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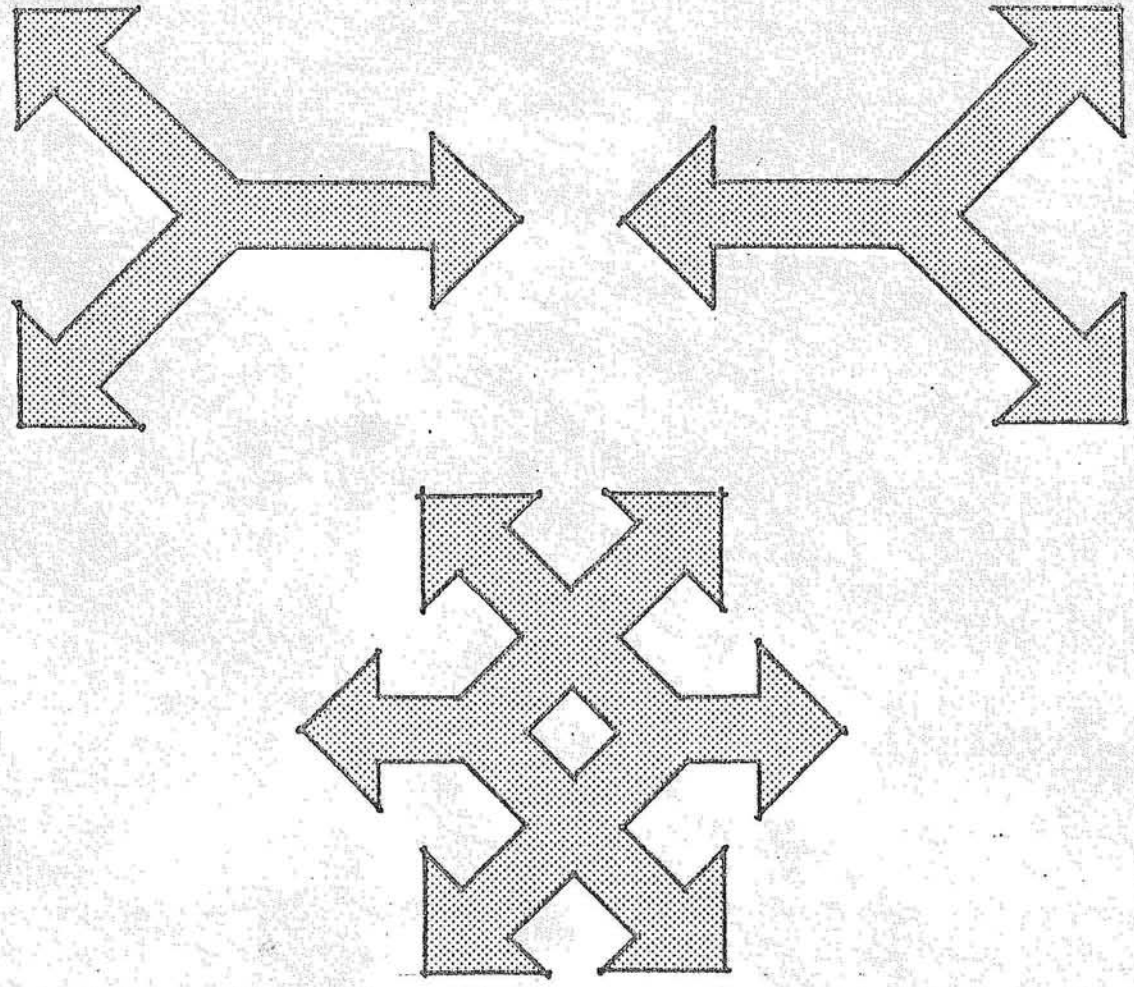

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education and urban planning as congruent events

master thesis in urban and regional planning
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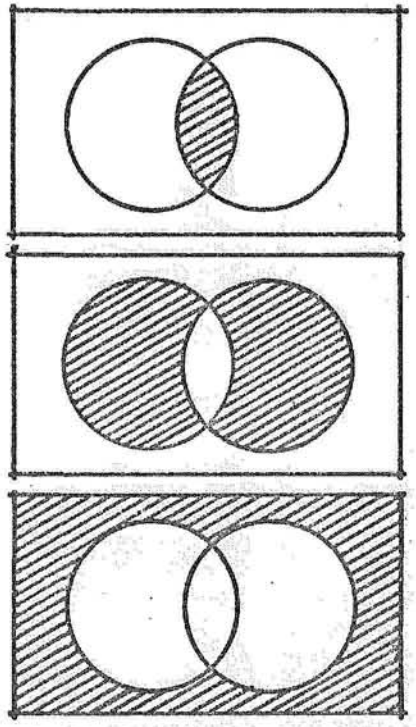
In this study I try to investigate the area of overlapping interest and action of education and urban planning. In order to accomplish this I had to deal with three different dimensions which are most clearly shown in a Venn Diagram.



Dimension I covers the area common to both education and urban planning;

Dimension II deals with the institutions, agencies and specific trends in the two areas of concern;

and Dimension III explores the universe or societal context in which Dimension I and II exist.

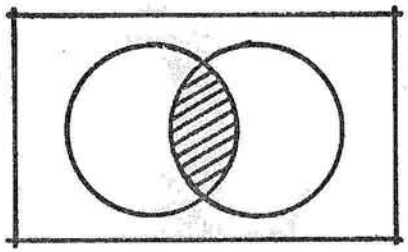
However, to fully research all three dimensions would go far beyond the scope of this thesis; it therefore would be more realistic to say that each dimension only looks at a "slice" of all the possible aspects, theoretical and practical.

In the first part Dimension I, II, and III are introduced in this order. In the second, and main part, the order is reversed. I start with Dimension III and end with Dimension I. In this way I can deal in the beginning and the end with the common area of education and urban planning, or Dimension I, which I set out to investigate.

part A

PART A

INTRODUCING
DIMENSION I



Six months ago I set out to write a thesis on "the influence of new educational technology and ideology on planning schools in urban areas." The reality of the problem and the urgency to deal with it occurred to me when I compared two extreme physical solutions to the social problem of integration: a small educational program called the "Clarifying Educational Environment" in Letsche Elementary School in Pittsburgh and the "Human Resources Center", an elementary school for 2300 children in Pontiac, Michigan. The first tries to achieve integration through early excellence in the education of black children, (which will enable them later to compete or cooperate successfully with their white peers) by means of instructional innovation and the use of technology. The second tries to achieve integration through physically integrating several white and black schools in a "child's city", a multi-use structure which also becomes one of the major elements in the rennaissance of the downtown area.

One end on this "scale of physical solutions" is marked by a <u>reduction</u>

of physical: ultimately by a more decentralized approach and the planning of smaller schools. The other end is based on the assumption that learning about the socialization process can best be achieved in letting the school grow beyond its own limits, and integrating it, physically and organizationally with other cultural, institutional, and commercial, public and private, city or neighborhood center functions. This would ultimately lead to a more centralized approach in planning schools and an increase in the size of the actual school buildings.

Looking at these different physical solutions growing out of different educational approaches to the same problem (in this case the problem of integration), I began to ask: How do urban planners determine what kind of school is needed where? What are the present criteria, goals and objectives underlying urban and educational planning decisions in respect to the location and size of schools?

Before going into these questions the terms "education" and "urban planning" have to be defined, because they can be used in a variety of

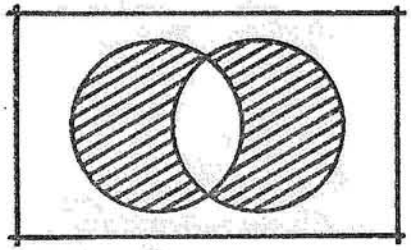
ways. "Education" in this context comprises the institutions, programs and curricula, contents, human resources, and the educational processes involved in the education of individuals or groups. "Urban planning" here includes the institutions, persons, programs, contents and processes involved in urban design and land-use planning, social and cultural planning, economic planning, community planning, transportation planning as well as the administration of urban areas.

In other words I see "education" and "urban planning" as systems with different subsystems: The first dealing more directly with the individual development and indirectly with society; the second dealing more directly with society and indirectly with the individual. However, there are many areas where the clear line of what is primary, the individual or society, is hard to draw, e.g., family planning, community centers, correctional institutions, or drug centers, and facilities planning are clearly both part of the educational and the urban planning system, although often they may be either treated as separate entities, or as "belonging" to one system or the other.

education	institution	program	curriculum	content	process
public schools					
special programs					
private schools					
higher education					

urban planning	institution	program	content	process
urban design & land use				
community planning				
social & cultural plg.				
economic plg.				
transportation & services				
administration				

INTRODUCING
DIMENSION II



Having related my first objective to "education" and "urban planning" my next step was to find out how the two institutions directly concerned, City Planning and the Board of Education, were dealing with the problem of size and location. I assumed that there were established and regularly used channels of communication, and that there was an awareness of the close interrelatedness of problems and solutions both agencies were dealing with. None of this, as I found out, was the case. Neither in Pittsburgh nor in Ann Arbor, Michigan (where I was part of a consulting team to the Board of Education) does any form of consultation exist beyond the formal routines of zoning approvals and building permits.

City Planning offices produce "comprehensive plans" without involving the Board of Education and vice versa. Plans are probably sent to the other agency as a routine measure but hardly ever discussed or dealt with in depth. They then form the basis for budgets and capital improvement plans for years to come. Only when one side begins to implement their plan do they discover that the other not only has a

quite different idea of what should be done in this particular situation but also has considerable power to either stop or slow down the implementation of this plan. The reason that these kinds of clashes happen rather seldom is that "comprehensive plans" are usually out of date before they are printed, and change constantly. The development of an urban area has more complex rules than any "comprehensive plan" has been able to take into account. This obviously amounts to a typical vicious circle: since agencies do not cooperate, they cannot plan properly; and because they cannot plan properly they have no reason to cooperate, and so on.

Ann Arbor and Pittsburgh are seemingly quite typical in the lack of coordination between these two agencies. That is not to say there are no individuals inside or outside these agencies who are aware of their common problems and interests. But practically all contacts are on an ad-hoc, informal and "personal effort" basis, which clearly cannot achieve any significance as long as both have to deal daily with paramount in-house crises. This leads to another vicious circle;

which is similar to the first: as long as in-house crises prevent institutions from seeing their crises as integral parts of the overall urban system, they prevent the combining of efforts with other institutions; and it is precisely their failure to combine efforts on a more meaningful basis, to a more powerful thrust with other institutions, which perpetuates their in-house crises, and so on.

At this point of my study the question became: can this indifference which now exists between the various institutions be overcome? What organizational changes may have to come about to make them more responsive to their common problems and ways and means to tackle these?

Whether or not the analysis of an area of overlapping interest can be used, depends on the proof that education and urban planning institutions can be changed to cooperate. The idea is not new. It has been tried before - with little success. An investigation of the reasons for this immobility is therefore a necessary part of this study.

John H. Fisher said at the National Conference on the Educational Dimension of the Model Cities Program in 1968:

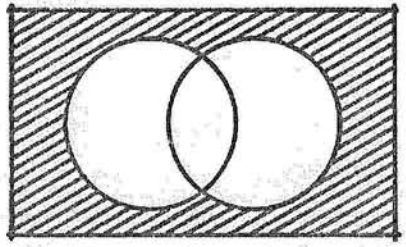
> "...Urban planning that does not now include educational planning can only be called irresponsible. Such planning, moreover, must go far beyond routine approval of the size and location of new school sites. Any meaningful plan for the future of a community must reckon with questions of curriculum, attendance patterns, teacher supply, financial support, and the total complex interrelationship between the development of schools and the development of the city, economically, culturally, socially, and politically..." [1]

Several attempts to build on the cooperative efforts of education and urban planning have been made in the past decade. One example is Pittsburgh's "Great High School" concept, surely one of the more complex attempts among other "Educational Park" plans. It was highly praised and published , studied and imitated , yet a failure on the local level and impossible to implement, as most of the other educational parks.

What are the reasons for the management breakdowns in the implementation phase of more complex social and physical programs?

Can it be blamed solely on the educational and urban planning agencies involved? Was it the failure of the plan? Was it the failure of "society"? Surely the institutional context would be too narrow to take sole responsibility. One has to look at the societal context or the "Universe" in which both institutions exist and operate: the urban scene.

INTRODUCING
DIMENSION III



About ten years ago Leonard Reissman stated..."there exists at present no theory of social change which could be applied to an urban theory...Economists, especially those interested in economic development, are no further along than sociologists in that matter. Nor are the historians. Anthropologists have hardly fared any better faced with the same problems as the urban sociologists. We do not understand the social dynamics that move society from one form to another, and we do not fully comprehend the impact of change except in the most general terms."[2]

Are we any further along today? I do think we are. Not an awful lot

further, but, we are beginning to understand that "visionaries" (like Mumford, who concentrates..."on practical problems but is concerned with long-term qualitative considerations and social needs"...) are not quite as naive as Reissman interprets them. The "social revolution" which began when Reissman's book, The Urban Process was published in 1964 with student and minority uprisings made even "practitioners" and others than "visionaries" think about "nothing short of a massive reconstruction of metropolitan society."

Ernest Erber in his introduction to the summary of the 1968 AIP-Conference gives a more precise description of what happened to the visionaries' "manifesto for an urban revolution" (which Riessman ironically calls "no picayune puttering with street plans or building facades or zoning regulations").[3]

> "The rattle of gunfire in the streets of Harlem in 1964 and the incendiary conflagrations that lit the night over Watts in the following year heralded the detonation of the social dynamite that had accumulated in American Cities, especially in the decades since World War II. The urban problem no longer confined to the esoteric pages of academic journals, be-

> came a daily topic for press and air waves...The public reacted with renewed surprise and shock at each successive revelation of inter-group hostility, social dislocation, and institutional malfunction. Even those millions of postwar relocatees who had moved from the cities - in part in flight from a worsening environment, in part in attraction to suburban amenities - had not suspected the extremity of the cities' plight until the events of the Sixties laid bare ever deeper layers of diseased tissue - social, economic and physical." (emphasis MK)[4]

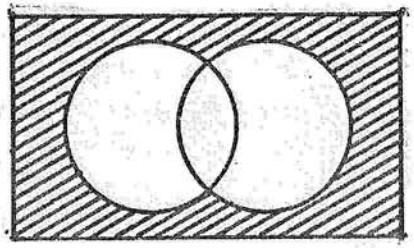
I do not intend to go any further in describing the symptoms. Rather I would like to concentrate on some contributions to an understanding of social and institutional change in the urban context in"Dimension III".

part B

PART B

DIMENSION III

"THE SOCIETAL CONTEXT"



a. SUMMARY

In Dimension III I try to explore some of the long-term qualitative considerations and social needs which will influence an analysis of the common interests of education and urban planning.

There are at present some theories of social change which can be applied to this context. They should help us to understand:

1. the social dynamics that move society from one form to another;
2. the impact of this change on the institutions (Dimension II), and their common concerns (Dimension I).

The most clear understanding of societal change, the nature of the change and the implications for societal institutions and alternative futures, can be found in the work of Willis Harman and his associates at the Stanford Research Institute's Educational Policy Research Center.[5] They see the paramount educational

task for the developed world in the alteration of the dominant basic premises of the industrialized culture, and in the development of a sense of purpose and unity in facing the problems and opportunities of the future.

To demonstrate some of the characteristics of two alternative future models I then compare Mumford's analysis of classic utopias,[6] and Bennis and Slater's "Temporary Society"[7] as foreplans of action, or the necessary constitutent of rational human development. Our ability to cope with present and future social problems will depend largely on the development of new dynamic models of higher complexity for the implementation of a desirable future path.

In our views of the future, which are dominated by our interpretation of the past, we are either alarmed by the development of "total control," or we dream about "total freedom." What we have to understand is, that freedom for every individual cannot

be maximized without some planning or control, and therefore the crucial question becomes one of balancing individual interest and public powers.

b. ALTERNATIVE FUTURES AND NATIONAL GOALS

Research into the different possible futures for the next thirty years indicates that only a very small percentage of "paths to the future" present desirable alternatives. Harman points out these desirable paths (desirable in the sense of leading toward the national goals stated in the nation's founding documents)..."appear to require a drastic and prompt shift in the operative values of the society, and a corresponding change in its institutions."[8]

He then explores the reasons for considering such far reaching changes in the basic ways of our perceiving, thinking, and doing, for which he uses T.S. Kuhn's term "paradigm change." A dominant paradigm is largely embodied in unquestioned, tacit understanding, and transmitted primarily through examples; it is more than an ideology or a world view, and less than a total culture.

The"industrial state paradigm" (sharply differing from the dominant paradigm of the Middle Ages), or the perceptions, ways of thinking and operating that lead to the fabulous products of modern industrial

organization and modern technology is at the same time the reason for all the serious problems of our day.

Achievements and corresponding problems of the industrial society show that ..."these problems are ultimately unsolvable in the present paradigm precisely because their origins are in the success of this paradigm."[9]

This last sentence holds the key to an understanding of the societal state in which all the efforts to solve urban problems, educational problems, and institutional change are doomed to fail.

If society is still operating under the "industrial paradigm" to maximize: affluence, efficiency, and scientific knowledge - then: adequate income maintenance, the sharing and equal distribution of power, the socially responsible management and application of technology, and careful preservation of natural resources is not possible on a large enough scale.

The 1960 report of the President's Commission on National Goals stated that ..."the paramount goal...is to guard the rights of the individual, to ensure his development, and to enlarge his opportunity... All of our institutions -- political, social, and economic -- must further enhance the dignity of the citizen, promote the maximum development of his capabilities, stimulate their responsible exercise, and widen the range and effectiveness for individual choice...." [10]

And in November 1966 a new law created a form of federal assistance intended..."to assist comprehensive city demonstration programs for rebuilding slums and blighted areas and for providing the public facilities necessary to improve the general welfare of the people who live in these areas"... [11]

Finally, HUD guidelines stressed the participation aspect in the new Model Cities Program..."which should provide a meaningful role in the policy-making to area residents and to the major agencies expected to contribute projects and activities to the program"... [12]

These three examples of goalsetting, policy formulation and implementation on a national level show the recognition of the need for radical change. However, the difficulty or impossibility to carry out the emphatically expressed change where it is most needed is shown, for example, in a recent study of M. Kaplan. His findings indicate that only 10% of the Model Cities citizens have reached the level of participation envisaged in the program. So far none of the Model Cities areas has "rebuilt a slum or blighted area" nor have they been able to provide the public facilities necessary to improve the general welfare of the people in these areas. A visit to the Turtle Creek Model Cities Area, which is one of the more successful areas in the nation, or talking to its residents proves how negligeable the impact of the program has been in the first three years of its operation.

The central goal of the 1960 Commission:..."the renewal in the infinite value and the unlimited possibilities of the individual development" sounds fairly hollow after ten years of unsuccessful

demonstration and pilot-programs and an ever increasing gap between rich and poor, and educated and uneducated. "What was not clearly understood in 1960," Harman explains, "and what is more apparent now, is that a fundamental incompatibility exists between these aims and the dominant paradigm of the industrial state." [13]

The difference between rhetoric and reality, which everybody daily experiences between the speeches of politicians and the everyday life and plight of the natural& man-made environment, marks one of the symptoms of breakdown of the "dominant paradigm." The gap as Harman sees it does not exist between generations and liberals and conservatives, but between those who anticipate a continuation of present trends and those who insist that drastic change is absolutely necessary. To me, there seems to be a third group who believes that the change to a new philosophy is already under way and will continue its growth and influence without sudden and drastic change but rather in an automatic and continual take-over fashion. Proponents of this

attitude toward the future are, for instance, Bennis and Slater in their book, The Temporary Society. But they belong to a small minority of positive futurists, compared to the vast majority of future forecasters, who do not assume a paradigm change (like Orwell in 1984, Aldous Huxley in Brave New World, Herman Kahn and Antony Wiener, The Year 2000, Robert Boguslaw, The New Utopians, or even the sugared concept of Skinner in Walden Two, and one which Harman believes to have an alarmingly high probability, Bertram Gross, Friendly Fascism: A Model for America , and others.)

The useful analysis of "why some kind of totalitarianism has such a high probability and fascination for human kind (from its very early recorded history on) can be found in Lewis Mumford's Utopia, the City and the Machine. I will now briefly compare some of Mumford's ideas with Bennis' and Slater's Temporary Society and then come back to Harman's model to clarify some of the options or "alternative futures", the nature of societal change and its impact on our institutions.

Mumford's findings in analyzing the classic literature on utopias reveals that indeed the first utopia was the city itself. "In that archaic constellation (Plato's ideal city, based on the ancient city states of Egypt and Mesopotamia) the notion of a world completely under scientific and technological control, the dominant utopian fantasy of our age first becomes evident," and Mumford adds, "if we understand why the earliest utopias miscarried, we shall perhaps have an insight into the dangers our present civilization faces."[14]

The early city was the creation of a king, acting in the name of god, and combining in himself all the powers that were diffused before in many local communities (our present participatory efforts try to achieve a movement in the opposite direction). In his divine power, to make or elinate rules and goals, he was able to concentrate great assemblages of men to perform a particular function in a unified working whole. With this machine work could be executed otherwise impossible. But the absolute suppression of any human autonomy except for that of the king was the imperative condition for operating this

giant machine. This was utopia: a totalitarian mechanism only softenend by the many captivating qualities of the city itself. These cities or social structures were planned to be immune to change from within or destruction from outside. In their aesthetic form and conscious order they revealed an immense concentration of energy no longer needed exclusively for the functions of nutrition and reproduction. These early cities became the visible aspect of an eternal order, the seat of the life abundant, in other words, utopia.

Mumford's description of early cities not only fits many future models developed in the literature, some of which I mentioned on page 16, it could equally well represent a description of the utopian concepts of nineteenth and twentieth century architects and city-planners. Whether one analyses the concepts of Pascal Hausermann, Edouard Albert, Yona Friedman, Paul Maymont, Walter Jonas, Kurokawa, or Paolo Soleri - they are all similar in the sense of providing an immense concentration of mass housing in conjunction with other city functions compiled under one aesthetic principle or construction

idea. Capitulating under the expectation of the overwhelming population increase they cannot see any kind of individual housing settlement providing an answer or physical solution and therefore glorify the conscious order of some construction principle often resembling abstracted ant hills. Once people are amassed in these superstructures the next inevitable move seems to be the total control over every corner or niche in which a rest of individual creativity may try to hide.

In these cities of the future vast improvements of the environment may become possible as they did become possible in the ancient cities. This indeed is one of the main arguments for all the utopian architectural concepts from Yona Friedman to Paolo Soleri, and there is no doubt that many savings occur in organized mass production. Yet the price at which this was and will be achieved, is that everybody becomes part of an extremely complicated machine, which can only function under the rules of totalitarianism.

Compared to even the simplest manifestation of spontaneous life, Mumford points out, these utopian models are almost by definition sterile deserts, unfit for human occupation.

The "invisible machine" he warns, has been re-established at an accelerating rate over the last 300 years with the uniformed standing army, the industrial revolution and the corporate enterprise. The fact that in spite of the most unfavorable conditions more and more people have come to live in the city, with its noise, dirt and pollution seems to prove his point. Lately the unlimited financial support for science during the second world war made possible the atom bomb as the realistic symbol of the union of omnipotence and omniscience: utopia may finally become reality, more perfect than any emperor or half-god would ever have been able to imagine.

But fortunately none of the "ideal" social or physical structures have yet been fully implemented, and certainly nothing would be more fatal to human life. In the face of the possibility of total control

or self-destruction new models for international relations, local participation, leadership and learning grow out of the necessity for survival.

In our shift from a performance to a learning society since the end of the second world war, we have begun to question our institutions, our social stratifications and national goals. A deep, dynamic, conceptual grasp of fundamental matters seems now more important than ever before.

Bennis and Slater in contrast to Mumford declare that "democracy is inevitable," that it is not an idealistic conception, but a hard necessity in countries that rely on change and creative scientific enterprise.

The strength of democracy is often underestimated because it creates an attitude of doubt and modesty, and we tend to admire the dogmatic

confidence of authoritarian intolerance. The sloppiness and untidiness of democratic structures compares in many peoples' minds unfavorably with the tidy, efficient self-righteousness of authoritarianism. But while democracy is accustomed to criticism and change, and has even incorporated it in its constitutions, the evidence that authoritarian systems feel quite unprepared for change and criticism and react with more repressive controls is only too convincing.

Bennis and Slater for example, hold that a new technical elite will force more and more relaxations and greater tolerance for criticism on the totalitarian systems and cause an inevitable drift toward a more open and democratic structure. This means an orientation toward the future is generating some common attributes, regardless of ideology and intent.

The challenges they point out are practically the same for all industrialized nations: to compete successfully for the world's resources and imagination. They see many signs of awareness of this phenomenon

in business communities, university and government programs. Some of the largest corporations are moving steadily toward more democratic organizations. Research and training centers are helping to shape a new social architecture.

The evolving democratic system they describe is neither permissive nor does it lack strong common values. Bennis and Slater believe that five common characteristics will govern our behaviour in the future:

"1. Full and frank communication, regardless of rank and power;
2. Reliance on consensus rather than the more customary forms of coercion or compromise to manage conflict;
3. The idea that influence is based on technical competence rather than on the vagaries of personal whims or prerogatives of power;
4. An atomosphere that permits and even encourages emotional expression as well as task-oriented acts;
5. A basically human bias, one that accepts the inevitability of conflict between the organization and the individual, but that is willing to cope with and mediate this conflict." [15]

The new professional man, according to Bennis and Slater, is remarkably compatible with this new conception of a democratic system, insuring perpetual transition, constant alteration and ceaseless instability.

Americans have always lived under transitional conditions - first the frontier, then the successive waves of immigration, now a runaway technology. The effects of these kinds of expansions differ in many respects, yet there is one common impact: the impossibility of the development of an authoritarian family system. "How could the young look to the old as the ultimate fountain of wisdom and knowledge when, in fact, the old knowledge was irrelevant - when, indeed, the children had a better grasp of the realities of American life than did their elders?" [16]

Margaret Mead in her book Culture and Commitment identifies the "generation gap" as a universal problem and points out that a dialogue between elders and children will only be possible if they both understand and acknowledge the wide gap in learning and experience that separates them.[17]

We are living in a time that could best be described as a runaway inflation of knowledge and skills, and no matter how brilliant an

individual may be he will soon come up against somebody who is equally as brilliant but more up-to-date and has fewer obsolete preconceptions. This not only is of immediate relevance to the main theme of this study, but it also explains why more and more organizations and institutions change toward releasing their democratic potentiality. Bennis and Slater see the difficulty in the learned patterns to which those in authority are committed because they succeeded in them. While the young and uncommitted will best realize when change comes and will take advantage of it, they also have the pains of uninvolvement and scepticism as much as the flexibility and joy of confronting new dilemnas.

The change in patterns of interpersonal and small group relationships, new patterns of leadership and managerial behavior are not only dealt with by Bennis and Slater. Similar concepts can be found in the writings of Chester Barnard, Douglas McGregor, Peter Drucker, Robert Theobald, Charles Reich, Theodore Roszak, and others.

groups. A person will enter a temporary working group, perform his task, and move on to the next. Another principle is "moral relativism": "The individual must at one and the same time be capable of self-restraint while recognizing the essential arbitrariness, particularity, and limited relevance of all moral imperatives."[18] In a society which accepts temporary systems, moral absolutes have no place. Work and play distinctions become obsolete because a creative act is both work and play. More play in work means also more work in play until no sphere of human activity becomes entirely free from either.

The architectural and urban planning implications of this kind of utopian model are laid out in Robert Goodman's After the Planners, in which he (according to the publishers), "lays the foundation for designing the liberated city." He describes the environment as a cultural revolution and says..."It would be absurd for example, to apply the concepts of hierarchical form (described in Chapter IV) to more humane, more immediately felt, small scale communities...This

means creating design situations where people no longer feel compelled to emulate the aesthetic values of the latest architectural taste-makers, but are free to explore their own environmental needs... By regenerating the design senses which have atrophied from their progressive lack of use over many generations, this process would in effect begin to develop the environmental dimension of a cultural revolution."[19] He then looks at so called "primitive cultures in which people build their shelter according to their social and cultural needs and how this could be applied to our societal context... With its decentralized politics, a community-socialist organization would make the expert's actions more visible to those affected by what he does; its planning could then become defined by actual problems felt by the community...architecture as planning decisions would then have to be judged by the people...affected rather than a cultural or technocratic elite."[20]

Goodman as well as Bennis and Slater see the use of technology in greater freedom and creativity for the individual instead of the

destruction and subordination of this freedom under the laws of the "invisible machine" which Mumford's analysis warns against. Both possibilities are presently being developed (maybe even in the same corporations). We are gaining more wealth and freedom by automation and at the same time have to accept bigger and more powerful corporations which have all the means of suppression and could act as totalitarian systems.

The concept of standardization of building parts is practically obsolete when computerized, fully automatic production lines can produce custom-built factories, homes, and schools, as well as cars, shirts and other items which so far were economically available to consumers only through manufacturing the same model in large numbers.

However, to install these production lines will cost even more money than the present types, therefore causing even more concentration ofpower in the hands of fewer corporations, and in addition, the elimination

of all specialized manufacturing which now lives on exactly this one weakness of the production line, that it is not profitable to produce in small numbers.

In view of these "realities" both Mumford's and Bennis' and Slater's "utopian models" do not seem too impractical, (and I will show later that indeed we will have to live with both). Mumford warns that unless we are aware of and take precautions, "the invisible machine" will take over in some sort of totalitarianism, fulfilling a dream or ideal model that has long lingered in the minds of utopians since Plato's Republic. The evidence of "alive authoritarianism" around us leaves no doubt that his view is at least as real as Bennis' and Slater's "change toward democracy" as an inevitable and logical development which is already penetrating all facets of life, education, and work.

The two competing views which are plausible at this point in time are: one that sees the necessity for a paradigm change (Mumford) and the other which sees no necessity for it, as the

future, in this view, will be approximated by a smooth continuation of past trends. The latterposition is, for instance, held by Bertram Gross in his Friendly Fascism: A Model for America. Harman views "past trends" as those dominating the industrial era, while Bennis and Slater point out that these trends have changed already. "Under the assumption that the paradigm-shift interpretation is more or less correct, that is, that the shift seems possible and desirable, but by no means automatic (and here is where Harman differs from Bennis and Slater! M.K.) it follows that the main challenge to society is to bring about the transition without shaking itself apart in the process. Every major policy decision tends either to foster the change or to impede it. Actions which attempt to force it too fast can be socially disruptive; actions which attempt to hold it back can make the transition more difficult and perhaps bloody...Seldom in history has such delicacy of balance been required, to achieve a major social transformation rapidly and yet not rupture the social fabric."[21]

My view is that we are right in the middle of a "paradigm-change".

Some parts of our society have already changed, others have not and don't seem to be willing to change. The rational policies derived from one or the other philosophical outlook differ greatly. Policies that seem sensible in one view appear harmful to the other.

This consideration of "how" to bring about change, then, seems to me is of crucial importance once the question of "why" change is necessary has been answered. And I think that Harman's notion of the "balance required to achieve a major social transformation" is something that in utopias, whether in literature or in the realm of architecture and planning, is all too often forgotten.

In the "alarming" or "sensational", the extreme solutions tend to dominate, while the practical, the probably "most likely" does not really enter the scene. However, planning and design or the direction of future developments, as externalized self-conscious and public processes is a fairly new human concern (Alexander 64). Studer points

out, "it is well known that the acquisition or modification of complex behaviors is not accomplished in an 'all or none' fashion. Research in human learning confirms that transformation from one complex state to another involves a series of intermediate states...Plans for and planners of human settings have not generally accomodated this learning dynamic. Little wonder that finite-state environments (most clearly illustrated, for example, in architectural systems) rarely consummate the specified goals of the recipients." [22]

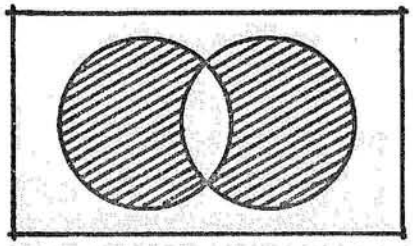
In our views of the future which are dominated by our interpretation of the past we are either alarmed by the development of "total control" or we dream about "total freedom." Either seems to me too simplistic and neither desirable nor possible. No human wants to be under the control of another, and planning implies control; however, it is equally true that freedom for every individual cannot be maximized without some planning or control, and therefore the crucial question becomes one of balancing individual interests and public powers. Only in stressing two essential ingredients can this be achieved; one

is a far greater amount of cooperation between the individual and "the public" (including all governmental levels, institutions and agencies with public functions); and the other is the acceptance of conflict as essential and inevitable part of our lives.

In balancing public powers and individual interests through cooperation and conflict management, educational and urban planning institutions and agencies are going to be major change agents. But to fulfill this task they themselves will also have to change their own structure and operative values, and this is the main theme of DIMENSION II and DIMENSION I.

DIMENSION II

INSTITUTIONAL ASPECTS



a) SUMMARY:

The fact, that our present bureaucratic and institutional structures are in great need of thorough overhaul and change has been advocated often enough. However the character of that change is not as easily described as it may be demanded.

If we want our institutions to maximize freedom for every individual we will have to define the parameters of their planning and control, in order to achieve a balance of individual interests and public powers. But in addition to that, and probably even more important is the precondition that the institutional structure will have to be changed to reflect the type of freedom, or democratic set-up we want to have.

Our experience with the democratic process (so far, no better way has been invented to maximize the freedom for the individual) could be used to restructure our hierarchical institutions. This would mean:

- the sharing of power at the top levels

- elections for top-level positions in regular intervals
- the delegation of decision-making power as far as possible to the user, or user-groups

For quite practical rather than moralistic reasons these changes will have to come about: first, we will have to prevent more information overload at the top; and secondly, complex tasks require a greater amount of equality among team-members, as well as honesty and trust.

The trends with which educational and urban planning institutions have to cope show quite detailed and clearly the direction from rigid control to highly flexible systems, and from hierarchical to horizontal power structures.

b) INSTITUTIONAL SUBSYSTEMS

Per definition (p.2-4) urban planning and education are systems that contain a number of subsystems. These subsystems are mostly represented by sharply delineated institutions and agencies; for example, the Board of Education, the City Planning Office, Parks and Recreation De-

partment of Commerce, the Juvenile Court, Mental Health Planning, public and private transportation agencies, and others. Each of these subsystems then is represented in some form or other at all the different governmental levels: city, county, state, and Federal Government. Most of these still work under the influence of the industrial-state paradigm; optimizing: division of labor, efficiency, satisfaction of basic needs. With the result that their organization is comparable to small empires, in which the head, principal, director, or whatever tries hard to improve his score and inflate his performance and territory, imitated without doubt by many other members of the hierarchy.

Moore points out [23] that the main strength of democracy lies in the sharing of power, (and I would like to add, their regular replacement) in the executive, legislative and judicial branches of government; and the main weakness of democracy is the fact that its other institutions are not set up in such a way but rather in the traditional form of hierarchies: those on top command, those on the bottom obey, according to the ideal of Mumford's "invisible machine."

But no matter how brilliant an individual may be, the decision-making power amassed in one hand "for life" is bound to be more dangerous than a shared decision-making process between several individuals. One measure to make institutions more democratic and less status and autonomy oriented could be the division of power at the top and a regular replacement of the "top" through elections by those they represent. Carole Pateman furnishes evidence for "the arguments of Rousseau, Mill and Cole that we learn to participate by participating and feelings of political efficacy are more likely to be developed in a participatory environment. Furthermore the evidence indicates that experience of a participatory authority structure might also be effective in diminishing tendencies toward non-democratic attitudes in the individual."[24]

Many attempts to change authority structure are doomed to fail in the transition period, as our upbringing mostly is not geared to the importance of "us" rather than "I" and "cooperation" rather than "competition." There are, however, encouraging examples that it

can be done: Susan Jacoby reports in the Saturday Review (April 1972) on "What Happened When a Highschool Tried Self-Government"..."SGB (the Staples Governing Board) is not a traditional student government, concerned primarily with proms and pep rallies. Composed of ten students, seven teachers, and three administrators, it is an attempt to give students a voice in cooperative education decision-making. Subject to the general authority of the local school board, the SGB is authorized to legislate in a variety of areas: curriculum, student behavior codes, school-community relations, and extracurricular activities.

The Board exercises more influence than an outside observer would have expected from a group that includes both high school sophomores and vice principals. Voting does not break down along student-faculty lines; education "conservative" and "liberals" are found among both faculty and student representatives. Significantly, the inadequacies of the SGB resemble those of other local governing bodies more than those of traditional student government. Because the board exercises

some measure of real power, it is confronted with real governmental problems."[25] (emphasis M.K.)

There is no reason why other organizations and institutions could not function on a similar basis. In fact, management theorists and behavioral scientists of the human relations movement which grew out of World War II have long emphasized democratic leadership and worker or employee participation. Today it is often understood that "vertical or diagonal slices of management in an interested agency are given training together...in an overall organizational development effort", and Robert Abramson concludes, "In summary, human relations training can play a significant role...(in attitude change) in both the public and private sectors."[26]

c) THE OPERATIONAL VALIDITY OF HORIZONTAL POWER STRUCTURES

This may seem to be an idealistic and may be a "good" way of looking at institutions and their authority structures. However, values, theories, or some practical examples do not become operative by simply being deemed "good." What are the arguments that suggest that

these values may become operative?

1. Information and communication overload near the top, and discouragement of responsibility-taking further down, tends to occur more frequently in the more hierarchically organized bureaucratic structures, as the complexity of societal operations increases.

2. A horizontal distribution of power (features: control is loose, power is diffused, centers of decisions are plural), with relatively small autonomous subsystem, seems better adapted to complex tasks, and provides more freedom for creative potential and satisfying experiences for the people involved.

3. "As the social system becomes more and more highly interdependent, the need becomes greater for accurate information to be available throughout the system. Just as the modern banking and credit system would not operate smoothly with the low trust level of a warrior culture, so highly complex task operations (such as putting a man on the moon) require a higher level of honesty, openness, and trust than suffice in advertising and merchandising. For quite practical, rather than moralistic, reasons, the demand level of honesty and openness can be expected to increase."[27]

4. Harman suggests,..." it would be quite practical to foster (through changes in corporation, tax, and anti-trust laws, credit policies, special subsidies, etc.) the development of profit-making corporations whose operative goals include active response to social problems (as those of non-profit organizations already do) and fostering the educational growth and development of all persons involved (as the goals of universities already do). In fact if some-

thing like this does not take place the amount of government practice, resource conservation, etc. can only increase without limit." [28]

In other words, the practical operation of more democratic power-structures is not only morally desirable but also good business. Before pursuing this further in analyzing one real life situation in Dimension I , it is necessary to look more closely at the other features of a "desirable future path" related to this specific subject the relationship of urban planning and education. In order to allow a fairly comprehensive overview of existing patterns, deficiencies and constraints - and - emerging alternatives, variables of future development - in the scope of this study, I have tried to keep the description of trends as short and precise as possible.

d) TRENDS RELATING TO URBAN PLANNING AND EDUCATION

They are grouped under different aspects relating to either urban planning or education:

- physical
- ideological-behavioral

- social and socio-economic
- administrative-governmental

the order in which they follow is of no importance and any aspect sheet of urban planning or education may be combined with any aspect sheet of the other. The division, horizontally as well as vertically, often proves artificial, and is only used for the sake of clarity. What is given represents a subjective and incomplete selection in many ways; however, it forms the scaffold for my further arguments and is therefore essential for the understanding of the last part of this study.

The timespan - back into history or forward into the future - as well as the scope of the trends varies considerably. Also, those future histories that are clearly not desirable are not listed. Sometimes they could be produced by simply eternalizing and projecting different patterns, in other cases the undesirable features of the application of new technology may not be listed.

Surprisingly enough throughout all of the detailed trends relating to the urban planning and educational process in the following chart there exists a "read thread" which is summarized in the following master chart:

e) MASTER CHART

	EXISTING PATTERNS DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
1.	RIGIDITY slow change; static conditions	FLEXIBILITY quick change; dynamic conditions
2.	SIMPLICITY one-dimensional, closed systems; input oriented	COMPLEXITY multi-dimensional, opensystems; input-service benefit oriented
3.	GUESSING secrecy, mistrust	KNOWING honesty, trust
4.	CONFORMITY hierarchical, vertical, separated powerstructures	DIVERSITY democratic, horizontal, inter-related powerstructures
5.	DEPERSONALIZATION gerontocracies; isolationism	HUMANENESS, INDIVIDUALIZATION meritocracies; cooperation

(For references in the following chart, see Bibliography)

planning	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
PHYSICAL ASPECTS	mainly land-use and planning oriented	comprehensive, holistic, interdisciplinary, or a-disciplinary approach
	physcial problems can be solved by physical measures	physical problems cannot be solved without tackling social & economic problems; and the consideration of cultural factors
	horizontal separation of uses; residential, commercial, and industrial	horizontal and vertical mix of uses; use of air-rights; multi-use zones
	inflexible rules, difficulty of responding to new needs except where economic pressures are strong enough	more flexibilty, change brought about by social and behavioral need as well as economic considerations
	aesthetic ideology, building visually pleasing objects or environments	political & social ideology (People's Park), building collective asembly of design decisions of users (Goodman)
	class standards reflected in physical physical terms: poor buildings and environments for poor people, better ones for the upper classes	a good environment is a basic human right and the user sets the standard, not the professional
	lasting dignity and stability of buildings to reflect national goals (Blessing)	throw-away buildings, mobile or temporary structures; urban renewal as on-going process, direct action of the people
	non-selective bulldozer renewal	rehabilitation where possible, preservation of neighborhood culture or social fabric

planning (cont'd)	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
	sparse historic preservation to original state	conservation of urban historic continuum (Kennedy)
	environmental blight through economic growth	environmental qualtiy as integral part of economic "development"

	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
PHYSICAL ASPECTS	schoolhouse with clear accepted tasks and long-range commitment	highly variable and unpredictable demand for space, in quantity, kind and location
	obsolete schoolbuildings and classroom layouts specially designed learning institutions	questioning whether "schoolbuildings" have to be necessarily built as specific entitities or whether facilities should be rented, shared with others just as programs and curriculum planning require
	fixed classrooms, all alike, stationary furniture, arbitrarily assigned seats	open classroom, highly identifiable learning situations, child moves into maths, or science, or arts "atmosphere" according to self-planned curriculum, arranges mobile furniture, seats, desks, bookshelves, special educational kits, media carrels, etc., to suit individual or group work
	monlithic buildings, inflexible, undifferentiated "Let it endure forever" corner stone ideology	smaller scale in proportion to child using it, light and friendly colors, movable partitions, controlled accoustics and climate, built for limited amount of time
	unused surplus space in schools in older communities wasted	lease of surplus space to health services, social work programs, day care centers, continuing education programs, offices for other government agencies, and others

education & planning	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
PHYSICAL ASPECTS	obsolete school sites and locations because of:	school site and location as important as educational program or school building:
	topography, school often placed on left-over land, physical and intellectual separation from the world	school site as integral part of open space system in a community linked to other activity centers (shopping centers, institutional centers), interlinkage of school and life
	no adjustment to change in land-use, population and settlement pattern	site must have potential to shrink, expand or be abandoned if they don't fit their purpose anymore
	e.g. changing traffic patterns create potentially dangerous school-walks	school sites can be planned in such a way that children can reach it without crossing major traffic arteries
	nuisance factors - roads, industry, airports	buffering from nuisance factors by green belts, orientation and spatial arrangements, or adjacency to desirable uses
	inadequate recreational space; crowded and noisy play areas next to residential properties	good recreational possibilities seen as part of educational process and essential for well-being of city-children; used by community in off-school hours, planning for all age-groups
	most school sites useless for holistic educational purposes, nature study, or outdoor educational programs	choice of site dependent on ecological significance, soil types and characteristics, vegetation, birds and small mammals, historical features

	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
IDEOLOGICAL BEHAVIORAL	MASTERPLAN	PLANNING PROCESS
(1)	one best plan to fit a situation	identification of alternatives, range in which a possible course of action can emerge
	plan based on assumption of one future	many possible futures envisaged
	closed systems of analysis	better understanding of interrelatedness of internal systems and external environment, units of analysis, and interdisciplinary synthesis (Studer)
	disciplinary frameworks for the solution of planning problems	a-disciplinary frameworks for addressing human problems
goals:	planning understood as primarily land-use planning	planning understood as a complex task which affords a comprehensive approach to "arrange the environment so as to maximize autonomy in the context of collective goals, and minimize the probability of exploitation of the many for the benefit of the few" (Studer 1970)
	mitigation of and counteraction against the worst effects of industrialism and urbanization upon the environment	redirection of basic forces of industrialization and urbanization to make their effects beneficial rather than harmful
	improvement of civic appearance, traffic movements, parks and boulevards, sub-division of land and zoning	improvement of socio-economic and physical environment, consideration of cultural, historical, and behavioral aspects

planning (cont'd)	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
IDEOLOGICAL BEHAVIORAL	MASTERPLAN	PLANNING PROCESS
	establishment of rules and routines by "planning authority"	people will establish their own rules and routines where necessary
planner-user relationship:	decision-making in the hands of few specialists, unable to receive, analyze, and act upon intentions of a population	mounting evidence that people have far greater capacity to plan for themselves than has been admitted, establishment of more effective communication tools
	planner as "master designer" with little power to enact design	planner as mediator, raising the quality of compromise to highest level, better chance of effectiveness; many roles for planner: advocate, educator, professional visionary, and specialist
	influence based on personal whims or prerogatives of power	influence based on knowledge, understanding, leadership abilities, and technical competence
	secret information flows among top level management	full and and free information and communication, regardless of rank and power
	conflict resolution through coercion or compromise	reliance on consensus to manage conflict
outside world:	the economic market guided by the "unseen hand" (Smith)	the government involving itself more and more where the economic and political market are not able to solve present and future problems, taking responsibility of stewardship
	the political market guided by disembodied intelligence (Lindblom)	

planning (cont'd)	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
IDEOLOGICAL BEHAVIORAL	identification of mostly middle-class, business, home-owning, largely suburban goals	entire population under consideration involved in goal setting, planning and design; special attention given to minority goals and values
goalsetting:	area of normative concern, therefore beyond systematic consideration	goals of population can be operationally defined and are empirically accessible
methods:	decision-making based on mostly "soft" data	decision-making based on hard data, algorithms, simulation (computer, human, hybrid, physical)
	modification of complex behaviors in "all or none" fashion	transformation from one complex state to another involves series of intermediate states (Studer)
	behavioral control via routine coercion (fines and economic penalties) punitive mentality	behavioral control through education & behavior modification; environment organized as to make consequences of behavior immediately available, self-regulation (pollution, population, population-control, etc.)

education	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
IDEOLOGICAL BEHAVIORAL	CLOSED TEACHING SYSTEMS	OPEN LEARNING SYSTEMS (Marien)
	narrow, fixed, retrospective collective pace	broad, changing, present and future oriented individual pace
	teacher and institution centered	student and child centered
	control-centered	autotelic, learning-centered, discovery approach
	emphasis on discipline, work, drill, memorization	learning is enjoyable, and follows from pursuit of interests
	teacher acts as source of knowledge, student as passive absorber	students actively participate and learn from as many sources as possible inside or outside the school system
	the school acts as sequence of sieves eliminating all but the most apt and ambitious	the school is obligated to do the most and best for every child
	capability is confined to a few gifted	there is extensive latent potential in all
goals:	education of children from 6-14 for their fairly predictable role in society	education and re-education of people to cope with constantly changing demands in a constantly changing world
	being educated, terminal education	learning how to learn, education as a beginning
	moral education, passing on knowledge, education of intellect mainly	development of whole individual, critical investigation of cultural heritage, questioning established ways of behavior & learning

education (cont'd)	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
IDEOLOGICAL BEHAVIORAL		
rewards:	grades, class rankings, honors, medals, degrees	non-grading, pass-fail
	recognition through competition in few areas of excellence	emphasis on cooperation, promotion of diversity and many areas of excellence, a feeling of success for all
	learning as a vocational and social utility	rewards of learning are inherent
"punishment":	physical punishment for "misbehavior"	counseling for personal difficulties
	no student recourse for injustice	ombudsman, legal measures
	dropping out is fault of student, blame on his ability	many possible sources of failure: environmental, institutional, individual, accountability of educational outcome

education (cont'd)	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
IDEOLOGICAL BEHAVIORAL		
	ordered structure of class hours and course credits	flexible scheduling
curriculum:	classic principles, truth, facts, deduction, maxims	methods, principles, induction, creativity, intuition, randomness
	determined by teacher and/or extra-classroom authority	determined by teacher and/or student
	programmatic, sequential, strict lesson plans	interchangeable programs, modular learning, lesson plan as guide to options
	western culture as superior to primitives, emphasis on differences, us-them	pan-cultural, multi-ethnic programs, emphasis on similarities,us
inter-personal relations:	teacher as authority, student as follower, control as instrumental technique	professional as learning facilitator or senior learner, student as junior colleague
	feelings concealed, teacher impartial judge of students	feelings exposed and respected, student evaluation of teacher
	single teacher opposite students as a collectivity	team teaching,differentiated staffing,compensatory education for handicapped and underprivileged

education (cont'd)	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
IDEOLOGICAL BEHAVIORAL		
outside world:	restrictive, "in loco parentis"	permissive largely peer controlled

planning	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
SOCIO-ECONOMIC		
	little "societal" planning, which seeks to directly restructure society; emphasis on social services as ends in themselves, bound strictly to short-run effects	transformation of advanced industrialism into the first service society; defining and providing an adequate level of social goods; locating and specifying social needs; planning for social change
issues:	poverty and racial segregation; presently no planning directly addressed to:characteristics of employment and unemployment, redistribution of income, job or economic mobility, maintenance or improvement of consumption	soci-economic planning headed toward guaranteed annual income, government fiscal and tax source reorganization, job training, price structure of regional services geared to low income groups
	wasteful and irrational methods in fund-securing and delivery systems; present service systems conservative in effect and outmoded in style; too much leakage in funds; too much money needed to get service to eventual user	metropolitan level "Human Resource Development Agency" to help social planning through information services including: governmental accounts which show real functional expenditures; expose interchanges of social programs; show actual objects as well as sources of programs; reveal revenue and disbursement flows in intergovernmental transfers; this would be essential for ultimate decentralization of delivery system
	colonialism;poverty, condition of powerlessness involving inter-personal comparison shunned by economists;	institutionalization of safeguards to guarantee equity in matters of planning, budgeting, pricing taxation, and expenditure of funds

planning	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTENATIVES VARIABLES OF FUTURE DEVELOPMENT
SOCIO- ECONOMIC		
methods:	service strategies encourage dependence; user trapped in positive feed-back relationship; standards set by social planners do not reflect desires and tastes of clients	income strategies rather than service strategies; elimination of allocation by bureaucratic standards; money enhances choice, services reduce choice

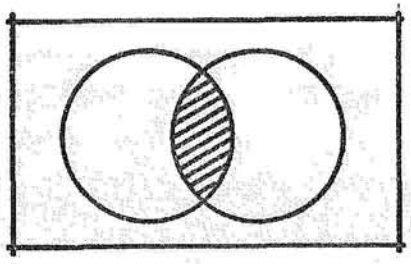
EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
SOCIAL FACTORS	
school: integrative system of society	school: adaptive system of society
need for change felt, but changes taking place are superficial, isolated and short-lived	consequences of non-change, non-adaptation create additional impetus for alternatives outside regular education system, competing with and possibly replacing existing forms of education
open systems innovations launched singly are made ineffective by largely closed systems; little knowledge of social factors, social costs	open systems lead to increasing understanding of social factors, social costs and benefits through: projections and analysis of racial compositon, cultural norms and community attitudes; establishment of thorough Census of Education (similar to quinquennial Census of Manufacturers)
inequality of opportunity caused by lack of coordination; best schools are getting better at a faster rate; widening gap: urban versus rural; East versus Middle-America	equal access to teaching-excellence through development of technology, video cassettes, cable television, picture phones, etc. (institutionalization of lifelong learning and unlearning)
old teaching young	young teaching old, generational inversion (M. Mead)
education for young; higher and continuing education for middle and upper-class	education for all age-groups and special emphasis on training the educationally disadvantaged

education (cont'd)	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
SOCIAL FACTORS		
societal context:	static and simple agricultural; industrial, autocratic, plutocratic; gerontocratic	dynamic and complex postindustrial; knowledge based, service society democratic; meritocratic
ideological:	common school system allows "climbing the ladder for all"	education alone not sufficient for social mobility

EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
FINANCIAL & GOVERNMENTAL	
market forces stronger than governmental regulatory devices	difference between ownership of facility and ownership of land which is public (Contini)
high income citizens replaced by high cost citizens in the inner city, taxpayer concentration in suburbs; cities paying for poverty-related functions of education, health, welfare, and police; municipal overburden; decline in property related services	development of metropolitan government structure, national tax-balance, or service balance (state to pay school tab);
full employment planning focuses on aggregates meaningless to "hardcore" unemployed, or to the transition to equal economic status	human resource development agencies must deal with relocation, employment and residential mobility, job training programs, coordination of health planning with housing and job planning, welfare and poverty programs, the monitoring of economic opportunity; public spending mix more important than amount
large, centralized public and private powerstructures	more decentralized public and private power, larger responsibilities on every individual and level greater opportunities
public poverty in contrast to private wealth; great differences in private income	more balanced public and private wealth, more equal distribution of income (smaller standard deviation)

education	EXISTING PATTERN DEFICIENCIES & CONSTRAINTS	EMERGING ALTERNATIVES VARIABLES OF FUTURE DEVELOPMENT
FINANCIAL & GOVERNMENTAL	school system still largely dependent on local real estate tax; some state and federal funds for special education programs	urban educational problems require expenditures that far exceed the revenue capacities of city school systems; state or national governments will assume most of the cost of education to eliminate gap in school quality
	retaining of old schools and teaching methods because of proven costs of traditional systems; retraining teachers is expensive; extensive use of media is expensive	open learning systems are no more expensive than traditional systems; teachers are going through retraining courses at regular intervals anyway;
	school-system (second highest public expenditure) not held accountable for its failures or successes	either the school system is going to develop accountability; or performance contracting with money back guarantees will become more common
administrative:	educational institutions reflect their constitutents and surrounding communities	
	input oriented hierarchical leadership obsolete bureaucracies, facilities and methods	input-service-benefit oriented, PPBS pluralistic, participatory increasingly rising level of functional literacy, free flow of communication and relevant information (new information processing, H. Simon); less dependence on bureaucratic functioning, more self-determination for consumer, smaller institutions

DIMENSION I.



a) SUMMARY: Education and Urban Planning as Congruent Events

In this part of my study I try to analyze the area of interaction in which urban planning and education become congruent events, or a process maximizing those trends which will ultimately lead to a more flexible, complex, knowledge-based, diverse and humane environment.

A short view of stated goals of the City Planning Department and the Board of Education in Ann Arbor, Michigan compared to a "Survey of Factors Influencing Planning in the Ann Arbor Public Schools" provides a real life example of the relationship of these two institutions and an outline of their area of overlapping interests.[29]

One critical ingredient missing in these documents is the "human input", or a description of a way in which citizens can be adequately represented in the decision-making process. A correct data base and highly responsive retrieval system (advocated in the A.P.R.G. survey) are necessary for flexibility, openness and quick reaction; however, they are not sufficient for providing:

- the two institutions with all the data necessary for the delivery of those services the user wants and needs;
- each individual with an opportunity to contribute to society and to be affirmed by it in return;
- a more equitable distribution of power and wealth;
- socially responsible management of the development and application of technology in order to maintain a habitable natural and man-made environment.

One way to accomplish these goals would be to establish a regular series of participatory decision-making exercises or simulations, in which all citizens are able to take part and all levels of government are represented. Using a program similar to the G.S.P.I.A. game[30] and the proposed data base and retrieval system, these simulations may achieve the goals stated above and;

1. create a new dynamic "folk model" which more adequately reflects the change in our "basic ways of perceiving, thinking, and doing" than our present folk models;

2. provide a pre-testing instrument of utmost importance to the development and implementation of complex policy decisions in urban planning and education as well as other areas of decision-making.

b) Ann Arbor, A Test Case:

Having dealt in some depth with aspects relating to urban planning and education generally let us now consider and analyze one specific place and a particular time - namely Ann Arbor, Michigan in 1972 - to illustrate the importance of the coordination and cooperation of the two areas under consideration and their recognition of emerging alternatives of future development and desirable future paths as stated in Dimension II.

Ann Arbor is a city of about 100,000 people. The balance of its physical scale - of buildings, open space, and overall size - corresponds with its balanced middle-class socio-economic stratification. Its main industry: education, medicine, and research, deals with the more intelligent and "humane" tasks of society ideally and practically. This is reflected in the attitudes and concerns of its citizens.

However, Ann Arbor, like any other American city, is threatened by the results of anti-city government policies and the deepening traits of segregation. These and other factors are in the process of undermining

the positive characteristics of the city. The city government, mainly the Planning Department and the Board of Education as highly visible public agencies have considerable powers to combat the eroding process, and there is evidence that citizens and other institutions are actually aware of this.

Documents like the "Guide for Change" published by the City Planning Department show the central position of the public schools in the re-organization of the city; the Ann Arbor Schools Site Development and Selection-Advisory Committee, consisting of concerned citizens and professionals studied in extraordinary depth the "Opportunities for Environmental Education on School Sites"; the recommendations for combating racism and effecting quality education in the Ann Arbor Public Schools, summarized in the report on "Humanness in Education" tackle this problem on a very detailed and specific level.

This is only to mention but a few examples of written evidence of the awareness and ways in which Ann Arbor's citizens and institutions are trying to link the public school system with the tasks they face as a

social and physical whole.

Two documents, "The Guide for Change", published by the City Planning Department and the Board of Educations's, "Goals of the Ann Arbor Public Schools" offer essential information, and a comparison of their areas of concern.

The planning document deals with:

- urban size and organization
- the regional context
- economic prospects
- demographic characteristics
- public finance
- land use
- circulation systems
- public facilities
- environmental quality

The educational goals are summarized: in four primary areas:

- learning and teaching
- school and environment
- organization and management
- finance

At first sight it seems that each institution stays within reasonable distance of its limits. (A short version of the "Guide for Change" and

"Goals of the Ann Arbor Public Schools" can be found in Appendix A and B. They do provide some of the basic information in all these areas of concern.) However, this first impression above the APRG (Advanced Planning Research Group) "Survey of Factors Influencing Planning for Education in the Ann Arbor Public Schools" (produced for the Board of Education) goes far beyond the four primary areas of concern and penetrates into several areas dealt with in the planning document; it covers:

- the need for continuous survey
- an overview over the region
- factors influencing growth
- current development activities
- their relevance to the school system
- the need for tactical flexibility coupled with new objectives
- the need for flexibility in educational programming
- the need for flexibility in facilities programs
- development of closer ties with the City Council and the Planning Commission

- development of comprehensive growth strategies
- a "flexible space" inventory
- cost reduction through joint-occupancy and facilities-sharing programs a.o.

The purpose of the survey is to present information affecting physical and program planning in the school system. It contains precise agency profiles of all major functional categories of services.

- state, regional and local government
- public education
- parks and recreation
- early childhood and day care
- health services
- guidance and counseling
- law enforcement and correction
- public works
- commercial development
- housing development
- religious organizations

- charity and public service
- federally funded programs

And it stresses the need for the continuous updating, compiling and systematic monitoring of the information related to each functional area.

To increase the awareness of local conditions, it is suggested that such information then should be routinely circulated to all planners, decision-makers, and departmental officers in the school system. The use of such information for the school system is obvious: e.g., information on local residential development is essential for updating student population projections in particular neighborhoods. Information about local activities in building can help understand factors such as contractor activity, labor supply, etc., which will affect school building costs. "In such cases, the school district should have definite and formal channels for processing survey data into its most useful form, and should make sure that information gets into the right hands. (Unfortunately the schools have few such processes at present, but need some badly....)"[31]

The report then rejects the notion that these papers should serve as bases for long-range "master plans", because "conditions are so dynamic in the City that any "master plan" would be out of date before it was put into print"... also "master plans tend to become sacred cows, used less often as a plan than as an excuse not to do any further planning...often they become obstacles for innovative ideas that don't fit the plan."[32]

The "Overview of the Region" and survey of resources uncovers the general structure of the Ann Arbor region which is vital for understanding "how" and "where" to plan schools.

In Appendix C a short summary of this report is given to show:

1. that the question of the interrelationship between the educational system and urban planning has to be seen as a whole host of questions about very specific problems that can only be solved in a coordinated way;

2. what some of these questions are and how they may be answered and solved;
3. to give an example of the most important and extremely useful aspects and approaches to the problem of organizing educational planning and institutional change;
4. to show the basis on which it is possible to build a more meaningful relationship between education and urban planning;
5. to analyze the shortcomings of this approach if used as the only tool for management and coordination;
6. to be able to expand on the additional and essential ingrediants and processes to planning for education and urban planning.

There cannot be any doubt that a continually updated data base and retrieval system - a personal, pupil, and space inventory, highly responsive processes for information on curriculum design and change, growth and declining areas, etc., - is of the most vital importance for an

efficient implementation of innovative educational processes. And it cannot be overemphasized that none of the additional factors and processes which are essential can substitute or replace "fiscal integrity" or precise information. However, it also has to be stressed that this alone is not enough. One aspect most critically lacking in this report is the "human input" into the decision-making process. There is no mention of any participatory procedure or the problem of political powerstructures and their influence on the planning process, which certainly is of the utmost importance in regard to the question coordination and cooperation between different institutions and agencies, as I have tried to analyze in DimensionII.

To somebody who is not acquainted with the difficulties and challenges of a participatory planning process, the A.P.R.G. report will convey the impression as if every problem can be reduced to a set of facts and figures, and once these are fully known, the right decision is practically self-evident. Where facts and figures are not available, the answer is: Do not Plan! Compare App. C:..."in Ann Arbor's case, master planning would do little or no good...because there are too many variables, and

there is the need to make too many assumptions." What is meant here, is an approach to planning, which certainly still exists, but which is slowly on its way out, and nobody who knows all the shortcomings of the "masterplan approach" would advocate it for the present situation in Ann Arbor. But the report also states "master plans are always based upon predictions of the future...which is as reliable as tommorrow's weather forecast"[33]...evidently implying that this particular planning document is not following this pattern. This, I think, is deceptive. Planning, as I have shown in Dimension III, always involves some interpretation of the past and some vision of the future, and this is exactly what this report is doing and what any other report which has any meaning for future policy decision-making inevitably has to do.

In a probably more rigorous manner than others before (but certainly not as a historic novum) the A.P.R.G. report draws conclusions from a lately unpredictable past to an even less predictable future, and in this way just creates another type of master plan. This new type essentially is very similar to the old type of masterplan; which projected a fairly stable past into a first predictable then less and less

certain future. Only today the dynamics of our development have become so complex that the forecasts have to take this into account, if they are to have any meaning at all.

The similarities and differences in the old and new types of master plan are:

1. They both rely on data as a main source of information. The difference here lies in the "degree" of accuracy.
2. Fiscal integrity was and is one of the main objectives. This obviously is more difficult to achieve in a time of quickly rising expectations and slowly rising funds.
3. Efficient management is similarly important. The emphasis, however, is on the more complex interrelationships, e.g., between the school system and the outside world today.
4. In both the "user" is not involved to any significant degree.

This last aspect is not accidentally the "most" similar. There are indeed some very good reasons why the user has been and is left out of the process. "Human input" where and whenever is varied and multifold; it is unpredicatable and therefore adds an element of insecurity and chance. This, from the systems point-of-view, is the characteristic of a "faulty" element. Robert Boguslaw in his book The New Utopians[34] describes why and how the systems engineers are designing the human being as much as possible out of their systems. In theory and practice only a 100% automated procedure can guarantee a correct or perfect end result. Only a machine can have a constant attention-span, no moods, ups and downs, or weak moments. Or if it has, at least it can be corrected more permanently than those of one individual - or even worse - a group of individuals.

Some very subtle clues that this indedd may be the direction of the "new masterplan" can be found in the language and analogies used in the A.P.R.G. report. Particularly interesting in this context is the first part under "Tactical Flexibility and New Objectives"..."in such a situation it is virtually impossible to predict exactly what demands will be

placed on the school system...in analogy it is that of the battlefield general who is not only unsure from which direction the enemy will attack and in what numbers, but is also unsure of exactly what resources he will have to throw into the battle. In such a situation, strategic planning is almost useless..." (App. C-6)

This leads us to an analogy Mumford uses in his Utopia, the City and the Machine. He proves that even though the growth of new powerstructures over the last thousand years has undermined the sovereignity of the "Invisible Machine", its negative form of total control from above and total obedience from below, never entirely passed out of existence, and that the army is the totalitarian model handed on intact through history.[35] Language and analogies can be eye-opening sometimes.

This comparison should not be overdrawn, of course, but what I want to emphasize is that our relationship to science and technology are marked by some of the same attributes which characterized people's relationship to the invisible machine: over the many benefits we get we all too often forget the price we have paid and the still more forbidding price that is

in prospect. By judging every invention separately on its own performance we have created as many problems as we have solved and uncritically turned the machine into a god whose power must be increased, and who cannot be questioned and modified. Even though "flexibility", "openness", and "quick reaction" are the keywords in the A.P.R.G. report, a correct data base and a highly responsive retrieval system may become just as much of a "sacred cow" as the old masterplan. Those endowed with correct information may feel more strongly than ever that they, and only they, can make the right decision, because nobody else really "knows" the problems, the complexity of interrelationships and the urgency of action. What we may be in fact creating is the dictatorship of the most precisely informed.

However, the question at this point is not: What are the alternatives? Simply because we need flexibility, and quick reaction, and for that reason a correct data base and a highly responsive retrieval system. The questions to be asked are: How can we prevent the misuse of the system by a few individuals, and what are the safeguards which we have to build in for that purpose?

(This by no means should be interpreted as mistrust in the present administration in the Ann Arbor schools. I hope it is clear at this point that Ann Arbor's problems are those of practically any growing community of similar size; and the basic answers to these problems will always have to include a similar approach as the one outlined above. Also, administrations and individuals may change, but once an expensive data base has been established it will (hopefully) stay, and become more and more sophisticated.)

But before pursuing above question any further let us take a look at what the proposed system does not include:

1. It cannot look into people's minds, and read their ideas or aspirations (except with some (still) illegal surveillance; which is only to show, how much more correct the system could be, using some less correct ways and means);
2. It cannot predict conflicts between individuals, groups, or powerstructures;
3. It cannot mediate, or solve conflict by adding

new dimensions which transcend its "program."

Only by establishing a "planning process", which takes into account people's ideas and aspirations and enables them to deal with conflict situations of different kinds can we hope to

- get all the data necessary for the delivery of those services they want and need;
- provide each individual with an opportunity to contribute to the society and to be affirmed by it in return;
- foster a more equitable distribution of power and wealth;
- foster socially responsible management of the development and application of technology in order to maintain a habitable natural and man-made environment.

One way of accomplishing this would be to set up a series of participatory

decision-making exercises similar to the G.S.P.I.A. -game (see Appendix D), in which all major levels of government will be able to take part on a voluntary basis. The three basic levels of government could be divided into: 1. the grass-roots level, 2. middle-managment, and 3. top-management and -administration. Usually there would be a diagonal cross-section of these three levels, but for special purposes a horizontal cross-section may be useful. The goals of these exercises would be present and future-oriented problem-solving (preceded by an analysis of the past and present trends related to the problem at hand), and the institutionalization of regular contacts and an open exchange of information between citizens and private or public powerstructures.

For example, people and agencies could "play" their own parts in a simulation of the development of Ann Arbor over the next ten years. This would not only give them an opportunity to "define" their own roles but they would also be able to see themselves as part of an intricate organism of economic and social support, which is able to amalgamate ideas and resources to implement or impede change. But the most important aspect of this type of "planning process" is, that before a planning

decision is implemented, all participants will have some important clues about the effects of their decisions on the overall structure and development of the area under consideration. With a more precise data base the refinement of computer programs and more sensitive interactional techniques these "games" will be able to produce more and more accurate predictions of future development, so that "highly complex systems can be pretested and implemented with minimal risk of failure." (Studer)

c. The Use of Participatory Decision-Making as a New Folk Model

This attempt, to learn about complex social systems without risking the welfare or survival of the participants themselves, is, as Moore and Anderson have proved, not anything new:

> "we think that it is a mistake to regard the ordinary human being as an atheoretical or a nontheoretical or even an anti-theoretical creature. Some contemporary behavioral scientists seem to assume that the ordinary man, a citizen in good standing in whatever community he lives, is woefully lacking in intellectual resources to guide him in managing his affairs. He is credited only with some folk sayings and proverbs, some practical knowledge, some skill at rule-of-thumb reasoning, some tradition based explanations - and that is about it.
>
> In contrary vein, we suggest a different view of "man." We think that early in human history, probably at about the time men developed natural languages, they also created models of the

most important features of their relations with the environment. These were relatively abstract models which collectively covered relations holding between (1) man and nature - insofar as nature is not random; (2) man and the random or chancy elements in experience; (3) man and his interactional relations with others like himself; and (4) man and the normative aspects of group living... There does not exist a society, however "primitive", that does not have cultural objects falling within these four categories of models...We call them "folk models." Every society...has puzzles which, we suggest, stand in an abstract way for non-aliatory man-nature relations...games of chance...abstract models of aleatory aspects of existance...games of strategy... in which no party to an encounter controls all the relevant variables upon which the final outcome depends;...aesthetic entitities, i.e., art forms which we claim give people the opportunity to make normative judgements about and evaluations of their experience. All societies make use of these folk models in the socialization of the young and for the recreation, or the recreational enjoyment, of those who are older...

It should be pointed out that until mathematicians had made formal analyses of the structure of some of these folk models, their depth and subtlety were not appreciated fully. Of the four classes of folk models distinguished above, two have received adequate formal treatment, specifically, the various mathematical theories of probability have all games of chance as models, and the various mathematical theories of games of strategy have all games of strategy as models...methods of natural deduction may help to clarify the structure of puzzles. When it comes to aesthetic entities, everyone is at sea and it is ot known whether mathematical analyses of aesthetic objects, should such analyses prove possible, would result in only one or more than one distinct class of models...

Historically speaking, man not only invented and developed these fascinating folk models, he also devised suitable techniques for seeing to it that they were mastered by the ordinary citizen... To put it another way, if folk models are abstract schemata which

> help us orient toward a wide variety of problems, then we should get them down pat. With respect to their inculcation, observe that in general they are learned, but not taught. What is taught are the 'rules of the game', and once the rules are understood, each participant is largely on his own....the stakes for winning and losing are kept at some nominal value insofar as profit and loss enter. In addition, there are norms which regulate the expression of feeling and emotion...extremes are excluded. These models serve, as... a kind of 'school' in which boredom is unlikely and uncontrolled emotional frenzy is forbidden. All in all,...the models themselves, have proved so successful that people have to be prohibited from playing them too much, despite the conceptual depth of the material with which they deal."[36]

The proposed participatory decision-making exercise or "simulation" seems to me could become a modern "folk model." What we are trying to achieve is a situation in which people can learn to cope with the fundamental issues and problems concerning their natural and man-made environment, those elements in life which they have no control over, their interactional relations with others like themselves, and the normative aspects of group living.

A variety of insights can be gained from the analysis of our early folk models:

1. taking part in the "game" should be made as easy as possible.

The rules must be simple enough so that everybody can understand them;

2. the success of the "exercise" depends on our ability to make it fun, or at least interesting enough that people want to play it;
3. practicing "decision-making" must allow everybody as much freedom to make mistakes as he wants, without serious consequence for his own or other peoples' lives or futures;
4. a wide range of feelings and emotions can be permitted, but extremes are excluded.

Here however, the question arises whether or not these models today can adequately represent guides for action, whether or not they can provide a basis for the structure of today's human personality. Moore' and Anderson'deny this. They acknowledge that these folk models have served man well during most of his history, but that there is something radically wrong with them in respect to their present theoretical relevance. As long as man lived in a static social environment, these models matched the world, i.e., in a game of chess the rules and boundaries remain con-

stant, in a jigsaw puzzle the picture to be completed is not subject to change, nor are the actors allowed to change their lines in a play. All folk models in this respect resemble the Newtonian concepts of space and time - "...both presuppose a frame of reference which is invariant with respect to all that goes on within it."

This, however, is not the case anymore, since most industrial societies have undergone a massive acceleration in their technological development since the 1940's. Instead of a static framework we now need a dynamic framework, in order to be able to cope with our problems in a changed and changing world.

Can a decision-making exercise, or simulation, become or be classified as an "abstract model" of the decision-making process? I agree, that its "abstractness" could be questioned, but the fact that it goes beyond mere technical virtuosity within a fixed frame of reference cannot. Let us now examine whether the requirement of an "incalculation of a deep, dynamic, conceptual grasp of fundamental matters or a concept of a world which is compatible with a civilization in acceleration" can be taught in

this way. For this purpose I will use some of the principles that were developed by Moore and Anderson and relate them to the simulation situation.

In linking their folk models to the structure of the human personality, they discovered that each of the four kinds of folk models corresponds to a characteristic attitude or perspective that a person might take toward this world...and that the models build upon one another in a particular order...

1. Puzzles emphasize a sense of agency, which is called the "agent perspective."
2. Games of chance emphasize a sense of patienthood...called the "patient perspective";
3. Games of strategy presuppose an agent-patient perspective (or) "reciprocal perspective"...
4. Aesthetic entities emphasize a sense of assessing, evaluating or judging. This perspective presupposes significant others in interaction, i.e., entitites that behave in terms of the other three perspectives. This judgemental stance is called

the "referee's perspective".[37]

Moore and Anderson in their research found that environments which permit and facilitate the taking of several perspectives are more conducive to learning than environments which only allow one perspective to be taken. If this is the case, then simulations must rank fairly high, because they do allow everybody to take all four perspectives: a person can be active, passive, inter-acting, or judging. Whatever attitude the participant brings to decision-making exercises he can take exactly the perspective he chooses, he can speak, listen, argue, try to mediate, etc.; except for the fact that he is taking part in a process that may only partly be reiterative (e.g., on a video-tape), and may develop its own laws and direction in the course of time, there is no constraint to take any particular perspective at any given time. Since any environment which confines people into one basic perspective is apt to become boring rather quickly, it may be more understandable why the decision-making exercise "units" will have to stay as small as possible to be "attractive." Otherwise too many people will be listening or taking one perspective for too long. Crucial here is that interaction

within small groups will be more lively and more people will want to take part when things are really "happening."

The second principle, Moore and Anderson stress in their "Design of Clarifying Educational Environments", is called the "Autotelic Principle." For an environment to be autotelic it must protect the participant against serious consequences of his actions. This is quite simple to achieve in a puzzle, game of chance (if it is not played for money) or game of chess, the loser may not like to lose, but normally this sort of loss does not pose any serious threat to anybody. In our case, it is somewhat more difficult to achieve.

In order to allow a maximum of freedom in the decision-making exercise it will be necessary to have some specially trained persons, who are experienced in sensitivity training, the dynamics of small group behavior and conflict management. These persons should not take part in the exercise and only set the mood for free discussion and prevent extreme situations in which people could hurt each other (probably more "mentally" than "physically"). This, however, should not be necessary

too often because the use of "extremes" is against present social norms, which could best be characterized as a "low key, low voice" type of managerial behavior.

To be autotelic the decision-making exercise should be enjoyed for its own sake. Though it certainly will be difficult to keep psychological and social risks out of the exercise, at least a significant number of stress-creating factors can be eliminated immediately when there are no rewards and no punishments; and it also it understood that a creative act or solution renders the usual work-play distinction obsolete.

Moore and Anderson hold that the notion of an autotelic environment requires the differentiation between a time for earnest effort and real risk. In this point I have to disagree with them. If we look at children and their "play", or at chess-players,whether they are young or old - "play" is seldom playful, funny, making a fool of oneself, or guessing outrageously; but rather, it is concentrated, serious, and very "real". (If they "guess outrageously" for instance, it is usually because it "makes sense" in a particular situation, where you may have used up

all your conventional wisdom. But this is neither fooling oneself nor trying to be funny.) The knowledge that no serious consequences are to be expected from the outcome obviously does not prevent the "player" from taking the game seriously as long as it lasts. And I would even take this one step further; it usually is no fun at all to play, e.g. chess,with someone who does not take it seriously. If this was not so, the notion of a "decision-making" exercise or simulation might as well be dropped; because the importance of it lies not only in the fact that people will acquire better skills in areas of vital concern to our lives, but that they are pretesting several options open to us. This pretesting, however, can only become a useful tool if it allows for a maximum amount of freedom and creativity; this renders the usual work-play distinction obsolete.

The third principle, which is of great validity to our area of concern, is the "Productive Principle." It states that "...one cultural object

(a cultural object is something that is socially transmissible through learning) is more productive than another cultural object if it has properties which permit the learner either to deduce things about it, granted a partial presentation of it in the first instance, or make probable inferences...of two versions of someting to be learned, we should

choose the one which is more productive; this frees the learner to reason things out for himself and it also frees him from depending upon authority." [38]

This may seem like the most natural thing to do in any case, but as Moore and Anderson prove, it is not. Whether students have to learn atomic numbers and weights in alphabetic order or whether teachers treat written English as if it were Chinese, without giving any credit for the logic or coherence in its ortography, people often do things in the most difficult way because they are not aware of their choice.

One of the insights we gained from the analysis of early folk models was, that taking part in the game or simulation should be made as easy as possible, and the rule for participation should be made as easy as possible. It is conceivable that someone would argue that people should not play their own roles, i.e., because they have preconceived ideas, and maybe would get too involved. This may be true; however, I found that the interaction with other participants in the G.S.P.I.A. game adds so many new dimensions to one's own outlook that one needs the utmost confidence in one's own role and arguments in order to be able to deduce

and make probable inferences, from other presentations. It also means that one is able to "play" without consulting an authority in the field one has to represent, and it might be of immediate value to oneself in the on-going learning process that is going to be part of everybody's life. In other words, every individual, agency, or institution, firm or corporation should play his, her, or their part or role, and produce as many alternatives to a given problem or task as imaginable, whether they sound realistic or outrageously guessed does not matter. Participants will probably soon find out that traditional criteria can be of little use.

Another aspect of the simulation, which is important in respect to the productive principle is the use of the computer to support the decision-making process. Here a precise data-base, highly responsive retrieval system (and the "right type" of computer program) can be used to show more accurately than was every possible, the direct implications of the financial, social, and physical decisions, made in a small group, on the overall structure of the city or social system.

Even though this may never be a 100% correct output, it can reflect major directions, needs, strategies, and goals of highly complex systems far better than any presently used technique or research method to evaluate peoples' preferences.

But most important of all seems the argument that this may be one of the most effective ways to really involve different groups of people in meaningful present and future-oriented problem-solving, e.g., Administrative rationality alone is certainly not appealing to the have-nots if it merely makes the best of a bad situation. For affluent whites who have all essentials in their private lives, good government means: good education, air and water quality, provision of parks and open space, conservation of scenic assets, good urban mass transit and regional planning. But the poor know that their ability to enjoy recreation areas depends on their ability to hold a job five days a week, and a regional government concentrating on environmental issues distorts the social priorities, and should not be supported. They may want to discuss forecasts of employment prospects, precise areas and numbers.

A government without the right tools, without accurate information and the willingness to share this information and decision-making power with the user, is doomed to fail in the most vital areas of concern, this means to be "unproductive."

The fourth and last is the "Personalization Principle", which, unlike the other principles, deals with two distinct parts: 1. the responsive and 2. the reflexive condition. The idea is that the environment must be both: responsive to the learners' or participants' activities, and helpful in letting him take a reflexive view of himself.

It seems to me as if the simulation or decision-making exercise combines in an ideal way both requirements: it permits the participants to explore freely, and informs him very quickly about the consequences of his actions; it is self-pacing because the individual largely determines the rate at which events are happening; it permits full use of the participants' capacity for discovering relationships of various kinds; and to link discoveries about the physical, cultural or socio-

economic aspects of the world around him.

Secondly, the simulation situation allows the participant to see himself as a social object; he can virtually use the reaction of others to his opinions, proposals or actions as a mirror, reflecting his capacity to make himself understood or convince others about his ideas. In addition, the use of video-tapes for instance, makes this kind of "game" an even better "reflexive device."

> "The reflexiveness which is characteristic of maturity is sometimes so late in coming that we are unable to make major alterations in ourselves...if an environment is so structured that the learner not only can learn whatever is to be learned but also can learn about himself qua learner, he will be in a better position to undertake whatever task comes next...It is a normal thing for human beings to make up hypotheses about themselves, and it is important that these hypotheses do ot harden into dogma on the basis of grossly inadequate information."39

One device which, in my view, has proved to be most successful in regard to the responsive and reflexive condition, is the evaluation of questionnaires which give each person a fairly exact ideas about the impression he or she made on other participants.

d) FINAL REMARKS

I would like to state at this point that my application of the four principles for the design of clarifying educational environments has not been approved by their inventors: Omar Kayyam Moore and Alan Ross Anderson. However, I was able to use and translate their discoveries into my area of interest - as I believe, without too much distortion - because their theory was developed before it was applied to the design of an environment for pre-school children.

The reason for uncovering this fact only now is that I wanted to maintain a certain ambiguity in the choice or use of the terms "Learner" and "Participant", as well as "Educational Environment", "Environment", "Decision-Making Exercise", "Simulation," and "Game." Their interchangeability shows, probably more clearly than any other evidence, the close interrelatedness of education and urban planning. In fact, a decision-making process as outlined above melts together education and urban planning into an identical process. Here, they do not only "overlap" in a wide area, but they become "congruent events".

Whether or not this process can or will be implemented may well be of critical importance to the future of both fields. However, anybody who is going to implement a process such as the one described must be warned: this process will neither be tidy, nor clear-cut, nor happen without the constant danger of breaking apart. It will quite certainly be more difficult to sustain than the isolated decision-making of those in power. But it will ultimately lead to better or more meaningful results, and a more meaningful life for a greater number of people, mainly those who have not had adequate representation of their interests in the past.

More important even is the knowledge that the complexity and interrelatedness of our problems leaves us no other choice, after simple one-way solutions have failed (e.g., the "busing-solution": to put one institution under legal order to integrate will not solve the segregation problem). Now, we must try more adequately complex ways. The only other choice is to flee backward into the safe realm of authoritarianism or "Friendly Fascism" (as Bertram Gross sees the future of America).

The Educational Research Institute, Stanford University, attests this view an alarmingly high possibility of realization, if we do not alter our basic ways of perceiving, thinking and doing. Those ways of perceiving, thinking and doing have made possible the great achievements of modern industrial organization and technology, and this is not to advocate that we should have less industrialization and technology. But we have to recognize that those successes at the same time cause all the serious problems of our day:

- the intrinsically increasing gap between haves and have-nots
- exacerbated unemployment
- dehumanization of the world of work
- increased per capita environmental impact
- pollution
- energy shortage
- threats to privacy and freedom (surveillance technology, bioengineering)
- rising expectations on one hand and "knowledge barrier" to lower class on the other

- a management breakdown in regard to consequences of technological application
- overpopulation
- the problems of the aged
- urbanization and the vulnerability of a complex social and industrial structure.

It seems quite clear that these problems cannot be solved with more technology alone. More people will have to be educated to understand the mechanisms of technological application. However, educators already challenge the belief that people are increasingly well-educated. On the contrary, Micheal Marien says:as our society becomes more complicated and changes occur faster, people are in effect becoming more ignorant in terms of what they need to know. The greatest need, according to his report, is among the post-school population.

> "The necessary adaptation of our ignorant society involves improvement in the quality and distribution of our knowledge, as well as the capacity of our population to utilize large quantities of conflicting and changing information in our roles as workers, citizens, parents, and individuals. We cannot attain a desirable society with incompetent manual and mental workers, ill-informed citizens, primitive parents and their turned-off children,

> and future-shocked individuals. More learning and different learning will be necessary not only for the young, but especially for the old. Indeed our most important priorities for learning are not pre-school populations - where interventions may be dramatic, but nevertheless have a long-term payoff - but among post-school populations that will continue to have a major influence in shaping our future during the turbulent decades ahead."[40]

Most of this new learning, Marien says, will occur in the new multi-campus programs and non-campus organizations. With a trend toward "Universities without Walls", and "Schools without Walls," (such as Antioch and Philadelphia are presently demonstrating) more and more options become available to the learner.

A similar new and independent institution like the English Open University here may soon enable everybody to use their television and radio, combined with correspondence packages and the service of part-time tutors and counsellors, to learn whatever and whenever they like. (Test results from this institution compared to the same ones given in Oxford and Cambridge have shown that those of the Open University are superior - by far!,[41]

However, the general tendency, to dissociate the formal education from other aspects of society, must lead, in the end, to a situation where people, whether young or old, finally will no longer understand their relationship to society. In a time when fewer people go to church, to the theatre, to concerts, or "downtown" to meet each other and to socialize, and where children and adults alike spend hours and hours in front of a television set, the isolated learning through media may decrease"ignorance", but it may also increase alienation and frustration if it is not coupled with a process which allows people to play a meaningful social role.

Today two movements into extreme opposite directions seem to be necessary, desirable and inextricably interwoven: centralization and concentration of production processes, information-gathering and political power characterizes one direction, the other is marked by decentralization and broader participation in the decision-making process. The first means freedom from more senseless work and provision of all basic needs. The second is of growing importance the more the first succeeds. Only a broad informed and intelligent grassroots-powerbase can prevent the

misuse of centralization and concentration.

The public school system which in the past has failed to prepare people to recognize and deal with the problems they are facing today, now has a unique chance of initiating a new philosophy in combining its efforts with those of other urban planning institutions to a more powerful thrust against ignorance, alienation, frustration, and non-involvement, in setting up a decision-making process in which education and urban planning become congruent events.

footnotes
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appendices

Appendix A

GUIDE FOR CHANGE

Ann Arbor began as a settlement of 50 persons in 1824. By 1851, when it incorporated as a city, it had grown almost 9,000% to 4500 population. One hundred years later, 48,000 persons called Ann Arbor home and by the 1970 census, we had reached a population of almost 100,000 persons. We have changed a great deal since 1824 and we will continue to change in the future whether or not that change is in size or in some other dimension.

Throughout the years, from the first plat in 1824, there have been hundreds of plans, studies, documents, and policies—both written and unwritten—to guide the growth of Ann Arbor. We are now at a place in our history where we are gathering under one cover basic general guidelines for decisions affecting future changes in Ann Arbor.

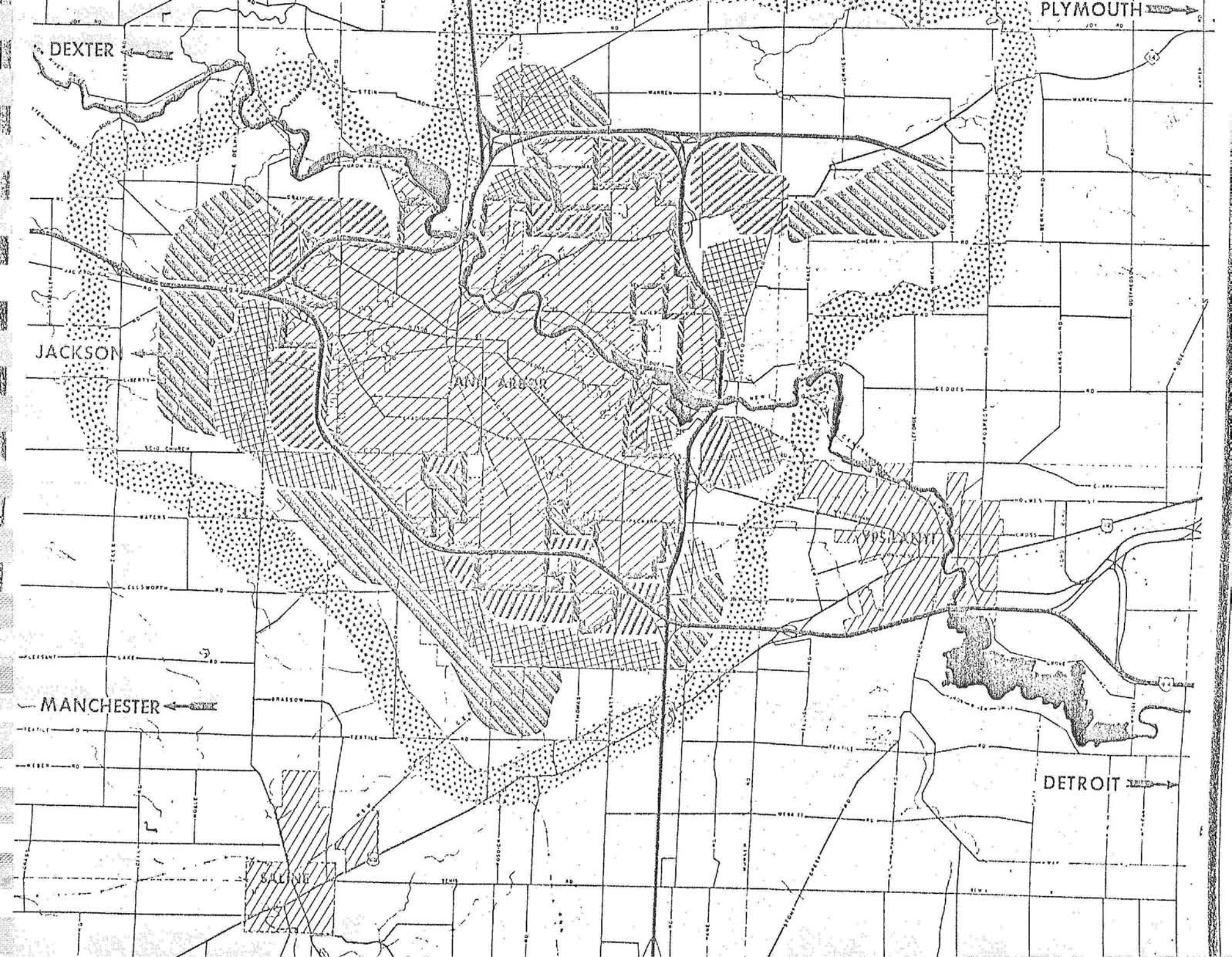
The original "Guide for Change" was issued two years ago. After a year of study and discussion, it was the Planning Commission's decision to have our staff revise the document. This they have done, taking into consideration the many oral and written suggestions and comments made by individuals and organizations during the deliberations on the original document. Staff has also taken into account the implied and stated policies on which Planning Commission and City Council have based their decisions, and the implied policies which many citizens espouse in public hearings and letters.

The revised "Guide for Change" is now available. It contains basic policy statements upon which a land use map will be drawn and by which future planning decisions will be guided. Many of these policies have wide spread support; others are controversial. Now is the time for discussion, debate, changes and amendments.

The Planning Commission is again inviting the citizens of Ann Arbor to join us in a series of discussion meetings. It is our hope that all interested citizens will study the "Guide," and work with us for its adoption. We may not all agree with all parts of the final draft but, if we remember that there will be a review process by which we can change, add to, and subtract from the document, we should be able to reach a final consensus within a reasonable time.

Eunice Burns, *Chairwoman*
Ann Arbor Planning Commission

City of Ann Arbor, Michigan


PLYMOUTH
DEXTER
JACKSON
ANN ARBOR
YPSILANTI
MANCHESTER
DETROIT
SALINE

Proposed Master Plan

The Key to Organized Community Development

If Ann Arbor is to remain a desireable place to live, then it must develop a rational means of directing future growth. The "Guide for Change" has been prepared by the City Planning Staff as a suggested plan for growth.

What follows are excerpts from the "Guide for Change" designed to familarize citizens with the essential policies and general summary of this document. The "Guide for Change" will be discussed in public hearings held by the City Planning Commission during the next few months. At these meetings it is hoped that the citizens of Ann Arbor, both planning groups and individuals, will make their insights and opinions known. Once adopted, the "Guide for Change" is expected to set the pattern of Ann Arbor's future growth.

After conducting these public hearings, the Planning Commission will consider the recommendations of those who have spoken before it, amend the "Guide for Change" as necessary to reflect the wishes of those who live in Ann Arbor, and, if the plan seems to project sound growth policy, the "Guide" will be voted into City policy.

In this sense, the "Guide for Change" is a legal document. The excerpts that appear here are taken directly from the preliminary plan prepared by the Planning Staff. The language is the technical language of planning and is designed to reflect the basic premises behind the recommended urban form: human scale, organization of neighborhood units, and a conscious formation of the environment in which we live.

There have been several plans in the history of Ann Arbor and they have shaped Ann Arbor's urban pattern as it is today. Much of the city's fame for beauty and singularity stems from these attempts to direct growth.

Ann Arbor has long been noted as an attractive combination of city and university situated in the rolling moraines along the Huron River. Its smallness combined with directed growth, have made the city an attractive place to live. However, growth seems destined to continue. Ann Arbor lies in the growth patterns of the greater Detroit metropolitan area, and more generally, Ann Arbor lies directly in an urban growth corridor that extends from Pittsburgh to Chicago.

The prospect that growth will continue is the underlying conception of the "Guide for Change". The challenge this document hopes to meet is to preserve the basic character of Ann Arbor and to fashion its future growth along human and environmental values.

The dynamics of the growth process are diverse and highly complex. To insure effectiveness, the "Guide for Change" has identified present problems, anticipated future problems, studied the alternatives for action, and made specific recommendations to serve as a base for public and private developmental efforts.

The "Guide for Change" is a policy plan. It does not prescribe specific developments, but outlines policy for future decisions. Thus short-range proposals and specific programs may be considered in light of long-range development.

As a policy plan, the "Guide for Change" is intended to be more flexible than a rigid land use plan, and as such may make provision for unforseen circumstances. However, a land use projection is also included to illustrate the evolution of the recommended urban form. (See center fold.)

The values implicit in the "Guide for Change" include both contemporary thinking in urban planning and public sentiment gathered by the Planning Commission in open dialogue during numerous public meetings. While this plan does not reflect every interest articulated, effort has been made to include the aspirations of the majority of Ann Arbor's citizens.

In calling for further dialogue over the "Guide for Change," the Planning Commission hopes to refine the combination of community attitudes, values and good planning procedure.

The "Guide for Change" is not presented as a final plan, but a framework to which updated statistical information and new planning proposals and procedures may be added in the future. In this sense, it will become a "living document," always receptive to new ideas.

Planning is viewed as a continuing effort that not only reacts to change but also initiates change. Good planning must accommodate short-term effort, while relating it to long-range goals, and it must be receptive to new directions in the future.

Michael Prochaska, Planning Director

Accommodating Growth While Maintaining Community Identity

Livability: The Reason For Guidelines

Of course, in the history of the city, planners have wrestled

environment that he may choose to build. It will become

with the question of size. They have employed in their determinations such criteria as social cohesiveness and communication, efficient governmental forms, economies of scale in establishing housing and supportive services, variable densities, efficient use or preservation of land or other natural resources, and finally travel times and work journeys. Some of these measures, however, are either less important or simply inappropriate today. Human scale, the organization of neighborhood units and that intangible quality, the environmental character which men shape for themselves, have recently emerged as the more salient considerations that should be employed in attempts to define the most appropriate size and form for an internally cohesive city.

A few examples indicating the range of size considered optimum at different times in different places might be instructive. British "New Towns", based on the early garden city concept, were designed to include a cluster of smaller cities of 30,000 persons each situated around a central or core city of 60,000. In a recent Australian study, cities with a population of between 200,000 and 1,000,000 were thought to offer the most advantages because smaller cities lacked a diversity of services necessary to attract and hold a stable population and economic base. In contrast to this position is the sentiment of many American urban planners who now regard cities with a range of population from 200,000 to 300,000 sufficiently large to support a comprehensive range of both public and private services. For example, the population figure of approximately 300,000 is now being used as a model guideline in urban renewal district planning. This scale has the advantage of allowing the establishment of a relatively balanced, self-sufficient community supporting and enjoying its own employment, education and cultural resources.

American new town planning in the 1960s considered social and economic organization and support, as well as physical scale, important in the design of cities. New town concepts seek to reinstate the primacy of 'place' in urban planning. Neighborhoods of from 1500 to 3500 persons are typically established and are small enough to serve as a basis of social cohesion and identification, yet large enough to support an elementary school and neighborhood level service and commercial facilities. The neighborhoods are then grouped together to form villages of from 12,000 to 20,000 persons served by a larger class of retail stores and intermediate schools. The various contiguous villages in composite form the 'umbrella' city with the total population falling somewhere between 70,000 (Reston, Va.) and 125,000 (Columbia, Md.) persons. With a range of facilities and services available at the local level, and the interaction that therefore prevails, overall community size is a less crucial concern.

Density is more often recognized as a major influence on environmental compatibility in contrast to population ceilings. Because a manageable urban community can range anywhere from 12,000 to 60,000 persons per square mile, comfortable urban living patterns can be provided for as few as 6 dwelling units per acre (somewhat higher than typical single family) or as many as 30 dwelling units per acre (high density but not necessarily implying high rise multi-family development). For example, applying even the lower density ranges to the area within Ann Arbor's freeway belt; and deducting from that 30 square miles some nine square miles in open space and other non-residential uses, a population of approximately 200,000 could ultimately be provided for in terms of land area.

As man's technical capacity continues to expand, there may be no material limit to the form or scale of

that Ann Arbor must adopt if it is to remain a prosperous, functionally adaptable and an internally integrated economic system.

(1) Actively promote the development of a more diversified economic base. Major emphasis should be directed toward providing for the accommodation of product manufacturing and assembly functions and a corresponding strengthening and expansion of the research and technical service industries.

(2) Encourage the CBD to develop as a specialized retail, office and entertainment complex.

(3) Enhance and expand Ann Arbor's status as a conference center.

(4) Support the prevailing trend toward greater community independence from the university's preponderant influence upon Ann Arbor's economy.

(5) Direct more emphasis toward deriving a greater economic return from the increasing potential of Ann Arbor to function as a regional trade center.

(6) Sustain and increase the vitality of functions within established economic concentrations.

easier for him to design and build urban forms that more closely reflect his disposition with regard not only to aesthetics but to governability, safety, privacy, communality and the whole host of living factors affected by environment.

However, the spread of urbanization does have natural constraints. The diseconomies of scale that relate to both the physical and social dimensions will have a restraining effect on urban growth and, therefore, complexity. Competition between urban areas for the finite economic resources of a region will in itself serve to limit local urbanization. Because the social cohesiveness and identity of a city tend to disintegrate with uncontrolled growth it becomes imperative to incorporate a series of integrative environments within its urban totality. Important to a city's population is the elusive quality of intrarelatedness which must be preserved for urban living conditions to remain attractive to its inhabitants. Fragmentation and dissolution follow uncontrolled urbanization.

More relevant, therefore, than a discussion of the optimum size of any one city might be the optimum size of the region or megalopolis encompassing the city. A range of population densities should be encouraged within the region so as to provide alternative choices of urban environments for our regional citizens. With a variety of urban environments available the region can offer a balance of physical amenities, social patterns and types and levels of services within its own geographic boundaries.

Detroit will continue to form the core city within the region offering the widest possible admixture of living environments, while a number of smaller urban areas, Ann Arbor among them, surrounding this core will provide a more specialized environment. Because undifferentiated sprawl is generally a consequence of unlimited and uncontrolled expansion definable parameters and a basic direction for growth must be established. In order to retain an expressive urban identity characteristic of Ann Arbor, a population ceiling must be established that is realistically related to the capacity of Ann Arbor to support. Using the variable density ratios cited above, an eventual urban population of anywhere from 250,000 to 500,000 persons could be accommodated within the land areas established in the figure on page 3.

The threat that Ann Arbor faces within its regional setting is that of absorption. Although the city may choose to maintain its uniquely singular image by closing off further annexation, the local metropolitan area will

(continued page 6)

continue to expand regardless of our actions. The net effect of this situation would be the encirclement of Ann Arbor's boundaries by ill-planned and ill-suited developments of a quasi urban intensiveness. What we have is a paradox; if the city does not expand its boundaries, those boundaries will be expanded de facto, if not de jure. But there is some logic in the argument that if we do not restrain continuing expansion we will end up with the same sort of amorphous nonentity anyway. What we must do, then, is plan for an urban environment that can both accommodate growth while still retaining the intimacy and cohesiveness of the neighborhood unit.

District Center Form Characteristics

This form, necessarily limited to a specifically bounded urban area, represents a higher level of order and function that is now present in Ann Arbor. It is based on the "new town" concept which, although designed for new cities such as Columbia, Maryland and Tapioli, Finland, is particularily applicable to Ann Arbor's scale and growth potential. The nucleus of this form contains the major concentrations of business, government and entertainment activities which in turn is surrounded and supported by relatively high population densities. The core area is complemented by a series of district centers which are intended to serve the particular needs of their respective communities as well as providing specialized services both city wide and regionally. These centers supplement and augment the central area but are of a lower level of intensity and functional comprehensiveness. The intensity of individual district centers is directly related to the size of the immediate community that surrounds it and is furthermore determined by the peculiar market area that it serves within the contextual confines of both the city and region.

The district itself is comprised of several sub-areas which together provide the economic and social base for the centers. These sub-areas are further divided into groups of contiguous neighborhoods and other related land units or modules which focus upon the district's center. Additionally, each cluster of neighborhoods must incorporate a community shopping area along with primary educational and recreational facilities.

The most visible characteristics of this form are its structural and spatial relationships. Rather than permitting random outward growth, this form directs growth into specific, strictly defined concentrations. Within these communities efficient delivery of urban services could be provided more easily than in sprawl forms due to the aggregation of functions and the more rational distribution of uses.

Centralized district centers can evolve from the basic shopping center developments that now exist provided that they are broadened to include complementary and supportive land uses. This support permits the diversification of the center's activities. Such uses would include the addition of office, residential, service, entertainment, recreation and educational activities, which when properly coordinated and related can become a more efficient and integrated environmental unit.

The concentration and arrangement of functionally related uses at specific locations reduces the detrimental effects of several common urban problems. For example, broad ranged activity centers, and the greater self-sufficiency therefore achieved, reduces the necessity for intraurban traffic movement. Furthermore, the modal concentration of activities tends to support mass transit, create focal points of identity and offer relief for downtown congestion.

The District Center form is applicable to Ann Arbor and its immediate environs within the time frame that this plan contemplates. It can absorb a reasonable amount of growth at a scale which respects existing land features while still possessing an attainable level of control and management. Most important, it can contain and centralize burgeoning urban growth and thereby curtail the sprawl phenomenon that exists today.

While this form can provide guidance and control of urban expansion even beyond 1990, it also has the potential of becoming part of a larger scale regional form offering a base or reference by which regional growth can be guided in the future. Since county-wide urbanization is a reality and already is beginning to determine the form and character of the region, Ann Arbor should with other jurisdictions be actively studying the feasibility of a comprehensive regional plan to control long-term growth. A high level of land use control, administrative innovation and intergovernmental cooperation are needed, as are new techniques and agreements on the sharing of costs and

revenues for services provided by the central cities to the outlying areas. Ann Arbor itself, as the central urban complex, may not presently contain the full complement of services required to adequately serve a local-regional program of development. But its growth in whatever form should provide it with those services and that capacity.

The District Center Form contains several basic identifying elements which serve by implication to structure urban development within the confines of its conceptual frame. These elements include the district center itself which forms the nucleus of the land use configuration, the surrounding land units which are oriented to the center, and a comprehensive circulation system providing alternative means of movement.

The District Center Core

The district center, considered as a confined land unit, is the basic determinant of structure for the recommended urban form. It provides a mechanism to organize, contain and relate a broad and varied range of activities. This modal configuration has the advantage of both contributing to overall civic order and growth, while at the same time enhancing the individual character of each area. A review and analysis of the definitional limits of the district centers, then, will provide a basis for the policies, practices and standards necessary to generate the more macro-scale District Center Form. Four essential characteristics define a district center and are discussed below:

I. Self-Containment

In order to maintain the central form, growth of individual centers should be contained within the boundaries set by the form. New growth requires the establishment of a new center at some other location. Uncontrolled, horizontal expansion of a center would destroy the central form and its advantages, disturb established land uses at its perhiphery, and create strip development at a larger scale. However, self-containment does not inhibit growth and change within the activity focus. It may be pre-planned for a certain amount of future growth. Alteration of uses and structures, replacement and vertical growth within the central form are also possible.

II. Diversity of Use

Most kinds of commercial, office and the higher density residential uses can be accommodated within a

offering convenient pedestrian access and mall type yards accenting the ambulatory aspect. Basic convenience functions like banking, postal and automobile services could also be incorporated but would be typically located apart from the core area itself. Establishments like supermarkets, theatres and even small manufacturing shops have a place in the larger centers, but require more floor space and easier automobile access, therefore, complicating their integration into the smaller-scale, pedestrian oriented retail core. General and professional offices should also be included to supplement the vitality of the more variegated centers.

Community facilities would be provided in the centers which might include, for example, secondary schools, governmental branch offices, recreation centers, public meeting rooms and open space. This type of function can serve to stabilize land uses and provide a framework for the private investments necessary for the center's success.

A center may accentuate residential and local service rather than the larger commercial and office uses but may rightly be designated a district center because of its density and range of building types. These might include everything from multi-story apartment or office structures to medium density attached single family units.

III. Central Form

Functional activities are interrelated with one another by strict controls on use placement and design continuity. Each center would be planned in such a way as to surround and accent a centrally located open space or structural feature. Major access either by auto or mass transit would be provided to the center as a whole rather than to individual establishments. Internal streets or ways, relieved of the individual access burden, would then provide convenient and aesthetically pleasing links to the various uses located within the center. Differentiation of areas for pedestrian or bicycle circulation would, at the very least, be provided.

IV. Core Linkages

The actual setting of the district centers in the community requires special sensitivity. Accessibility is probably the most important criteria of location in that it must be linked with the other major land units of the city to insure its success. Therefore, at least one frontage on a major thoroughfare is required. Moreover, pedestrian and local neighborhood access should also be provided in order to serve the centers' localized function, as well as

reducing parking requirements and making facilities available to all regardless of means of conveyance. This criteria requires compact design to allow for realistic walking distances and the accompanying provision of convenient, safe and attractive walkways both within and without the center.

Even though specialized by main function, located within a specific district, and identified with that district the individual center need not (or should not) be limited in market or service area to the immediate district. Because the degree of intensity contemplated in the centers could not be supported economically by the individual districts alone, some city-wide or regional functions must be incorporated into them to maintain their vitality.

The district centers are intended to support rather than compete with the city's central area. By absorbing much of the expansion that would otherwise take place, the district centers would relieve the central area of excessive concentration and congestion, while also having the advantage of placing many conveniences and services closer to users. This would enable the central area, particularly the CBD, to continue developing its own high specialization of function. Given effective transit connections from the centers to the central area, the centers would provide long term parking storage for transit passengers destined to the central area. This would reduce the need for extensive parking on high-value land in the central area and enable still larger numbers of persons to reach and utilize the amenities and services to be found there.

Existing Bases

Ann Arbor's activity foci now concentrate around existing regional shopping centers and quasi urban areas like Arborland, Westgate-Maple Village and the town of Dixboro. Each of these concentrations, along with the new installation planned on South State, Eisenhower, and Huron Parkway-Plymouth, have the potential to evolve into district centers comprehending a much broader range of land uses and more varied and well-related buildings and spaces then they do now. Implementation success, however, lies in the adoption of policies that will promote the development of the primary district center characteristics, that is, diversity of use and centralized and contained organization.

Diversification is possible in the existing centers through extension of function, increased intensity and a prohibition of the addition of land area for solely commercial uses. Permanent maintenance of 'edges', either through transitional land uses or other less durable buffering techniques, would encourage the stronger boundary definition required for each center's spatial integrity.

Moreover, on a different level of analysis, curtailment of the trend toward regional dispersion of commercial and office functions must be accomplished to insure the success of the district centers. Without this control it will be impossible to create a market for the more highly valued land that now surrounds the existing concentrations. What will result, then, is a simple continuation of the proliferation process now evidenced in the location of franchised commercial sub-centers.

The Land Module

The land module is an important element in the structuring process required for the elaboration of the District Center Form. These modules are characterized by the arrangement of similar type uses within strictly delineated land units. For example, a residential module might consist of an area encompassing a neighborhood or large subdivision. The uses within this module would be primarily residential but could contain non-residential uses which offer specific services to the residential inhabitants as well. An industrial park would be considered an industrial module, while a large recreation area, such as a golf course, would be considered an open space module.

In essence the land module becomes the basic organizational blocks upon which the District Center concept is formed. Ideally, a particular module would be framed by major elements of the circulation system, using the public ways both to define its geographic extent and provide convenient connecting links to other areas. The emphasis upon residential development in the city makes them the most influential modules within a district. Because of this importance, and considering that they have the greatest effect on community residents, the development concepts applying to these areas will be discussed as illustrative of the land module concept. It should be remembered, however, that most of the principles applying to neighborhoods are also relevant to other types of use modules.

The residential module or "neighborhood unit" relies on a concept developed to combat the continuing disintegration of community spirit and community identification in our urban areas. This concept is based on a firm belief that the residential environment should be something more than the sum total of individual houses on individual lots. It advocates that most of the daily necessities of life with respect to residential community facilities and services should be available to residents in the vicinity of their homes. With the rising mobility rate of American families and the resulting problems of disjointed, scattered residential development it is imperative that we design attractive, well-balanced neighborhoods to which individuals can identify and feel a part.

Neighborhood units incorporating these principles can expect to maintain their stability and value over the long term. The individual properties, as well as the neighborhood as a whole, would retain both their intrinsic and extrinsic value due to the continued availability of public facilities suitable for family use, the continued ease of public maintenance and the gradual improvement of properties through private effort. This involves providing, at the outset, for those most desirable characteristics needed in each neighborhood while incorporating a mechanism for inclusion of new and additional facilities and features at future times. It will also involve in some older neighborhoods such changes, improvements, new facilities and programs as are needed to maintain their original character and even restore them to a level more nearly approaching that of newly developed areas. This should prevent or retard neighborhood decline with its consequent loss of value and need for extensive remedies or reconstruction at a latter occasion.

In essence this concept is one which attempts to create a convenient, hazard-free physical environment, and a social environment that meets the needs for private family life, while still providing the means for intra-community exchange for those that desire it. This environment is one in which walking-distance is the basic planning principle, thereby making man, not machines, the fundamental measure of scale.

It is generally assumed that the outline of a neighborhood will be related to the service area of an elementary school. This is especially applicable where the existing neighborhoods are completely developed or have well defined boundaries. However, in many developed neighborhoods school boundaries are occasionally adjusted to bring racial and numerical balance to the various schools. The neighborhood unit concept attempts to resolve this problem through the encouragement of a more balanced physical and social mix. In this respect, each neighborhood should contain a variety of housing types and values to permit the immediate and long term residency of a broad range of economic, racial, social and cultural groups as well as permitting the full family cycle to evolve within the same neighborhood. Through these means it is hoped that more permanent and stable neighborhood conditions can be achieved.

Presently school districts on the city's fringe do not conform to these precepts; their large size and generally undeveloped character do not conform to the neighborhood walking distance principle. To alleviate this problem it is suggested that fringe schools be located in relation to the ultimate development of the surrounding areas. If this can be done, then as areas grow they can be divided into the smaller neighborhood units as their potential is being realized. With the adoption of this plan and its related planning concepts, future school sites can be more accurately determined and, therefore, more closely oriented to the neighborhoods they serve.

Other criteria which should be used to determine the bounds of a neighborhood are major physical and natural barriers. In Ann Arbor, the elementary school districts are generally designed to serve an area size of finite description and provide a local use park-playground. The neighborhood school is considered the primary stimulant to the development of neighborhood identity because of its status as a focal point around which common family and community interests may be merged and organized. The use of the neighborhood school in this respect reduces the need for specialized community or recreation centers which would otherwise have to be duplicated.

The following criteria have been developed to guide the development of neighborhoods into conformance with the District Center form. Very few residential concentrations in Ann Arbor, or any other city for that matter, will contain all the criteria, since the neighborhood planning principles herein offered have not ordinarily been used in the design of new housing developments. However, their adoption as a part of this plan will permit guidance and direction to be applied consistently.

Neighborhood Planning Principles

1. Size

Large enough to provide a population to support one lower elementary school. The Ann Arbor School Board considers a 20 classroom school with an enrollment of from 550 to 575 students to be the optimum school size.

2. Boundaries

Bounded by arterial streets or other major natural or physical barriers. The arterial streets should be of sufficient width to facilitate traffic by-passing the neighborhood instead of passing through it.

3. Land Use

Housing: A variety of housing types arranged to avoid overcrowded land, destruction of significant natural areas, loss of light and air and an indiscriminate mixing of non-compatible uses. These housing types should be able to meet the housing needs of a broad segment of the community.

Neighborhood Services: Certain non-residential uses which provide essential services to residential units should be permitted and encouraged. Their placement should be closely related with the elementary school that provides the fundamental reference point, and be easily accessible to the neighborhood residents. Some of the basic uses might include a nursery, day-care facilities, indoor and outdoor recreation facilities and group meeting rooms. Some low-scale retail uses could also be included, provided their scale, location and function is consistent with that of the neighborhood being served.

Community Services: Larger scale facilities which require a greater population base for support should be located so they conveniently serve a cluster of neighborhoods. Ideally, the facilities should be grouped together at a location which provides good vehicular and pedestrian access to surrounding areas.

Each neighborhood should contain a centrally located park-playground combined with its elementary school. The park-playground should add to, as well as make use of, the pedestrian circulation system designed and oriented to these central facilities. Within the residential portion of the neighborhood, natural and active spaces should be created or preserved. This can be accomplished .by imaginative design, ordinance requirements, public purchase and the mixing of housing types.

5. Internal Circulation System

A coordinated system of streets and walkways, safe for children and families should be provided. Their prime function should be to link residential neighborhoods with their school and immediate service centers as well as to their shared community center, the appropriate district center, the central business and campus districts and other primary land modules. While the basic function of the walkways is to provide internal neighborhood movement; their secondary function would be to provide external movement through a comprehensive urban system. Ideally, this urban system would then provide connections with a regional system of hiking and biking trails. Internal collector streets should facilitate the movement of local traffi to and from the major arterials but should be designe to discourage through traffic.

In addition to these criteria, there are many other elements which are to be found in a good neighborhood. The creation of interesting and pleasant walk-ways, and the use of landscaping and innovative architectural treatments to emphasize the individual character of a neighborhood, are all important considerations in the establishment of lively and pleasant living spaces.

The physical forms cities have taken can be directly traced to the historical circumstances of construction and transportation technologies as well as certain factors of terrain and climate. These influences have all been instrumental in determining the particular urban form which has been emerging in Ann Arbor. For example, the automobile has had a significant impact on the city's spatial configuration. During the past 15 to 20 years Ann Arbor has begun the dispersion process typical of most American automobile oriented cities. Differing from this characteristic decomposition process only in relative degree, the maintenance of Ann Arbor's remaining spatial

integrity depends upon the institution of firm measures for land use and system control to halt the spreading blight of sprawl development.

This summary of the proposed "Guide for Change" has been prepared by the City Planning Department to inform the citizens in the Greater Ann Arbor Area of the plans for the community's future.

The Planning Commission invites citizens to participate in the public hearings to be held in the near future. It is also suggested that citizens save this publication for future reference.

APPENDIX B

GOALS OF THE ANN ARBOR PUBLIC SCHOOLS

The Ann Arbor Board of Education is charged on behalf of the public with responsiblity for determining the goals of the Ann Arbor Public School System. In discharging that responsibility for the academic year 1971-72, the Board has addressed itself to four primary areas:

I. Learning and Teaching

II. School Environment

III. Organization and Management

IV. Finance

It is the commitment of the Board to develop policies to implement the goals within the goals within each area.

It is further the commitment of the Board to review continuously and restate as necessary the sub-goals within each area so that our programs will at all times speak directly to the attainment of our stated goals.

I. LEARNING AND TEACHING

A. To assure that each student achieves the basic skills of reading, listening, writing, speaking, viewing, mathematical operations and problem-solving.

B. To assure that each student's individual interests, capacities and objectives are considered in his learning program and in any recognition of his achievements.

C. To structure the overall instructional program to provide sufficient alternatives to meet the maximum variety of individual needs, capacities, and aspirations, particularly including:

(1) individualized offerings

(2) offerings which extend the learning environment into the community

(3) offerings within early childhood programs

(4) offerings which explore the widest possible range of career and service opportunities

D. To provide an integration of academic, emotional, and physical experiences and growth for each student.

E. To assure all students multi-ethnic and multi-racial experiences within the curriculum each year.

F. To develop a comprehensive and articulated program for handicapped students, involving maximum inclusion of handicapped students in school programs; expanded funding; and expanded services.

G. To help students gain understandings of themselves as well as skills and techniques in living and working with others.

II. SCHOOL ENVIRONMENT

A. To assure each individual a physically and emotionally safe learning environment.

B. To assure that each individual is treated with respect by all members

of the school community.

C. To assure that each individual is afforded due process with regard to his or her rights.

D. To have each individual in the school community know and fulfill his or her responsibility with regard to safety, respect and due process.

III. ORGANIZATION AND MANAGEMENT

A. To reaffirm the position of the Board on the Humaneness in Education report, using it and other means to confront and combat racial, social class, sexual, and religious discrimination where they exist in the schools and community.

B. To provide greater decision-making authority in each local school community, particularly in the areas of budget, curriculum, personnel, and facilities development.

C. To restructure the system, establishing four-year high schools, middle schools and utilizing smaller facilities and smaller units within the school system.

D. To establish and maintain improved evaluation and accountability systems for all programs and personnel.

E. To establish and maintain a comprehensive information system for planning, budgeting, and management operations.

IV. FINANCE

A. To make every effort to secure adequate funding for the educational program and the goals above.

B. To distribute available funds on the basis of full funding for categorical aid programs, equal opportunity for education and equality of results.

In establishing these goals for the Ann Arbor Public Schools in 1971-72, the Board does not attempt to diminish the importance of other issues facing the schools in the coming year and in the years ahead.

APPENDIX C. Summarizing

"A SURVEY OF FACTORS INFLUENCING PLANNING IN

THE ANN ARBOR PUBLIC SCHOOL" 1972

Unpublished report of A.P.R.G.

(Advanced Planning Research Group)

for the Ann Arbor Board of Education

INDUSTRIAL BASE

Ann Arbor is a community of about 100,000 people. Its manin industry is education with the University of Michigan, Washtenaw Community College and Eastern Michigan University all being important sources of employment. However, all of these institutions occupy valuable land and demand services without paying taxes, except indirectly by taxation of their employees. Therefore, Ann Arbor has been trying hard to attract other industry. It succeeded mainly in the sector of light industry and research industry (electronics, control systems, et.c). This is partly due to the presence of the university, but also because this type of industry can afford the extremely high costs of land, and construction and the high wages paid because of a near to 100% unionization of the area in the neighborhood of Detroit.

PHYSICAL STRUCTURE

The physical structure of Ann Arbor shows the concentric ring pattern typical of expanding communities. The inner city extends roughly a mile to a mile and a half around the downtown area, which is nearly twelve blocks square including parts of the university.

Beyond this there is a second ring of residential and commercial growth, built in the fifties and early sixties. Some distance beyond this a major ring road sturcture has been built, and the available land in between is now rapidly being filled by a third phase of growht, with larger developments, light industry, larger residential and commercial complexes.

While traffic is not congested by urban standards, local residents perceive it as such and prefer to move along the innner and outer ring-roads. Therefore land with good access to either is considered prime land, thus encouraging the growth of a new downtown encircling Ann Arbor. Already vacant buildings and stores in the downtown area and declining property values for nearby residential properties suggests that this process has begun.

GROWTH FACTORS

Growth is changing the physical and the social structure of Ann Arbor. The understanding of those factors producing demand for growth (a) and other constraining it (b) is vital for the planning of educational facilities

a.) There are signs that the growth of the University, the most influential factor in the past, seems to have reached its peak and may be less important in the future. More important may be Ann Arbor's integration into the Detroit Metropolitant region, which is being accomplished by better highway transportation links, plus the inevitably westward expansion of the Detroit Metropolitan area. Now within easy commuting distance, Ann Arbor's role as a suburb is likely to increase further as Detroit business relocates outside the city. Therefore, inspite of declining birthrates, population projections for Ann Arbor by 2000 predict a doubling of its population.

b.) So far growth has been "artificially" held up because of Ann Arbor's limited sewerage capacity. Up to now it has been economically unfeasible for surrounding communities to develop their own sewerage systems. Ann Arbor's City Government has used this factor to impose fairly stringent planning and land use regulations on developing property which depended on annexation to obtain sewerage services. These circumstances have also prevented the development of suburban communities that typically destroy the tax base of mother cities. Ann Arbor in this way has remained intact under a single city

government.

However, the construction of any competing sewer system could completely destroy the control and soundness the city now possesses. Several factors indicate that this may indeed happen in a not too distant future. First, a major regional sewerage system servicing the whole of Washtenaw County has been proposed by the Southeast Michigan council of governments. Secondly, Pittfield Township near Ann Arbor has proposed a sewerage system of its own. Thirdly, Ann Arbor has not yet been given permission to expand its own sewerage treatment plant, which is approaching its limit. Fourth, Ypsilanti seems now interested in extending its own services northward.

Another set of factors are the high costs of land and construction, the lower-than-average price for rentals and purchase prices for housing, and this combination makes rental housing a skeptical proposition, and housing for sale only profitable in larger tracts. Nonetheless, Ann Arbor is currently experiencing a major wave of new development. Although a planned unit development ordinance is ready for adoption, present zoning plans suggest

that typical strip and cluster development will continue, with the traditional separation of industrials, commercial and residential uses. This will further increase the dispersion of population, and the consumption of large tracts of land.

EFFECTS ON THE SCHOOL SYSTEM

All these factors are of the greatest importance to the school system. The declining population in the inner city and the relocation of families in the outer fringers empties the inner city schools while those further out become overcrowded.

The analysis of the regional structure and growth patterns suggests that his process will continue. The question then is: assuming the worst, what can or should the school system do? What resources have to be mobilized to cope with the situation?

"A typical approach to planning would make specific demographic projections for ten or twelve years; and would then attempt to determine how many schools, of what kinds, and in which locations, ought to be built over the coming

decades. A long-term capital financing program would then be formulated, which would become a "master plan." However, there are several problems with this kind of planning, which suggest that in Ann Arbor's case, master planning would do little or no good.

First, master plans are always based upon predictions of the future...certain birth and death rates...certain kinds of economic conditions...certain mixes of construction...such predictions are about as reliable as tomorrow's weather forecast, and for precisely the same reason: too many variables, and the need to make too many assumptions. Second, the most critical uncertainty is whether, given traditional methods (of financing), the Ann Arbor Schools could finance such a plan." (p. 9 & 10)

The report then states the already high tax rate and the voters' unwillingness to increase this tax burden, in addition to the deficiencies of the expanding tax base, in that every new residential unit only supports about three-quarters of the cost of educational services it demands; the other quarter must come from industrial or commercial properties, or from outside

State aid.

"Should Ann Arbor become more of a commuter community, in which residential growth began to outpace balanced commercial-industrial growth, a growing p!eratopma, defocot cpi;d resi;t/" [42]

A third reason against the master plan approach is the rising cost of providing adequate educational services, the bulk of which is teacher and staff salaries. Much of the tax-base expansion is therefore absorbed by increase in operating costs, leaving only a fraction of income growth to cover costs of opening and operating new schools required by growth.

In combination these factors are already forcing a consideration of major cuts in programs and services. The alternative seems to be reorganization of curriculum and program structure.

Finally the new national trend, challenging property taxes as a means of supporting equal educational provisions, could mean for Ann Arbor, as one

of the more wealthy communities, budget cuts to a lower per-pupil level, and an even further reduction of the school systems ability to be self-financing with respect to growth.

TACTICAL FLEXIBILITY AND NEW OBJECTIVES

"...in such a situation, it is virtually impossible to predict exactly what demands will be placed on the school system..., in analogy it is that of the battlefield general who is not only unsure from which direction the enemy will attack and in what numbers, but is also unsure of exactly what resources he will have to throw into the battle. In such a situation, strategic planning is almost useless: there are simply too many possibilities to cope with, and putting all resources into one plan...is too risky." (p. 12)

"The only alternative in such a situation is to adopt a plan in which you have up-to-the-minute intelligence on the status of both enemy and resources; in which you maintain a fast-response capability allowing you to move rapidly to meet any challenge; in which you maintain maximum flexibility about the way you can move. More importantly you must adopt a new mental attitude -- one in which you do not have any preconceptions about how things are to be done, but which instead accepts any alternative that accomplished the stated objective." (p. 13)

The school system can, however, only operate this way only if it has some clear ideas about its objectives, which may require the discard of some traditional concepts of education and administration.

FLEXIBILITY IN EDUCATIONAL & FACILITIES PROGRAMS

The first objective must be fiscal integrity; the second has to look for the best education possible for all children in the district.

This can only achieved with the utmost flexibility in educational programs combined with flexibility in facilities programs.

To meet the highly variable and unpredictable demand for space, in quantity, kind, and location, Ann Arbor may have to discard the notion of "schoolhouse", and be willing to use all kinds of different spaces that are paid for in all kinds of different ways. Only if the school system avoids long-range commitments to space acquisition, until it is absolutely certain that such a commitment is valid, can it maintain necessary flexibility.

This will require more day-to-day planning and management effort - which is

not a major change in the way things are done -- but simply a formal recognition of the way in which the school system in fact operates. But in addition it is necessary:

a. that the Ann Arbor Schools develop closer ties with the City Government, Planning Commission, and City Council, which will lead to better control of growth, and better intelligence on short-term school space needs;

b. that cooperation with the City will allow the intelligent use of leased space with the construction of permanent facilities to accomodate and finance growth in newly developing areas;

c. that facilities and program sharing programs with other private and public sector entities be encouraged, to reduce costs for both parties.

RELATIONSHIP TO CITY-COUNCIL AND PLANNING COMMISSION

Almost all major new developments require the approval of annexation by the Ann Arbor City Council and Planning Commission, for the reasons mentioned earlier. Such annexation or re-zoning petitions are routinely sent to the Board of Education, thus creating an opportunity for the Schools to influence

the growth of the city. But so far the school system neither used such data in its projection system, nor studied the exact implications of such development on present or proposed school facilities, and it therefore failed to make such implications known to the Council or the City Planning Department.

Even though the city is under no obligation to follow any advice from the Schools, recent zoning and annexation cases have shown that it will slow or stop development altogether where overcrowding will worsen. This also has made clear that where overcrowding already existed, it might have been as much the fault of the school system as it was the fault of the City Government.

The report recommends that the School System take immediate steps to set up a program of communication with the city whereby:

a. all zoning, re-zoning, annexation, or building permit applications, that will result in new residential construction, continue to be sent to a designated person in the school system, along with specific information on number and type of units

proposed as well as other pertinent data;

b. that the school system through this person determines which school will be affected, the specific increase in school population, the increase in capital and operating costs due to such added population, a comparison with the estimated added tax revenue, and a proposal outlining how additional facilities will be provided, and on what timetable;

c. the particular report would then be returned to the City prior to final action by the City;

d. in correlation with other reports in a "regional model" it could show changes in population to the school system as a whole;

e. periodically this regional model would be reviewed by the School Board and general policy recommendations and comments to the City Council would contain overall growth problems and those in particular areas.

Another useful device could be a City Ordinance requiring all sales and rentals of housing to be filed with the City along with data on children

in families and projected date of occupancy. This would be an important tool for predicting short term changes in school population.

COMPREHENSIVE GROWTH STRATEGIES

To meet the demands within the financial limits of the school system, an agreement with the City on a coordinated approach to the provision of educational facilities in growth areas must be developed.

A key problem to the provision of new facilities is the voters' refusal to increase tax levies. However, there is usually no resistance to new construction if no milleage increase is required to retire capital debt. This is more probable the further construction lags behind residential growth, which is the usual pattern. But it means in the beginning overcrowding of neighboring schools and usually long often dangerous walks to school.

Therefore it usually is more desirable to have new school space in advance of full development. Difficulties with this approach are the choice of a proper school site, and the financing of a school, or an estimation of its size, if a neighborhood is not yet fully developed. Also the shift of con-

sumer preferences, or a different housing market or money market development may cause the de facto development of an area to be quite different from the original plans.

An ideal growth strategy should therefore provide for both; avoid overcrowding of existing schools and not commit the school district permanently. In addition, the cost of educational facilities has to be proportioned to the growth in the tax base of the area.

The A.P.R.G. report in this part, I think, becomes quite ingenious. He proposes a plan along the following lines: given a sizeable enough developing area, it is certain that eventually some commercial facility, grocery store, offices, light industrial facilities, etc. will be built. These normally lag behind residential development; developers wait until the "market" is there. The School District could capitalize on this fact, and encourage the early construction of these facilities to be temporarily leased to the School. Once the area is fully developed, the "market" exists, permitting

the conversion of these facilities to their intended use, and the School District can safely determine the best location and size of the school needed.

In this way, the school would profit and the developer too, because he can build three or five years in advance of the market with commensurate savings by avoiding inflation of construction costs, and receive added benefits in tax writeoffs.

The city would have some added control over the location of such facilities as well as the location of the new school. If a permanent school is not to be built until the area is fully developed, alternative sites must be set aside to provide for later choice. For the school district this would mean large amounts of investment in land. Alternatively, the city could buy such land as parks, and eventually one of these would be sold or leased to the school district. This also would help assure the preservation of open land in the new neighborhood.

A FLEXIBLE SPACE INVENTORY

The concept of "flexibility" is most commonly used in regard to building space, internal arrangements and amenities. This is for schools mainly an important defense against obsolescence simply because the costs of remodeling "non-flexible" space is prohibitvely high. (The Ann Arbor Schools in 1971 had to turn down 75% of remodeling requests for budgetary reasons.)

It is however, equally important to consider "locational flexibility" as a result of constantly changing residential patterns. Portables are a usual but extremely costly solution. (In a five year period they cost about $4 to $5 /square foot per year, not including maintenance.) Short-term leasing can provide a less expensive solution and more locational flexibility. Some interesting experimental programs in open minimally equipped leased spaces, like the Harlem Prep School in New York, indicate that almost any space for rent has the potential of housing educational activities, and that we may unconsciously and extravagantly overdesign much school space. Standard furnishings including modular removable cabinetry, plumbing modules, movable partitions, etc., can turn practically any available space into an open or closed classroom of standard quality. Experimental programs are specially

suited for the use of leased space, because an attractive but unproven idea can be housed and tested in a "fit" environment, and depending on whether the program is successful or not, the space can be abandoned or acquired.

The problem of surplus space in older schools in the inner city can be solved in several ways:

- consolidation of thorough redistricting, permitting closing and sale of one or more properties. Difficult where neighborhoods would lose their traditional neighborhood school;
- attendance boundaries can be pushed toward underutilized school. This may require bussing and raise the problems associated with forced integration;
- other users may be found, e.g., day care centers, health services, social work programs, continuing education programs, government agencies, and others;
- elementary schools could be consolidated, freeing one or more facilities for new middle schools, to relieve overcrowding in the

larger high schools.

For both existing and new facilities joint-occupancy and facilities-sharing could be a most advantageous proposition, but should only be considered if the lease income is a bonus to the Schools or the other agency can contribute a fair share of capital funding.

BETTER MANAGEMENT TOOLS AND MANAGEMENT INFORMATION SYSTEMS

Many school systems are hampered by the lack of suitable managerial and decision-making tools, and Ann Arbor is no exception. It lacks a responsive, functionally oriented accounting system which reflects the costs of programs, and up-to-the-minute information about current expenses versus budgets, staff on board, space inventory, tax base, future growth, student population shifts, and others. To this time, it appears that Ann Arbor schools have had, in fact, only minimal management, but that most departments have efficiently executed the tasks assigned to them. Prior administrations, defended by local wealth had no particularly strenuous demands made upon them. Today, however, Ann Arbor, like all growing communities finds itself confronted by tightening budgets and increasing demands for services.

The present administration not only inherited the faults of previous administrations, but also has been brought in on the promise of reform, the exact nature of which is not known. Flexibility in space planning, decentralization of administration, depopulation of larger schools, a customized and ungraded learning process, racial integration, relief for overcrowding are just some items on the agenda.

Many argue the advantages of such a system solely on philosophical desirability.

> "In doing so, they overlook the most critical factor...and that is, simply, that no such system can possibly exist unless it can be managed. And without the most up-to-date procedure for decision-making, supported by efficient information processing and retrieval systems, no such system can exist...because the information handling scores will be overwhelming. It is difficult at present to assemble a budget with a "uniform" curriculum. Imagine the job if each school (possibly each child or group, M.K.) has a different curriculum! Budgeting and fiscal management will turn into chaos...After one or two years of such chaos, one or two years of deficit spending, even the most well-intentioned administration will be summarily dismissed. That is happening now even in school systems without such high aspirations." (p. A-2)

Implementation of such procedures will be extremely costly both in time and

money. Presently outside money is being sought to permit initial planning and better cost estimating of this program. (Current estimates are as high as three to four hundred thousand dollars to create a basic set of tools for the administration.)

> "It is true that tools without the men are useless; but it is equally true that the men without the tools are doomed to defeat...in fact, it is almost criminal to charge such men with educational reform if you do not support the development of capability which supports them;...The Ann Arbor citizens may as well hire them and then immediately fire them for 'incompetence'. To do anything else is simply to subject them to two or three years of mind-bleaching hell, so as to ruin the man before he is fired." (p. A-5)

APPENDIX D

THE GSPIA - GAME

(Graduate School of Public and International Affairs)

The University of Pittsburgh game has been developed as an educational tool for planning students and others. The game is a combination math simulation and role-playing model that can be loaded with data for any location.

One version of the GSPIA game simulates Allegheny County and the other simulates Westmoreland County (the predominantly rural county to the east of Allegheny County which contains Pittsburgh). The Westmoreland County model contains 7300 grids (located by an "x" and "y" coordinate) and each grid is 90 acres in size. The land ownership is divided among five Development Teams. All teams in this model have one member. The Development teams compete for shares of the county development which is determined by a computer program. That is, the Developers may develop industrial, commercial, or residential land uses, but the totla number of grids which can be developed each cycle is determined by the economic condition of the county in comparison to that of the nation. Residences can be of one income class and of several density levels.

There are five Councilmen which represent the five political jurisdictions in the county. There is a County Manager who handles current expenditures for the county, and a Planner who handles capital expenditures in the county.

There are several other planners who submit plans for zoning, highway development, and master plans to the Council and Manager. The proposed plans are also evaluated by HEW Administrators (concerned with education, health, and welfare facilities), Urban Renewal Planners (concerned with deteriorated housing), Federa-State Administrators (who disburse federal and state aid to the county for programs which they have approved.) A community role is played by participants who represent manufacturing interests, citizens, planning consultants, county solicitors, a school boards, and transportation planners. A private banking role and a stock market are also part of the private sector.

The Urban Renewal Planners tyry to get Developers to raise low residential land values. The number of roles in the game changes to fit the class size. The number of Developers and Planners can most easily be increased or decreased according to need.

Land is allocated to the Developers at the beginning of a day play according to a Poisson distribution; that is, the Developer who receives the first grid has the greatest chance of receiving the

grid next to it. Therefore, the land ownership tends to be in clusters. All land is owned by the Developers and absentee owners whose land is held in trust by banking player.

The Urban Renewal teams have a more meaningful role when a heavily urbanized county is used. In the game, issues such as zoning, highway construction, capital expenditures on the county infrastructure (utilities) are interdependent role decisions.

The computer program is general in nature, and the specific area simulated and the number of grids can be changed. The game director can influence development and play through a variety of instruments. For instance, he can change the attractiveness of grids for development by changing the likely rates of return on those parcels through increasing their transportation access.

FIGURE 6

FEATURES OF THE COMPUTER-BASED URBAN GAMING MODELS

	METRO	GSPIA	CITY I	APEX	BUILD	CITY MODEL	SYSTEMS
Computer Used	IBM 1130	IBM 360/50	IBM 1130	IBM 1130	IBM 635 UNIVAC teletype 1108 or CDC 6400		NA
Parcel Size	A/	1.6 to 93 acres	1 sq.mi.	A/	several city blocks	1 or 1/9 sq. mi.	25 acres
Number of Parcels	44	7300	625	29	200	625	1296
Load any Data Easily on a Parcel	no	yes	yes	no	yes	yes	yes
Available Starting Points	1	2	1	1	1	7	2
Number of Types of Functions or Roles	4	16	10	5	10	12	9
Number of Teams	12-16	18	9-18	16-23	10	7-32	9
Economic	3-7	5	9	8-13	2	7-11	3
Government	9	13	9	8-13	6	7-10	6
Social	0	0	0	0	2	7-11	0
Number of Players	12-50	15-45 B/	9-45	12-60	10-30	7-120	9-27

A/ Combination of census tracts.
B/ Up to 300 when not used by a class.

FIGURE 7

Comparison of Selected Features of the Computer-Based Urban Models

A/ Combination of census tracts.
B/ Up to 300 when not used by a class.

FIGURE 7

Comparison of Selected Features of the Computer-Based Urban Models

	METRO	GSPIA	CITY I	APEX	BUILD	CITY MODEL	SYSTEMS ANALYSIS
Reasonable Upper Limit on Rounds	10	20	15	10	15	20	10
Time Required to Play a Round (hrs.)	2	1 week A/	1 1/2	2	1/2	2	2
Real Time Represented by a Round	1 yr	1 yr	1 yr	1 yr	1 yr	1 yr	1 yr
Outside Imposed Limitation on Growth or Demand	yes	yes (not mandatory)	no	yes	no	no	yes
Economic Land Uses Represented:							
Simulated	HI, LI BG, BS, PG, RA (1-5) RB (1-5)			HI,LI,NS PG, PS, RA (1-3) RB (1-3) AGRI	PG R		
Player Controlled		HI, BG R, MS, HY, TM	HI,LI (1-3) BG, BS (1-3) PG, PS (1-3) RA,B,or C (1-6)	HI, LI. (1-n)	HI, LI NS (1-n)	HI, LI (1-3), BG, BS (1-3) PG, PS (1-3) NS, CI (1-3) RA(1-8) RB(1-8) RC(1-8)	HI PG (1-3) RA (1-3) RB (1-3) RC (1-3)

A/ About 20 hours per student.