Metropolis 1976

The problems of older cities in America are many and grave. The establishment of new cities, in consequence, has not received much attention. Apart from a few general recommendations, including a report that urged the construction of over one hundred of them, little has been done to bring forward plans, costs, and arguments for cities of a half-million or more residents. At this moment it would appear that the bicentennial celebration of the Declaration of Independence will suffer from a shortage of immediate events to celebrate, and it seems to this writer that the achievement of a new metropolis by 1976 would contribute substantially to this end. I have therefore set down here some notes on a research, design, and teaching program to produce the intellectual cadre for Metropolis 1976. Assuming success in these efforts, I am suggesting how a group of independent and commercial sector leaders can take over and build upon the plan.

Since we must start somewhere, I would recommend beginning with a program in one or two cooperating universities. The universities, with such help as they may obtain from industry, foundations, governments, and their own resources, would produce complete plans based on an actual terrain, from which research-teaching "maneuvers" could be transformed readily into real-life "operations." They would settle upon a terrain of about 100 miles square, in an economically depressed area; present a general plan for a M76 city of 500,000 residents; form a consortium (a cooperative non-profit group) of large financial and industrial interests; draw a sample of the American population and invite the requisite number to pioneer the city; assemble leading behavioral and natural scientists and technicians to accomplish the overall planning and the education of the people; plan how to convert personal and business assets

outside of the city into assets within the city; arrange for the participation of businesses engaged in "new city" industries and allied concerns; consult with the consortium in building the city and assist the residents and businesses to adapt to its many innovations; and on G-day 1976 aid in the conversion of the consortium cooperative into a self-ruled government.

We may assume that the terrain, the technologies, the skills, the pioneers, and the leadership are available for this kind of project, and its achievement will set an example to the country and the world. Independent and commercial sectors of the society can organize, finance, and institute an effective and outstanding metropolitan government. Once done, the M76 model will spread rapidly to other parts of the country and the world, and in the process, older cities will be relieved of some of their burdens, will not suffer inroads into revenues that they have come to expect from the central governments, and will gain a number of proven technological and social innovations.

Preliminary Operating Principles for Metropolis 1976 (M76)

The operating guide to the early stages of M76 follows. After some *general principles*, it goes into *recruitment; land assembly; over-all start-off finance; surveying, meteorology and water resources; infrastructural planning and engineering; housing and community facilities; transportation; economic development; government; health* and *welfare;* and *education and culture.*

I. *General Principles*

1. The size of the city is targetted at 500,000 persons with a potential for somewhat greater population.

2. The enterprise would be planned as an Independent Sector venture. That is, neither the Governments nor the Commercial Sector would be the center of the first or second phase of the project. However, the Commercial Sector would take on the largest responsibilities for the project if it entered the action phase.

3. The first phase would be structured as a study program, with members from University Departments and such outside persons, mainly from business and expert circles, as would be

willing to bear a high activist load. This group would set up its field station in the area chosen for study. Approximately 100 square miles of terrain would constitute the exercise ground. A Steering Committee representing the three elements of the group would direct the program. Students from the universities involved would take an active part in the work, whether they are on the undergraduate or graduate level. Academic courses and conferences would follow the progress of the work. All of this we might call "Futurology M76."

4. Should the study develop favorably, and the possibility arise of actualizing it beyond an informative and useful method of teaching futurology of metropolises, steps would be taken to peel off a group from the above structure that would concern itself with realization.

5. The realization might be achieved by something we can call "Consortium M76," Incorporated. This would be a non-profit cooperative composed of the original group and a new group of commercial and non-commercial developers. The Consortium would be a large-scale fiscal transformer to hold title to the terrain, to convert assets, to arrange finances, to control expenditures, to supervise development, and then, finally, to turn over the city to its own government on G-Day 76.

6. The terrain is not yet settled. But the necessary 100 square miles, or 64,000 acres, may well be found in an area such as the extreme southern area of Illinois which has been beset by a number of economic and social problems for a long time, including the problems of much land that has been stripped by coal mining.

7. The possibility that M76 may turn from a research and teaching project into a realization project introduces from the beginning a problem of conflict of interests. It is necessary that everyone involved in the first structure proposed above, the academic and research structure, agree formally to avoid any double commitment. They might agree that none of the F76 research program's staff, officers, or members, whether paid or unpaid, may accept a position, paid or unpaid, within any business group or agency dealing with M76 until two years have passed following one's resignation from the program. Nor should anyone associated with the program speak or write in the name

of the program without the approval of the Executive committee of the program.

8. The world conditions projected for 1976 and the year 2000 indicates steep rises in the price of energy. The new city, profiting from examples of the old, should bear in mind in its design and construction this oncoming crisis and seek to reduce energy costs at all points.

9. The world has a severe poor-rich problem, as has the United States. Rising costs of energy and of pollution control will be accompanied by rising demands for equality and a rising population generally. There will be severe strains on present styles of and future demands for consumption. M76 design will try so far as possible to arrange for a maximum proportion of low-cost consumer activities in new cities, previewing the day when pressures for reduced consumption, whether automobiles or household appliances, begin to make themselves felt on the standard of living and the quality of life. The aim is to provide both rich and poor in the cities with a better quality of life than they have now, but, in order to do so, there must be provided more personal autonomy, more local provisions for recreation and culture, and many another scheme to cushion the expected decline in per capita consumer resources. M76 should lead to a better life at less personal and social cost.

10. National finances and state finances will suffer increasing pressures over the next decades. M76 planning ought to take this into account, and also the probability of continuing inflation and a serious situation respecting the international balance of payments of the U.S.A.

11. There should be a heavy concentration upon innovations for better human relations within the city. The troublesome domestic strains in the U.S.A. may intensify with rising economic strains of different kinds and a continuing movement of population into cities.

12. To answer inevitable allegations by existing cities and their representatives, it should be shown that M76 will provide them with needed stimuli and innovations, will tend to ease their immigration problems, and, because of its self-sufficient financial structure, will not draw upon general treasury funds that they are seeking at the state and national levels.

II. *Land Assembly*

1. It is figured that half a million population and 100 square miles are enough to justify setting up a city in a fairly isolated area, to employ economically new technologies, provide freedom of management and government, and to bring full cultural advantages of metropolitan life.

2. Location of M76 in a lagging area with a central cultural position in America is an important advantage. The land should be cheap, not readily useable for present or future economic purposes. If the area is presently "not going anywhere," so much the better.

3. The present population should not be numerous enough to dominate and rule the new city, but should merge into the general population.

4. A pre-selection survey of proposed sites should be made, and political, governmental, business, church and other local interests and groups should be interviewed and reassured.

5. First might come the permit to explore and to map. Then might come assessment of land values. Then the obtaining of options or, better yet, where the land is held by numerous owners, the preparation of appropriate provisions in a charter allowing the consortium to employ reasonable procedures of eminent domain.

6. The land assets transferred by present holders of M76 terrain would be compensated for by similarly valued assets of M76 upon its construction, or by bonds.

7. The plan for a large city enables enough resources to be employed in landscaping to achieve not possible in smaller schemes.

8. M76 should be guaranteed in state law against noxious industries on the periphery. Adjoining states should also be approached for such guarantees, one of their incentives being that they would have an attractive city close to their boundaries.

9. M76 should have the right under state law to compel the incorporation within its boundaries of peripheral territory. An index of urban characteristics of the peripheral land calculated regularly, can signal when it is achieving a certain stage of development that would entail incorporation.

III. *Recruitment of M76 Population*

1. People of M76 would be selected, invited, and then volunteer from all over the United States. The population of the city, for maximum exemplary effect, should represent the American population as a whole.

2. The assets of the Pioneers, insofar as they cannot be transferred into M76, because of personal professional or social policy, would be purchased on a reasonable basis by the consortium, sold, and the proceeds carried as assets to the name of the people involved. The cost of movement from present location to new location should be advanced as a personal loan, where required.

3. All strata of the population should be represented. It would cause more problems than it would solve to try to set up a new city to profit from the presence of privileged classes. Besides it would be unjust in a city founded upon the principles of the Declaration of Independence — that all people are created equal and should have equal opportunities.

4. A system of national lottery, plus a volunteering of those who are chosen in the lottery, plus the nomination, by those who are chosen, of their intimates, would provide the population. Perhaps 300,000 households would be invited. A consortium of independent survey groups might perform this task.

5. Preliminary letters and follow-up talks would initiate a system of communications that would evolve into the process of educating people for civic life in the city of the future. That is, the recruitment design should incorporate the initial selection, in-place preparation and education; and ultimate civic education, and should do so from the beginning. A field team could be recruited and located at a university in every state, responsible to the central M76 Field Station, and would engage in all personal contacts and explanations with the persons being recruited from the state.

6. There would, of course, have to be over-sampling and a method of compensating for the biases of the voluntary element in the acceptance of lottery luck. Not all who are called will come. The Pioneers will be somewhat different in character. An early pilot-study should be made of "who will come."

7. Those volunteering to accept their lottery choice as pioneers of M76 would be asked to agree at the very beginning to

some fundamental democratic principles and constraints. Among other principles, they will be pledged against vicious discrimination against any group; and they will be asked to accept the principle of their continuing education until their skills are adjusted to the new needs of the city.

8. The role of present inhabitants of the area to be occupied by the new city would have to be considered and planned. They should be permitted to volunteer for participation and they should be consulted as the project moves along. In this regard, as in all others, the academic group should begin with a pilot group study and branch out, as it appears that action and realization are possible, to embrace the total local and recruited population.

9. Up to about 500 households should be allocated to activists and volunteers of the "Futurology 76" Program. The program volunteer households, and present residence households of the area, should be deducted from the sampling in proportion to their stratification by age, race, occupation and so on.

10. After the institution of the new city, all new residents immigrating thereto will be asked upon arrival to take a brief civic training course as to how the new city works. There is a slight question of civil liberties here, but there is a much larger problem, witness the histories of all old cities, past and present. witness the histories of all old cities, past and present, coming from the haphazard way their newcomers learn about their city, often, if not mostly, when they are poor, from cynical, sometimes criminal, often exploiting sources.

IV. Overall Start-Up Finance

1. In the earliest stage personal donations of time and small cash advances suffice. As soon as possible, a small grant of seed money amounting to $ 20,000 is necessary.

2. A series of grants for over-all and special projects planning should be made to the F76 academic program within the universities concerned or to a special cooperative organization of the universities, perhaps called the "M76 Futurology Program," administered by the Steering Committee. Foundations, governments, and private companies need to be solicited. All the financing of planning and model construction would come

from these sources. A total of one and a half million dollars or more, to be spent over a two-year period, needs to be sought. (See Appendix, p. 26).

3. For action purposes, the solicitation of financial participation of large interest groups should follow. Assuming good progress on F76 and a favorable decision on the organization of Consortium M76, then perhaps 20 large groups could undertake the estimated 3 billion dollars of financing that would be required. Of those, let us say that 8 might be financial groups, 8 industrial, and 4 independent, including labor unions.

4. These groups would be represented in the directorate of the consortium. The cooperative organization of the consortium would permit a wide spectrum of separately maintained special interests that could participate and withdraw flexibly under agreements with the consortium.

5. The central fiscal idea is to use the non-profit corporation to purchase and realize on the assets of the population coming into the city, to borrow all the funds necessary to set up, populate, and start up the city, to use limited-return, interest-bearing bonds of differing due dates for these purposes, backed by the financial interests concerned, and possibly by governments. After the consortium has supervised the total construction of the city and organized its people, it would turn over, on, say, July 4, 1976, the indebtedness of the city, along with the government of the city, to its population. On that day, "Consortium M76" would theoretically go out of existence, and a self-governing "G-M76" would start up.

6. Some idea of what may be involved financially is given by the figures on the following page.

7. In this highly schematic balance sheet, on the assets side, it should be noted that only the land should remain absolutely and completely in title to the collectivity, that is, ultimately the city government. Parts of the infrastructure, public facilities, and educational purchases may be or would be transferred by sale or rental to groups operating under contract to the city. The financial managers of M76 in the consortium phase and in the governmental phase should try to assume only those obligations that cannot readily be assigned to benefitting parties, and ultimately to dispose of all obligations possible to indepen-

BALANCE SHEET

(in millions of dollars)

as of G-DAY-1

Assets		Liabilities	
1a. Personal Assets Sales	$ 500	1a. Payments Owing, Sale of Personal Assets	$ 500
1b. Personal Notes on Collateral of M26 realty	1,000	1b. Personal Transfer costs	50
1c. Personal Interest Obligations	20	1c. Construction, residential	1,000
2. Business Assets (construction)	$ 1,000	2a. Construction, small business	500
2a. Land @ $ 1,000 incl. impr'ons	60	2b. Construction, industrial	600
2b. Infrastructure	100	3a. Land incl. impr'ons	60
4a. Public facilities	100	3b. Infrastructure	300
4b. Education Fund	50	4a. Construction, public	100
5a. Interest Obligations (5 years)	100	4b. Education Start-up	50
5b. Overhead (bonds)	70	5a. Health and Welfare Start-up	50
		5b. Interest and Insurance	20
Total	$ 3,000	Total	$ 3,000

dent hands. Some of the remarks that follow below carry out this principle.

8. Normal and optimal model inventories of M76 assets and liabilities should be constructed early in the first phase of study and at intervals thereafter from comparative figures and practices of other like size cities.

V. *Surveys, Meteorology, Water Resources*

1. Ample water is vital. An Illinois terrain under consideration is near the meeting of the Ohio and Mississippi Rivers and contains an abundance of water in different forms, some of which may be diverted through the city in the form of canals It is a few miles from the "U. S. Center of Population."

2. It should be borne in mind that residents and industries in the new city would not be segregated and the contours should be studied with this principle in mind.

3. A meteorological study of air quality and pollution in needed before the site is accepted and designed. Invitations extended to industries should be dependent upon the pollution load that the site can carry.

4. Air-conditioning should be de-emphasized as much as possible because of its power implications and high costs. This places a heavy burden upon planning and site use. However, someone may come up with a new technological system for heating and ventilating to supplement the maximum use of natural means. Natural lighting should be maximized in construction design.

VI. *Infrastructure*

1. The planning and design engineering of the infrastructure should aim at a low-profile city. A minimum number of elevators should be used. Or, to put it another way, a maximum amount of low slope ambulatory access is desired. This is for health, pleasure, esthetics, low-cost, and power emergency avoidance.

2. Landscaping that is expensive for the inhabitants, whether business or residential, should be minimized. Botanical gardens may be allocated to districts of 5,000 population. Personal garden-

ing in neighborhood or precinct (500 persons, or 170 households) should be provided for with patches assigned to household units under a voluntary assumption system and supplementary cost. Larger farming plots on the periphery should be made available to residents for rent.

3. The healthy person should be able to traverse the city from various angles on foot without becoming exhausted, and the average workers should be able to walk to work.

4. Power sources in M76 should be selected and designed with impending long-term energy crises in mind. Power cutback devices should be built in under a system of priorities to minimize potential confusion and costly restrictions.

5. Refuse disposal should be by conveyor from source, with possible preliminary household reduction.

6. The airport should have a rapid access from the city periphery, by both private car and public conveyance. Noise avoidance must be planned.

7. Other infrastructural suggestions are carried in some of the items below.

VII. *Housing and Community Facilities*

1. The design, size, character and other features of housing are too complex to carry suggestions here. In general, skyscraper cities, underground cities, balloon cities, and other far-out overall housing designs should be avoided.

2. One workable pattern would be the following:

3. Mixed indoor-outdoor recreational and marketing areas should be provided, probably employing plastic covering.

4. Population control should be exercised overall by space-per-capita averages by ward. Protection against sprawl is necessary on the periphery.

5. Ample construction space should be reserved for churches, theatres, libraries, social halls, in-door sports facilities, expositions, and educational structures. Temporary structures may be contemplated in certain areas until the groups are in place and know what they want.

6. Bars, nightclubs, cafes, and restaurants should not be denied a minimal presence in every neighborhood. The city should be designed to permit everyone to have their pleasures close at hand and to prevent some from foisting the inconveniences of these facilities upon other neighborhoods.

VIII. *Transportation.*

1. Private cars should not be permitted in the city. Private cars should be stored on the periphery with maximum 30 minute access from any house.

2. Access to ambulances and cabs should be within 20 yards of any door.

3. Cabs, possibly, electric, and preferably owner-operated, should be initially financed by M76.

4. Specially designed bicycle carts should be purchasable or rentable in precinct locations. Pedestrian and pedal paths should parallel thoroughfares and filter through special routes. Trucks should have access to organized facilities on the periphery of the city, but within the city's jurisdiction. These should be also near container access to train and water. Conveyor belts or cable networks should be considered for access to many points within the city. Small electric hoist trucks with 3-story range should be considered to provide transfer from conveyors to final locations.

IX. *Economic Development*

1. The industry of M76 that provides the approximately 60,000 jobs engaged in "export" trade would reasonably be building tools and materials, and supplying services for, similar cities that would subsequently be built. This is already a heavy mix: in addition, the industries supporting the "new cities" industry will choose most likely to introduce conventional, compatible elements of their on-going line of production.

2. A skill inventory should be prepared in early stages of designs, according to the population as it is selected and volunteers come and this skill inventory should be matched with the evolving necessities of the city. The educational

gaps resulting should be continuously planned for and provided for.

3. The charter of M76 may require all industries coming into the city to include a plan for worker-participation in their ownership and city government participation on the boards of directors.

4. The design of M76 would set a target of at least a 20% reduction in normal costs of conducting industrial and business operations in M76 as contrasted with similar existing cities. Transportation, communications, education, government, general design, building design, health and welfare programs, and accers, are just a partial list of the areas in which these savings to business should be planned into M76.

5. Widespread and decentralized ownership of retail stores should be encouraged and provision for ward (neighborhood) marketing areas should be made to encompass them.

6. A constraint on design to provide structures, facilities, tools, and locations suitable for full-spectrum and vari-time employment is needed. Restrictions against persons over 14 years of age working for pay should be minimized. Designers should also bear in mind a heavy participation by women and older people in the industries, shops, and education of the city. Furthermore, heavy part time and "offpeak" employment should be carried as a factor in design.

X. *Government*

1. The academic M76 group should prepare a model charter for a government of M76 that should serve to follow G-Day of M76, the day when the consortium is transformed into the government of the city. This charter should be continuously discussed with responsible public officials and when the consortium group is formed the charter should be presented to the State Legislature for approval as a whole. Thus, it may be possible to guarantee numerous innovations and extraordinary modes of operation of the city. Similarly, discussions should be held with judges to determine where, if anywhere, constitutional difficulties may arise. Although such presentations are usually refused by the courts, it may be possible to

get some kind of a preliminary declaratory judgement on the constitutionality of the charter.

2. M76 would be organized by households, precincts, wards, districts, and city-wide. There would be approximately 170,000 households of about 3 persons each, making up the population of half a million. About 170 households would constitute a precinct of about 500 persons. Every ten precincts would constitute a ward of about 5,000 inhabitants, and 100 wards would constitute the city as a whole. A district would include ten wards.

3. The terms precinct and ward, incidentally, are in the tradition of Illinois nomenclature. However, as these units would be used in M76, they would require a great deal more meaning than is normal in Illinois jurisdictions.

4. It is suggested that general officers include neighborhood or Ward Councils, a city-wide Council of 100 aldermen elected from each ward by a majority-forcing type of vote, that the Mayor also be elected by a majority-forcing, popular vote at large, and that a City Manager be elected by the City Council from a roster of names submitted by the Ward Councils. The Mayor would be charged largely with ceremonial functions, the City Manager with the Chairmanship of the functional Committees of Administration of the City Council. The Ward Councils would be elected by residents of the 10 component precincts, and, again, a majority-forcing technique is suggested.

5. Police should be assigned by neighborhood or ward, transferred infrequently, recallable by vote of the people in the ward, and their presence announced with photos in the neighborhood press. Police should not carry weapons. Weapons should be carried only by emergency squads, tactically situated. Nor should weapons be permitted in the confines of the city; they can be checked in lockers at the periphery.

6. The tax system should be left to the determination of the City Council, and state and federal taxes, if possible, should be assigned to the city to collect. Since this is probably impossible, maximal exceptions should be sought from the outside governments. Where it has discretion, the city should consider collecting all of its taxes by the simplest possible means, be it a levy on income earned within the city calculated at a progressive rate, or possibly a flat per capita levy for all those

who work or live in the city, with allowances and exemptions for those below a minimum income level. So far as possible, a property right accruing to the government should be leased, or contracted, or sold out.

7. The academic program should engage early in a study of activities performed by the municipalities around the country. This would serve as a planning check-list. However, in planning, the conventional list should be greatly reduced, in many cases amended, and in a few cases some new activities brought forth.

8. Justices of the Peace may be elected by wards. The all-city judiciary may be elected by the Justices of the Peace and the City Council, with a veto in the City Manager. No judge need be a lawyer. Full legal counseling services for judges, defendants, plaintiffs, and prosecution may be provided in every case by the city.

9. Jails should be civilianized to the maximum feasible extent. Prisoners should be employed to maximum extent on a trustee basis.

10. In the character of M76, state and federal governments should be asked for the waiver of their eminent domain rights in the city, and the city should undertake responsibility for the rental of adequate facilities to these governments.

11. All public functions must be organized to the maximum extent in decentralized and accountable ways, employing independent competitive contracting, mixed authorities, and, wherever possible, no governmental ownership or operation. That is, to the maximum extent, the government should be supervisor and policy-planner.

12. Beginning with the first invitation to all persons, a computer-tape record should be established on an individual basis. This should include a method of insuring privacy to those whose personal information is carried on tape and some kind of a consent code to turn on and off all possible questions. The City Council should determine which questions should be open or closed for examination and by whom.

13. Labor unions, industrial management associations and professional organizations should be chartered by the City Council, and government controls against monopolistic practices should be imposed, while complete mediation and arbitration

machinery should be employed. Arbitration, with public representation, should be required in all disputes agreed to by all concerned in the construction of the city, for a period until G Day + 2 years.

14. Attention has to be given in planning to a number of functional divisions of the communities: religious; fraternal and social; political associations; ethnic, cultural and racial groups; occupational and professional groups; and others. In general, all-purpose space should be originally provided for any group on a rental basis. Adequate sites should be reserved for their purchase and design according to the groups needs and tastes in new structures, subject only to over-all architectural harmony and safety. Calculations can be made with adequate reliability and a number of such sites can be reserved.

XI. *Health and Welfare*

1. Welfare involving dependency can be handled out of the ward offices. A "whole case" approach under a licensed "general practitioner in welfare" is recommended. A GPW is chosen for a "situation" by the people involved, from a supplied panel of nominations. The GPW is independent. GPW work is reviewed by a city board of GPW review.

2. The impact of social security laws, pensions, employment taxes, and other systems that are now compulsory and operated by the Federal government or the state must be studied in order to determine how to manage them within M76 structures and to determine what exceptions might be requested in the charter.

3. M76, by insisting upon inviting as pioneers of the new city an accurate cross-section of the American people, will assume a burden of dependency cases, of the sick and of the institutionalized of different types. In general, the planning for M76 should aim at reducing greatly the necessity for dependency of all types. Responsibility, wherever possible, should descend into the precincts and wards with the aid of the most advanced therapeutic and control techniques from the city at large.

4. One central hospital should be provided for acute cases, with rapid access from everywhere in the city and controls

against exclusiveness. Ward hospitals and clinics for less acute cases should be planned.

XII. *Education and Culture*

1. Education, from elementary to advanced, should be organized in new ways. Basic principles should be: Every resident shall have an equal voucher credit for education, or his educational use, from the infant to the oldest citizen, based on a per capita division of most of the total amount available from external governments and the government of M76. These vouchers should be payable to any recognized teacher or school. Principles for the recognition of schools should be proposed by a mixed committee of the council and other citizens, and approved by popular referendum biennially. Vouchers may be used for schools outside the city as well. School facilities and equipment presently in M76 can revert to M76 and be leased or rented out to educational groups. A portion of the total amount available for educational purposes can be reserved from the per capita credit distribution and be made available for purchase of and lease or rent to educational groups specifying a need to purchase materials and equipment, or housing, and an ultimate break-even pay-back may be arranged.

2. A heavy flow of messages between the pioneer population and M76 headquarters will occur. Both arrangements and education will be involved. Later on, central communications will be needed for educational purposes.

3. All educational groups of the city should be pledged to make library and other group facilities available to other groups and the public.

4. Local bookstores and book clubs, local dramatic, dance, and musical groups should be entitled to the privileges of educational groups and receive voucher financing.

5. M76 should have a central library and information retrieval center that may supply an estimated 80% of the overall demand for such services, whether from individuals, businesses, groups or schools. This library should be operated by a contracting group under a rental and loan basis from the city's general educational fund. Facilities to place branch reading

rooms and information retrieval circulation drop-offs in every neighbourhood should be provided.

6. A local newspaper press should be encouraged or even provided by the M76 government. A weekly newspaper for each ward should be sought. It may be a cooperative or a small business enterprise and the study should provide space for it in its original design of the ward.

7. M76 should request from the Federal Communications Commissions in its initial consortium phase two regular TV channels, one for public service programs and the second for high-level entertainment. It should request two radio channels for the same purposes. It may operate, or lease to non-profit groups, or to commercial groups, the development of these channels and bands.

The Research Program
(A List of Necessary Projects)

To supplement the overall planning of M76, and in order to carry out preliminary research, seventy-three different research projects may be needed. These are listed below. It is premised here that the large body of research of a directly applied nature that will be needed as M76 moves from "manuever" to "operations", will be separately financed by sources that will be closely tied into the realization of the research results. The projects listed here are ordered according to, and related to, the body of the report above.

I. *General Principles*

1. Pedagogical method in the Modelling of Cities.
2. The General Energy Outlook for 1975 to 1990 as it affects the Energy Needs of Cities.
3. The Future of Metropolitan Finances in the U.S.A.
4. The History of the Founding and Development of Large Cities and Large-Scale Resettlement Programs, with a view to Possible Time-Compression in the Erection of New Cities.

II. *Lond Assembly*

1. The Areas of Cities and the Functional Allocation of Space, including Underground and Elevation Considerations.
2. Land Alienation Practices: Sales, Leases, and Eminent Domain.
3. Collective Land Ownership Practices in the U.S.A.
4. Site Location Practices in Industry and New Communities.

5. Land costs for Urban Large-Scale Developments.
6. Acquisition of Peripheral Lands by Local Governments.

III. *Recruitment of Population*

1. A Pilot Study of Reasons for Shifting Residences.
2. Methods Employed by a Cross-Section of Americans to Transform Assets and Finance Costs when moving residences.
3. Who Would Move and Who Would Stay? Study of a cross-section of the population with various options.
4. Education of Metropolitan Newcomers to City Life-Style and Problems.

IV. *Overall Start-up Finance*

1. Income and Expenditures of Cities of 500,000 population in America.
2. Adaption of Accounting Methods to the Financing of New Cities.
3. Computer modelling of the Accounts of Cities of 500,000 in Relation to the Projected Accounts of M76.
4. Consortium and Syndicate Accounting Applied to a New City Model.

V. *Surveys, Methodology, Water Resources*

1. A Survey of Terrain and Water Capacity of Southern Illinois for Large-Scale Settlement.
2. Historical Reasons for Low-Density Settlement in the Four State zone of the Ohio-Mississippi region.
3. Economic Retardation and Chronic Distress in 5 Southern Illinois Counties.
4. Land-use Planning under Conditions of Heavy Non-segregated and Non-stratified settlements and Mixed Residential-industrial areas.

VI. *Infrastructure*

1. The Economics and Sociology of Elevator-Use in Industrial and Residential Buildings.

2. Capacities of the American Population for Acceptance of Ambulatory Requirements in Urban Areas.

3. Power Sources for New Industry.

4. Energy Requirements and Costs of Pre-designed Mass Transport Systems.

5. Manpower and Skills Requirements in New Urban Technology.

6. The Cost of Full-Scale Development of Interurban Transportation for M76 in the Context of Adjacent Water, Rail and Road Facilities.

7. The New Source-Reduction and Conveyor System for City Residential and Industrial Wastes Disposal.

8. Noise Factors and Their Reduction in American Cities.

VII. *Housing and Community Facilities*

1. An International Competition for the Over-all Design of a City of a Half-Million Population, given stipulations of Terrain, Economics, Forms, and Life Goals.

2. The Physical Needs of Shop-keepers, Artisans, Artists, Musicians, Dancers, and Self-Employed Para-professionals and Professionals in a Small Metropolis.

3. Ecumenicalism, Individualism, and Sectarianism in the Expected Conduct of Religion in a New Metropolis.

4. Maximum Decentralization of Facilities and the Creation of Neighbourhoods.

5. The Physical Foundations for Pluralistic and Satisfactory Ethnic, Racial, Recreational, School, and Other Voluntary Associations under Non-segregated Conditions in a New City.

6. Methods of Achieving Community Social Solidarity under Conditions of Pluralistic Demands in Education, Religion, Culture, and Housing in the American Cities.

VIII. *Transportation and Personal Communication*

1. New Technology in Local Low-pollution Urban Transportation.

2. Minimal Acceptance Threshold of Americans for Local Transportation Vehicles, Systems, and Efficiency.

3. Climatic Constraints on Local Passenger and Delivery Transportation in Cities.

4. Adaptation of Existing Belt and Cable Carriers to Metropolitan Areas.

IX. *Economic Development*

1. What Makes Large Companies Move their Production Facilities and Implant New Ones?

2. The Computerized Matching of Existing Skills and Needed Skills for a Large Working Force.

3. An Educational Scheme for the Transformation of Existing Skills of Large Groups.

4. Worker Participation Plans in Industry and their Effects upon the Balance Sheet.

5. Comparative Costs of Production ni New and Old Cities: a Computer Model for the Analysis of Several Experienced and Predicted states.

6. The Cultural and Social Uncosted Benefits of Maximum Small Shop Ownership in Communities.

7. Developments of Industrial Design in the Direction of Diversified Worker-times and Unisex coping.

X. *Government*

1. A Model Charter for the Government of a New Metropolis.

2. Constitutional and Legal Problems in Organizing New Cities, along the lines set by a Consensus of Public and Experts as Technologically and Socially Desirable.

3. The Typical Composition of Neighbourhood Groupings of 5,000, their Time Expenditures, their Civic Skills, and the Sum and Variety of their Civic Initiatives.

4. Methods of Suppressing Bureaucratic Operations in the Office of City Manager.

5. Probable Behavior of a City Council Composed of Members Representing Constituencies of Similar Demographic Type.

6. Probable Effects of Complete Weapons Control in a Metropolis.

7. Functions of American City Governments, and their Potential Reduction by Contracting Out, Release to the Independent (non-profit) or Commercial Sector, Elimination as an Effect of M76 designs, and Performance by Mixed Authorities.

8. The Irreducible Minimum of Government Activity in a Future Metropolis.

9. Comparative Survey of the Selection Methods for Judges of Municipal Courts and Local State and Federal Courts.

10. A Plan for the Decentralization to the Metropolis of State and Federal Court Functions.

11. Methods of Decentralizing Courtroom Proceedings in a Metropolis.

12. Organizing and Mechanizing the Flow of Usable Data for Public Offices and Citizens in a Metropolis.

13. Designing a Scientific and Humane Penal System for a Metropolis, including the Employment of Convicts in Equal-pay and Voluntary work.

14. Planning a Population Record Bank and a System for Its Correction and Control.

15. A 3-party Industrial Relations Charter for Government, Unions, and Management to be Employed under the Special Conditions of New City Construction.

16. Governmental "arms-length" Dealing with Constitutionally Protected groups in a planned Metropolis, as Compared with their Relations in Existing Metropolises of Half-million population.

XI. *Health and Welfare*

1. Design of a Community Welfare Delivery System Centered around the Vocation of an Independent "General Practitioner in Welfare."

2. A General Input-Output Accounting Model for Social Security Programs Engaged in by the Population of Small Metropolises.

3. On Decentralizing Responsibility and Accountability for Welfare Services in a Metropolis.

4. A Hospital Services Delivery System for Cities of One-half Million Population, Based on Full Access to a Central Facility for Acute Cases and Maximum Other Utilization of Neighbourhood Hospitals.

XII. *Education and Culture*

1. A Computer Modelling of Educational Choices Made by a Probability Sample of the Population Using Non-transferable Vouchers of Varying Sums.

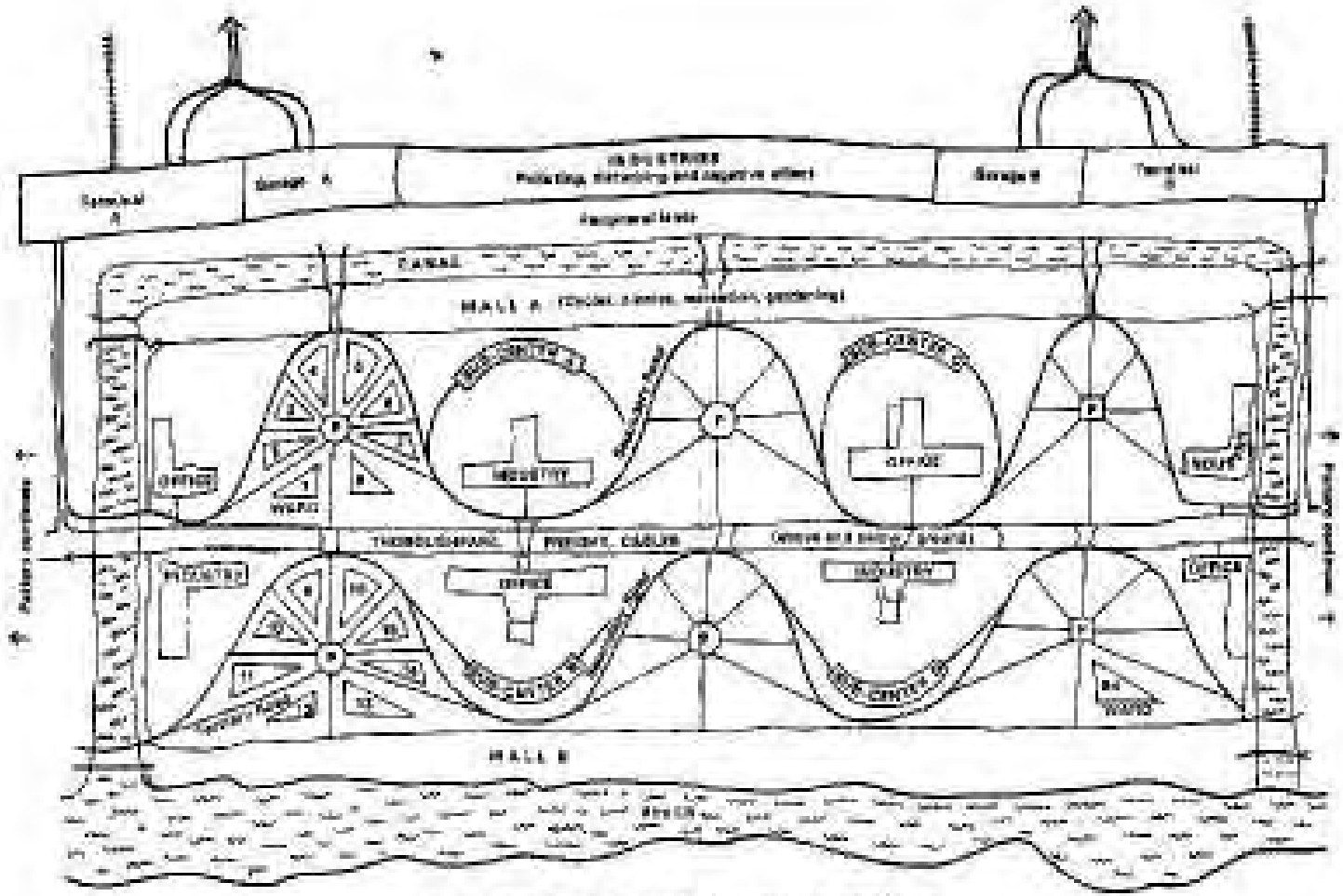
2. Inventory and Value of Necessary Educational Technology and Structures for Future Education of a City Population of 500,000.

3. A Computer Model for the Matching of Independent Initiatives of Teachers, Educational Administrators, and Lay Educators ("the educational supply") with the Choices of a Population Cross-section for Types of Education ("the demand").

4. Designing an Information Retrieval System for Reducing Costs of Duplication in a Pluralistic Educational Setting.

5. The Supply of and Demand for Information on Local Issues and Practical Community Living among a Sample of Residents of a Small Metropolis.

6. The Effective Demand for Cultural Services (music, dance, exhibitions, etc.) at Different Levels of Cost in a City of a Half-million Population.



A SKETCH OF M 76 IN A LINEAR DESIGN

irregular contours and water boundaries would stretch and bend the basic pattern somewhat. The subcenters contain specialized facilities, hospitals, government offices, the largest or most specialized stores, schools, etc. Plants are marked 'P.' The linear design permits ready access to permitted local vehicles and their logistics to and exit from express thoroughfares. In the proposed linear segment, which approximates about 18 square miles, about 320,000 residents and their business and recreational needs are provided for.