and productive ways to educate young people. These are some of the questions that are being asked:

- Do all children really learn (or develop) best only when they are taught by teachers?
- Can children actually take more responsibility for their own learning than we generally assume?
- Should schooling remain an essentially competitive enterprise for students or might it become more cooperative, with students and teachers actively helping each other to learn and develop?

- Could not parents and other community people also become involved in such a collaborative approach to education? Is it possible that much of the "teaching" for many of the children could be done by volunteer or part-time parents, by people out in the community or by older students?

Depending on the answers parents and teachers give to questions such as these, it might well be possible to reduce the cost per pupil below what most districts will otherwise have to spend. It may also be possible to spend the money in quite different and possibly more productive ways -- on a richer variety of learning materials for students to use themselves; or a greater variety of artistic opportunities for students to experience in and out of school.

It is interesting to note that in both the British primary and Montessori schools, the pupil-teacher ratio often runs as high as 35 to 1, largely because the teacher acts primarily as an assistor to students who are basically doing their own learning. This constitutes a dramatic cost reduction all by itself.

Other intriguing possibilities offer themselves. Might it be possible, for instance, to develop a system whereby

parents or community people who work in the schools or take on part of the educational job out in the community receive a tax rebate? After all, they are helping to shoulder the cost of schooling and thereby are -- in theory at least -- reducing the load on the tax base.

The possibilities inherent in the cable television systems that most new towns are planning are another bit of territory that may eventually bring cost reduction rewards (see Chapter VIII and Working Paper No. VI, "Cables, Cameras and Schools"). Why not, for instance, take advantage of and rely more heavily on programs like "Sesame Street" and "Electric Company" to reinforce basic skills?

Possible Economies through Franchising

Another possible approach to saving money is to explore the possibility of turning some of the normal managerial chores over to the private sector, especially building maintenance and the feeding of students, although the idea could also be extended to thinking about how some of the educational chores (such as career development) might also be done in conjunction with the non-school part of the community.

Although the evidence is far from definitive, there are indications that franchising can work and can save money.

In the Union Free School District No. 5 in Rye, New York, the district contracted out both its cafeteria service and its building maintenance to private firms during the 1971-1972 school year. Very tentative and preliminary results show that the district has saved a considerable amount of money, especially in the area of capital costs saved by not building expensive food facilities. The district estimated that it saved at least $150,000 by not building a kitchen in one of its schools. They also knew they were losing about $10,000 a year (it is a small school district) on its food operation, a deficit that was made up out of the general school fund and was thus paid for by all the taxpayers whether they had children in school or not. By contracting out for food services, the district was able to keep its lunch prices at exactly the same level -- without a deficit. What's more, the students ate more food once the standard Class A lunch was done away with.

On maintenance, the district replaced its custodians with a contract service at a contracted cost below what it was paying its own people. Exact figures are not yet available, but in both cases franchising may be a more economical way to get these particular jobs done.

All of these things are presumably possible if a school district and the new town planners are able to maintain an

open, experimental state of mind and will allow enough participation for some of these alternatives and options to develop. It is -- most likely -- only through some of these alternatives or through some others that new town people may invent for themselves that the financial and educational crisis of the new communities will be eased.

VI.

Should You Plan for Year-Round Use?

It seems reasonable to assume that new towns will be heavily populated by young families with school age children (see Chapter I), and that as new towns develop, the student population in a school district will be growing faster than the tax base. School systems bound by revenue limitations and legal restrictions on bonding power just will not be able to stay abreast of the needs for conventional educational services and conventional school space.

Inevitably, the financial pinch of limited dollars results in a limited amount of educational facilities. This, combined with the sudden demands presented by a rapidly expanding new town student population, results in the almost immediate overcrowding of a school district's existing facilities. Consequently, it is crucial for new communities and their school districts to consider how they can make the most efficient use of the educational space that is available.

It seems reasonable to say that if fuller use is made of limited and existing school facilities, the need for new

construction can be reduced and those dollars can be used to better educational advantage. There have been several efforts around the country to explore the possible economies of the extended school year as one means of improving the use of school facilities. While the 180-day school year is an American tradition, it is not necessarily one that needs to be preserved without question. The taxpayer demand for fiscal economy has encouraged many school systems to search for alternative scheduling procedures which may be more economical than the traditional 180-day school year.

On paper, it appears that an immediate 25 to 33 percent increase in school capacity can be obtained if schools were in session for 48 weeks rather than the customary 36 weeks. Under most extended year plans, the attempt is made to stagger schedules so that 75 percent of a school population is in attendance while the remaining 25 percent is on vacation.

A variety of scheduling approaches have been devised. One is the staggered quarter program which retains a three-month recess period for each student. One-fourth of the students are on vacation during each quarter of the school calendar. However, this plan is not very appealing to parents who live in severe winter states and don't happen

to be ski enthusiasts, nor has it been eagerly embraced by parents residing in communities of reasonably stable growth.

Perhaps the most well-known year-round school schedule is the one instituted by Valley View School District Number 96 in Illinois. Valley View is a typical fast-growing suburban community south of Chicago. In 1953, there were 89 pupils in Valley View. By 1970, there were 5,590 and population projections predict there will be 22,000 students by 1980. This obvious crisis is being somewhat ameliorated by the Valley View 45-15 Continuous School Year Plan. The plan is compulsory for Valley View students and has the following characteristics:

1. The student population is divided into four groups. Each group attends school for 45 class days and then has 15 days of vacation. The district determines which group a pupil will be assigned to. However, all the children in a single family are placed on a similar attendance schedule.
2. Each group has four 45-day sessions per year in order to fulfill the 180 school days per year legal requirement.
3. The starting dates for the four groups are staggered at 15-day intervals. In this way, when the fourth

group is starting, the first group is just going on vacation. This means that at any given time only three of the four groups are in school. According to the Valley View district business manager, the capacity of six elementary schools, which use traditional curriculum and teaching methods, was increased by 33 percent. There was a 26 percent increase in junior high school capacity. The percentage was smaller due to the character of the curriculum and the method in which classroom space is employed.

4. In addition to their four 15-day vacations and the usual legal holidays, all pupils have a week off at Christmas, another week off at Easter and from 7 to 11 days off around July 4th.

Savings in the Valley View School District have been realized almost entirely in building construction and interest costs, not in operational costs. Valley View finds that the total cost of teachers' salaries is not affected by year-round school operation. Since teachers are paid according to the number of days they work, the new cost in teacher salaries remains the same as though

an extra school had been built and the traditional school year continued. Future Valley View school construction based on the extended year plan may achieve savings in administrative, custodial and cafeteria staff salaries since every three schools the district builds will be the equivalent of four under traditional scheduling. In addition to construction savings, the greater sharing of textbooks, audiovisual equipment and classroom furniture may also result in operational savings.

The Dale City area of Prince William County, Virginia, instituted the 45-15 extended school year plan on a pilot basis in four schools during the 1971-1972 school year. Their careful analysis and comparison of operating expenses indicate that the 1971-1972 per pupil cost of education under the 45-15 plan was 9.6 percent lower than it would have been under a regular school year calendar. Over half (4.9 percent) of the savings resulted from a more efficient and intensive use of staff -- teachers, aides, librarians, counselors, principals and clerical support. The remaining savings (4.7 percent) resulted from the more effective use of the four buildings and their equipment. All of the savings relate directly to the ability of each school building to house one-third more students under the extended year plan.

The extended school year has also been used as an enrichment program rather than as an economy measure. Some school districts have expanded and redirected their traditional summer make-up programs and have designed new programs which offer students wider course choices. Students are encouraged to accelerate and to take advanced and enrichment subjects. Fulton County, Georgia, which includes Atlanta, allows its students to attend any three of the four academic quarters scheduled, and students have the option of attending all four quarters. Champlain Valley Union High School in Hinesburg, Vermont, has an elaborate calendar of staggered nine-week sessions, and students are permitted to attend any four. These year-round programs are not designed to increase school capacity and are likely to result in higher educational cost per pupil rather than in savings.

In new towns, the extended school year can be instituted as a necessity or as a luxury. A new town population (and the school district to which it belongs) may be forced to adopt or to participate in year-round schools simply to survive the expensive process of educating a growing number of children. Either way, year-round education is different, and the very fact that it is different means that it is

likely to be questioned skeptically and perhaps opposed by residents.

Year-round education definitely has its share of problems. Community recreational activities and family vacations may have to be reorganized. Parents may find it difficult to adjust their work schedules to their children's staggered vacation schedules. Children may find it difficult to adjust to the constant shift between school and vacation activities. Furthermore, the constant shifts may interrupt a child's learning development at crucial times.

Responses can be made by advocates of year-round school for many of these objections. In answer to concern that community recreational activities will be over-taxed, one can cite the Valley View case as an example of cooperation. Valley View recreational authorities geared their programs and facilities to the 45-15 schedule. Since the burden on recreational facilities could be evenly distributed throughout the year, resources that were over-used in summer could be used more efficiently. However, it is possible that the provision of adequate recreational facilities could use up whatever savings are made on school facilities.

Teachers worried about workloads and salaries are given choices. Customarily, teachers are unemployed one-fourth of the year. The extended year plan allows them to choose

to keep their vacations or to lengthen their contracts. Teachers and aides who participated in the Prince William County year-round pilot projects increased their salaries by 25 percent. The 45-15 plan was so appealing to teachers in the Valley View school system that there was a surplus of applicants where there had previously been a recruiting problem. Of course, this may reflect a more general and national teacher surplus, one which may or may not continue.

Employment possibilities might be expanded for students as well as for teachers. The glutted summer job market makes it difficult if not impossible for high school students to find suitable work. Enterprising students might job share and thus obtain year-round, full-time employment during their recess periods. Students would no longer be limited to after school and weekend working hours.

The difficulties of children transferring into a school system might also be alleviated by the extended-year plan. Since this plan has four different groups at four different stages of instruction, chances are increased that a child will find a comfortable level commensurate with the progress he has already made in his previous school situation. The 45-15 plan also provides special benefits for children having academic troubles or personality conflicts with a

teacher. A child who has difficulty with one 45-15 day segment can catch up by joining the group immediately behind his own. Thus, a child will not have to lose an entire year or a semester because of trouble in one area. Since insoluble personality conflicts will occasionally arise between a student and his teacher, a 45-15 plan which rotates a student to different teachers within a single subject area or grade level would give the student a better chance of finding someone with whom he could work more effectively.

Valley View has found additional savings in transportation costs. Children in a similar neighborhood share similar schedules, and during each segment of the staggered year-round school plan, one-fourth of the students do not need transportation. Valley View finds it can get along with fewer buses than would be needed on the 180-day basis, and expensive transportation vehicles no longer sit fallow for three months of each year.

A problem concerning the adoption of an extended school year plan may be found with the legal procedures embedded in state law. Money is usually allocated to schools on a nine-month basis. However, if legislators are susceptible to arguments grounded on financial economy, strong support

may be summoned for the extended year plan. Valley View found the Illinois State Assembly most receptive to the 45-15 plan, and the State Superintendent of Public Instruction was empowered to determine a feasible procedure for distributing state aid to schools operating on an approved twelve-month calendar.

However, even though the Illinois experience may be used to respond to objections to a year-round school plan, other places have other ideas. The Utica Community School District located near Detroit, Michigan, prepared a feasibility study on a four-quarter, year-round schedule. Utica school administrators foresaw a doubling of their school population by 1981 from 23,000 to 50,000 pupils. They foresaw a colossal $100 million bill for school construction costs if a year-round school plan were not instituted. They did not foresee that the voters would reject the plan with a resounding 80 percent vote against year-round schooling. As a result of the plan's defeat, the director of the study, George D. Glinke, recommends the thorough education of the public into the benefits to be gained by year-round schooling before the matter comes up for a public vote. He estimates that it might take as much as three years to prepare and communicate an acceptable plan to the public.

Similarly, the New York Legislature failed to pass a bill in 1972 which would enable school districts to experiment with the plan. Suffice it to say that the year-round school plan will meet with substantial resistance in many school districts unless there is the pressure to avoid building more space. If the adoption of a year-round school plan is to be decided at the polls, voters must understand its possible advantages. A defeat at the polls tends to turn any plan into an immediate loser regardless of its merits or its lack of trial.

The facts seem to indicate that some of the immediate problems of overcrowded schools in new towns might be relieved by the extended use of school facilities. New construction can be reduced by about 25 percent. A reduced building program would be in order since only three schools need be built for every four traditionally scheduled schools. As yet, this plan has not been adopted by any new towns currently in existence. However, it was investigated by the Crete-Monée School District and the new town of Park Forest South in Illinois. Surveys taken among parents and townspeople produced resounding opposition, and the plan has been shelved.

When the time for decision and specific action finally arrives, either for new towns or for old towns, the extended school year may be one very useful approach to consider. The absence of dollars and the presence of burgeoning numbers of children to be educated may eventually force school systems to adopt measures that are currently considered to be quite radical.

The evidence is not all in yet as to whether the 45-15 plan will be workable in most communities, especially in those where a high percentage of children attend summer school voluntarily to get more education than is normally rationed in 180 days. Until someone proposes seriously that the beleaguered big cities -- very much pressed for funds -- adopt the year-round schedule, the idea has a long way to go for universal acceptance.

VII.

What Recent Building Techniques Can Help Control Time and Costs?

For the past fifteen years, school planners and architects have been struggling with the problems of holding down building costs; reducing the time required to design and build; improving the environmental quality; and creating buildings that are amenable to change. And some very substantial improvements have been made in all these areas. These improvements are particularly important for new communities where costs, speed, quality and change are critical considerations if adequate school space is going to be provided by the time it is needed.

One way of reducing construction time is to use the systems building approach. Systems building for schools has moved gradually from experimentation to general acceptance and is an attempt to rationalize the building process -- which for centuries has been essentially handcraft, brick-by-brick, piece-by-piece -- and to bring industrialization into the act. Starting with major development projects in California (SCSD), Toronto (SEF),

Montreal (RAS), Boston (BOSTCO), Florida (SSP) and Detroit (CSP), the systems approach has been well tested; building systems hardware is readily available; and hundreds of individual school building projects have been built using the principles. (See the EFL Report, Systems: An Approach to School Construction, for a detailed elaboration of these projects.)

Systems building, the application of the systems approach, concentrates on those aspects of construction which have been traditionally expensive. It consolidates the components of a building into subsystems which can be fabricated off-site, under high quality control and delivered to the site for rapid installation. The basic features of systems building include the industrial techniques of factory prefabrication, mass production and standardization. The building system is usually based on performance specifications and is composed of subsystems. Typical subsystems include such structures as heating-ventilating-air-conditioning units; ceiling-lighting units; and interior space dividers. Exterior skin coverings, floor coverings, roofing and interior furnishings may be included as well. A building system

is based on a modular design -- a common, dimensional unit which is repeated in each subsystem so that separate components built by different producers fit with all of the other components in a system. Through a predetermined integration pattern, the various components and subsystems are designed to fit together precisely, quickly and often simultaneously.

Thus, all the parts of a heating-ventilating-air-conditioning subsystem -- energy converters, duct-work, diffusors, chillers, fans and pumps -- become the responsibility of a single producer rather than the composite assembly of a variety of sources. By using new management techniques to alter the traditional roles of contractor and supplier, the systems approach brings together coordinated and prefabricated subsystems which can be assembled on-site within a few months or weeks. The standardization of parts has the additional advantage of simplifying maintenance and operation.

Efficiency of production and maintenance does not mean, however, that the schools are monotonously uniform.

The various subsystems can be combined in a variety of ways, depending upon the user's needs. Furthermore, flexibility is built into well-designed building systems. As school functions and space needs alter, partition locations, cabinet room dividers, lighting levels and air-conditioning units are easy to relocate or readjust. Consequently, renovating costs are minimal and the building can adapt more readily to curriculum changes.

The systems approach has demonstrated as much as a 10 percent savings in the total construction costs of a facility; an increase in the interior flexibility of a space; and, when married with sophisticated management techniques (see following), a reduction in delivery time of up to 40 percent.

Since one of the primary functions of building cost is time, it is only sensible to devise methods of eliminating and minimizing delay. Improvements in building technology, like systems building, have resulted in cost savings by speeding construction. Improvements in construction management techniques have also speeded construction time through the development of more efficient scheduling procedures.

Fast-track planning and construction (also known as phased or overlapping planning-construction) is a management technique which reduces traditional linear building operations into a series of overlapping phases. Fast-track scheduling decreases delivery time; keeps interior design choices flexible longer; and avoids inflation by getting the structure finished sooner.

The process works by breaking down the traditional aspects of building -- programming, design, bidding and construction -- into several levels of detail. For example, decisions affecting site and foundations are made first. Thus, a contractor can begin excavating the foundations as soon as an architect defines the building's size and height. The structure, roof and exterior walls can be erected while interior spaces and partitions are being planned and organized. Consequently, the various independent portions of a project can proceed without being hindered by unrelated details particular to another part of the building process.

The architects Heery and Heery combined systems building and fast-tracking and produced two elementary schools for Athens, Georgia, only 188 days after the

contract was signed. Architects Caudill-Rowlett-Scott used a similar fast-track and systems approach and provided a small school district in Merrick, New York, with three elementary school additions within eighteen months. If conventional methods had been employed, the process would have taken ten months longer. Assuming a cost escalation rate of 1/2 to 1-1/2 percent per month, the additions would have been 5 to 15 percent more expensive. To accomplish these savings, decisions had to be made quickly and irrevocably. Project stages had to be rigorously controlled and logically ordered.

Potential fast-track users are likely to feel uncomfortable working with a process which demands immediate decisions and depends upon construction costs which are not developed by typical, total project bidding. These tensions can be reduced by construction management services. A construction manager works directly for the owner on a contractual basis and provides expertise in design and in cost and schedule control. He also acts as the project's general manager and coordinates contracts. It is his responsibility to predict costs and to interpret estimates. He must also compare costs to

benefits and assess whether performance criteria are being met as economically as possible. (For further information on building systems, fast-track techniques and construction management, contact Dr. John Boice, Building Systems Information Clearinghouse/EFL, 3000 Sand Hill Road, Menlo Park, California 94025.)

Although most school planners are trying to lower costs by altering traditional building techniques, others are developing entirely new kinds of structures. Among these are structures designed to encapsulate large amounts of space quickly and economically. "Bubbles" and "tents" are made of durable fabric or vinyl skins, held up by air pressure, or suspended over cable networks. Since the skins may be clear, opaque or translucent, the enclosed space can be as bright or as dark as the purpose of the structure requires. The large air structures are anchored to the ground by cables, are considerably less expensive than conventional buildings, take only a day or two to inflate and may be custom-made or packaged. Air structures have the additional advantage of being simple to move. A bubble can be lowered, folded, stored and inflated again.

While bubbles have mainly been used to house gyms, field houses, tennis courts and swimming pools, their use is not limited to recreation facilities. Since air bubbles do not require columns for support, sizable spaces can remain open and unobstructed while being protected from the elements. Antioch College has enclosed one acre at its Columbia, Maryland, satellite campus with a bubble thirty feet high. LaVerne College in LaVerne, California, is building a tensile or tent structure that will enclose a variety of student activities including recreation. (For more information on inexpensive structures, read EFL's report, Physical Recreation Facilities.)

And, of course, large structures based on the geodesic dome and various forms of prefabricated, industrialized buildings all have some potential for housing elements of education and community programs in new towns.

With the new building technologies and processes developed and tested over the past fifteen years, planners and builders have many more possible solutions to draw upon as they grapple anew with the problem of providing educational and community space for new towns.

VIII.

How Do You Reflect Communications Technology Now/Later?

There is something not quite right about the entire question, "What new technology should be installed in new towns for the purpose of providing education and information as well as entertainment?" With typical American zeal, we want to install new technology simply because it is there, because we know that it is possible. We are always afraid that we will forget something or remember it too late. As whole new towns are planned, it is thus natural to the American mind to raise the question of what communications technology is or might be appropriate to install right at the beginning -- or at least what capacity for future technology we should include at the beginning.

For immediate planning purposes it would seem unwise to become involved in the more speculative aspects of long-range planning when it comes to communications technology. An uncomfortable feeling accompanies

contemplation of the role which technology might play in new towns. This discomfort stems from the knowledge of what has already been invented but is not being used. We know that 20, 40 or even 80 channel capacities are now possible in cable television systems. We can share time with a computer at any location where there is access to a telephone. With a snap of a plastic videotape cassette it is possible to view virtually anything which has ever been put on film or videotape. We begin to feel that omission of these fruits of our technological age in new towns would be almost sinful. The fact is that we now have the technology to accomplish more than the mind can comprehend. To overlook it for continuation of the status quo seems contrary to the credo of new communities.

Technology for What?

But the problem is not technology since we have technology to solve nearly any information delivery problem which confronts us. Technology is a solution in search of its problem. The real dilemma for new towns is not what hardware to install but figuring out what the sensible

needs are and considering the extent to which social and economic factors will affect the ultimate hardware decisions. We need to know what information needs exist (or will exist) in a new community and whether or not contemporary technology can help to meet them. We need to know what values are placed on human relationships and how important social interaction will be to new residents. We need to know whether or not the attractive possibilities for information technology are in fact worth the additional cost which will no doubt be required. For instance, a study in the Jonathan (Minnesota) area indicated that 83.5% of the population would be interested in premium programming such as the Minneapolis Symphony, the Tyrone Guthrie Theatre and Vikings football, but when some tentative prices were established for the study, the interest diminished to 43.7%.

The planning of new towns should include comprehensive planning for communications/information systems which will be both usable from the start and sufficiently prescient to accommodate future developments as they are needed and can be paid for. This type of flexibility demands an analysis of the potential users -- an analysis of information needs (demands, requirements); information desires

(the "nice to know" things); the expectations for social interaction; and the economic feasibility of meeting the needs. What will probably emerge is an exhaustive list of wants which will be tempered by the price tag. The next step is to establish top priorities for those services which are most important and to omit the optionals.

In the Beginning.....Was the Word

Technologically speaking, the new town will probably be more of a transition community than a revolutionary brave new world. There appear to be some services which will be included simply because they are part of our lives today and would not change in a new location. For example, the telephone is a vital instrument of communication and provides access to information. Every home will have a telephone (or two, or three or maybe more) since this is the basic medium to reach others and to be reached. The telephone provides access to people. Human beings generally crave relationships with other human beings. "The telephone is the next best thing to being there" goes Ma Bell's slogan. But the telephone also provides access to other resources if one knows the right number. The headpiece of the telephone, when placed in a

coupler which is connected to a portable computer terminal about the size of a portable typewriter, can put an individual in touch with any time-sharing computer in the country which offers such a service. The same telephone can be dialed into a bank of audiotapes where foreign language lessons are available. The University of South Florida in Tampa uses this system now. The same telephone line could bring in printed documents and line drawings using a slow scan instrument such as Long Distance Zerography (LDX). With a Touch-Tone telephone, it is possible to dial a number and perform certain calculations using the various tones of the system. All these procedures are being used today -- all these and "800" numbers, direct long distance dialing and instant information on the time, weather, flight arrival times and dial-a-something services for compulsive listeners. The first lesson for new towns is to provide adequate telephone service to all homes, offices, community centers, schools, businesses and churches.

The Wired New Town

Not as pervasive yet, but potentially as vital, is cable television. Much has been written in praise of cable's potential, yet it is virtually untried. At the present time

educational and public affairs programming is distributed through existing cable systems from the signals of non-commercial television stations. There has been a modest attempt to use a commercial cable system in Albany, Georgia, for distribution of instructional programs to seventeen of the twenty-three schools in the district for seven hours per day. When funds from the Emergency School Assistance Program gave out in September, 1972, the effort ended.

In Jonathan, Minnesota, Community Information Systems is currently operating a prototypical cable telecommunications system for the Chaska Independent School District 112. The program is designed to demonstrate the application of interactive, two-way cable communications to career education. Ninth grade social studies classes are using two-way sight and sound communications between their classrooms and the studio, thus permitting "live" exchange of questions and answers between the students and a person from an occupational specialty. The programs are recorded on videotape for future reference. Fourteen miles of two-way cable is presently in operation with plans to tie in three resource centers in the schools.

Medical applications are already underway using the same CIS system in Jonathan. Doctors are talking with other

doctors, listening to heartbeats and checking electrocardiograms. The potential for further link-ups with medical specialists and remote hospitals is being explored.

If cable television is going to make a contribution to education in new towns, it must respond to the educational aims of the educational planners. Otherwise it will become the "cart before the horse" which characterized instructional TV of the late 1950s and early 1960s -- a peripheral activity pushed by frontier thinkers, poorly financed by school boards and largely ignored by teachers and students. But the potential for cable is evident and should not be fought or denied. The implications are simple. Provide cable access in every residence and in every building. Provide a communication center for the community -- a place of origination for community-produced programs as well as for those which are carried from commercial sources. Include school facilities as locales of reception and origination.

Some Ways to Start: Hardware

It would be helpful for every new community to do an analysis of what people do with information, where and how

they prefer to use it. To start with, what types of information do residents want? For what purpose? In what format? And where? It is very likely that the home orientation which seems to prevail in so many of the future projections may not be the best approach. Some individuals will want to go to a central location for information because they may meet like-minded people there. They may have good luck in face-to-face negotiation of their questions. They may want to test ideas with others. There may be other kinds of people who want information at their finger tips with maximum efficiency and who care little for the cost. The principle is that multiple options must be provided in new towns.

The communication revolution has been an additive process. As each new medium has come along, individuals adapted their life style to it. As long as electricity was available, it was easy to add a radio, a television set, a tape recorder, a stereo hi-fi and a slide projector. As individuals became more mobile, they have carted their communications media with them through battery powered radios, tape recorders, TV sets and the

like. In the 1980s new devices will continue to be added to the arsenal of media which are now available to nearly every citizen.

New town plans should thus call for (1) plenty of electricity, (2) ample telephone service and (3) a comprehensive cable system. Beyond these basic requirements the hardware acquisition can be handled in piecemeal fashion as new devices become available, desirable and can be paid for. To do more would be to create a potential white elephant which would be neither useful nor attractive. To do less would negate the useful advances of the mid-twentieth century.

But Software is Another Story

The history of technology in education is the story of appealing new devices (hardware) and the promise of appropriate materials (software) to be used with the equipment. Most cases of failure or limited impact are related to software limitations. In the broadcast sense, software includes a full spectrum of resources which can assist in the process of learning: films, slides, tapes, people, computer programs, the community, books and the

like. The location of existing resources and the creation of new resources becomes a new responsibility of the teacher or tutor who becomes more a coordinator of learning resources than a disseminator of information. Once software is identified and becomes available, distribution needs to be considered. It is then that alternative forms of hardware need to be considered and not before.

The preschool through adult education spectrum in new towns raises questions of access to software. What types of materials should be available in what locations? Community information centers appear to be replacing some of the library functions in new towns like Reston, Virginia. It would appear that coordinated information systems for many purposes are being considered. In looking at the potential information needs of the developer, business people, students and teachers, citizens-at-large, health care personnel and others, modular, centralized information systems are being created. In the new town of Gananda, New York, for example, the first phase of such an information system is being developed around basic geographic, economic, political and social data that are required during the first stages of planning. It is the intent of the developers and planners to make this data base available

to residents who will eventually request such information. Further building blocks include general educational information and community information.

At a less sophisticated level, the new town of Radisson (formerly Lysander), New York, is planning one unified library for the schools and the community under one director. The nature of information to be acquired, stored and distributed has not been defined.

It is becoming clear that new town residents want more information "filling stations" than "parking lots." Information available at home through a variety of electronic access instruments should be complemented by portable information available through community information centers, combined, perhaps, or built into the school/community center. Economic factors will ultimately determine the viability of electronic distribution vs. personal pick-up from a central location.

Annual costs for household communications will probably remain fairly constant:

Telephone	$225	Periodicals	$44
Newspapers	120	Books	42
Postal Service	116	Radio	26
Television	102	Audio Recordings	13

The cost of cablevision service will, of course, vary from community to community. However, installation fees per residence range from about $25.00 to $35.00. Subscription rates for monthly service generally range between $5.00 and $10.00. Brian Sindor from the Community Information Service quotes a $30.00 installation fee for the provision of cable service for each residence in the new town of Jonathan. The residents will assume the cost of installation and also the monthly subscription charges if they wish to have cable service. The cable service in Jonathan is being trenched with other utility lines and will be conveniently available for new residents. It is approximately 50% cheaper to install the cablevision drop cables at the same time other utility lines are being trenched.

The value of home delivery of information, beyond the costs stated above, will have to be demonstrated before delivery systems can be introduced. Substitute systems may replace some of the conventional modes if costs are not inordinately high, e.g., facsimile printing of newspaper vs. the paperboy.

Communication/information systems for new towns will remain a mystery to planners as long as technologically

oriented crystal ball gazers continue to spread their gospel of total communications without regard for the normal social process of cultural evolution. The best course for the present would seem to be a hard-nosed behavioral analysis of what people do and what they feel they can afford to do in the future.

Appendix

Education in New Communities Project

Bibliography of Working Papers

Working Paper No. I — "New Towns, New Schools?: A Memorandum on the State of the Art of Educational Planning for New Communities in the United States," September, 1972; revised, March, 1974.

"New Towns, New Schools?" describes the general state of educational planning for new towns based on the direct observation of representative new communities. It discusses what the national experience has been to date in the planning and implementation of educational systems in new towns and identifies problems common to local school districts and to new town developers.

Working Paper No. III — "Legislation Pertaining to New Communities: A Reference," June, 1973; revised, March, 1974.

Working Paper No. III reprints laws from Arkansas, New York and Ohio which provide examples of legal mechanisms that can be used by local school districts and new towns to ease some of the problems involved in planning and operating educational facilities.

Working Paper No. IV — "Dollars and Educational Sense: Some Financial and Educational Options for the Provision of Educational Services in New Towns," March, 1974.

"Dollars and Educational Sense" examines in some detail financial problems and their influence on education. A

comparison is made of the financial histories of educational planning in Columbia, Reston and Park Forest South. Promising ideas being tried in Gananda and Roosevelt Island are described (including school/community centers and a dispersed community education system), and nonprofit and public corporations are presented as devices to enable the joint planning of mixed-use, time-shared facilities.

Working Paper No. V — "The Imperative of Planning Together: Educational Planning in New Communities," prepared by the Environmental Design Group under the direction of Educational Facilities Laboratories, Inc., March, 1974.

"The Imperative of Planning Together" is a collection of case studies which describe the history of educational planning in three HUD Title VII new towns: Park Forest South, Gananda and Cedar-Riverside. The case studies are analyzed and recommendations are made concerning the necessity for designing a planning process which includes a wide range of people in the creation of a new town educational system.

Working Paper No. VI — "Cables, Cameras and Schools: The Impact of Communications Technology on Educational Systems in New and Renewing Communities," May, 1974.

"Cables, Cameras and Schools" discusses the role of telecommunications in new towns and new town educational systems. A major part of this study includes an assessment

of the current state and future uses of educational telecommunications in new town settings. Educational options will be discussed as well as the financial implications of providing those options.

"The Place of the Arts in New Towns," prepared by Judith Murphy for Educational Facilities Laboratories, Inc., the National Endowment for the Arts and the American Council for the Arts in Education, 1973 ($3.00 per copy).

This report presents the experiences and problems of people involved in the arts in selected new towns. However, since such experiences do not develop in a vacuum, the arts in new towns are related to activities taking place in other settings as well. Thus, the programs, planning and facilities descriptions are pertinent to existing communities as well as to new ones.

These working papers may be obtained from:

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