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COORDINATION OF URBAN DEVELOPMENT
AND THE PLANNING AND DEVELOPMENT OF
TRANSPORTATION FACILITIES



March 1974

Final Report

DEPARTMENT OF TRANSPORTATION
Federal Highway Administration
Office of Planning
Washington, D.C. 20590

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COORDINATION OF URBAN DEVELOPMENT
AND THE PLANNING AND DEVELOPMENT OF
TRANSPORTATION FACILITIES

Edward H. Holmes

Consultant to

The International Road Federation
1023 Washington Building
Washington, D.C. 20005

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ABSTRACT

One of the most difficult problems, if not the most difficult one, facing American cities today is providing for transportation to, from, and within the central business district and the expanding suburban areas. Other countries can furnish valuable experience in this respect.

This report presents the results of an investigation of planning practice in cities in England and Scotland, Spain, Switzerland, France, Germany, Denmark, Sweden, Australia, and Canada. The cities were selected not as necessarily representative of the general situation prevailing in those countries but as examples of effective practice in one or more aspects of the area of investigation: (1) the manner in which the technical aspects of planning are coordinated or related, (2) the coordination in timing and financing in areas of transportation and general planning as they are undertaken, (3) the sources of funds for transportation improvements, (4) the legal requirements and administrative practices that either require or permit desirable coordination, and (5) the extent and manner of involving public (citizen) approval and support of programs in the decisionmaking.

Planning and development control are still evolving through experience, and techniques are continually improving. But at the levels described in this report, they are already far in advance of procedures generally in effect in the United States. This report enables the reader to judge for himself.

INTRODUCTION

Without doubt one of the most difficult problems, if not the most difficult one, facing American cities today is providing for travel and transportation to, from, and within the central business district and throughout the expanding suburban areas. In the belief that the experience in other countries in this respect could be of value to the United States, the Federal Highway Administration contracted with the International Road Federation to conduct investigations in Canada, Australia, and several European countries with respect to their practices in planning and development in selected cities. It was not expected that the procedures in the cities, chosen with the aid of persons in the several countries, were necessarily representative of the general situation prevailing in those countries nor similar to those in any cities in the United States. They were selected as providing examples of effective practice in one or more aspects of the area of the investigation.

Under the terms of the agreement the investigations were structured to explore five specific aspects of the planning and development process. Had those preparing the agreement been as familiar with the practices in other countries as the investigator became as a result of his discussions and reviews of the many reports and other documents provided him, somewhat different emphasis might have been placed on the different aspects. Each of the five are still considered significant, however, and the findings with respect to each will be covered in Chapter I, as well as features in addition to the five specific items that are believed to be of interest and value to those concerned with urban planning and development in the United States. More detail on each item from each country visited appears in succeeding chapters.

In considering the content of this report it is important to bear in mind that the procedures in planning and implementation of plans in all the countries visited are still in developing stages. While urban planning, and considerable control over public and private development have been accepted practices in most countries, the recent and quite sudden emergence of the motor vehicle as an important factor in personal travel, especially in Europe, has brought the problem of realistic planning and development control into sharper focus, and greatly expanded public concern over its effects. Planning and other officials are responding in a variety of ways to take full advantage of the capability of the motor vehicle (or to cope with its threatened dominance, depending on one's point of view) in their planning. While their early efforts show promise and some good measures of success, techniques, administrative procedures and legal requirements are quite generally still developing. Field visits in connection with this project extended over a period of nearly two years and during this period a number of significant changes have occurred. In some cases the information obtained during the field visits has been updated by correspondence or subsequent discussions, but no doubt in other cases some statements or comments may already be outdated. It is important to recognize that planning and development control are still evolving through experience and that techniques are continually improving. At their levels as described in this report, however, they are already far in advance of procedures generally in effect in the United States. Each reader may judge for himself how planning and development control in his area compare with that in other countries.

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CHAPTER I

SUMMARY

The investigations were structured to cover five specific areas:

- (1) the manner in which the technical aspects of planning are coordinated or related,
- (2) the coordination in timing and financing of improvements in the two areas as they are undertaken,
- (3) the sources of funds for the improvements,
- (4) the legal requirements and administrative practices that either require or permit desirable coordination in the two areas, and
- (5) the degree to which, and the manner in which, public (citizen) approval and support of programs is involved in decision making.

Findings in each of these areas are summarized in the following pages:

The Manner in Which the Technical Aspects of Planning are Coordinated or Related

While the coordination of general or land use planning with transportation planning offers troublesome problems in the United States and was presumed at the outset of the study to be a problem of major difficulty elsewhere, it offers little or no problem in most other countries. The reason is simple: Both are carried on by the same agency. In the United States transportation is generally regarded as a function to serve the land, and somewhat hopefully perhaps, to help shape its use. Coordinated studies of transportation and land use to meet the requirements of Federal-aid highway legislation are designated transportation-land use, or sometimes, "hyphenated" studies. In Europe transportation is regarded as a land use and planned just as any other land use is planned.

Coordination of transportation planning with general planning, or perhaps more properly, integration of the transportation elements of planning with other elements is generally a two stage process, spelled out most specifically in legislation in the United Kingdom. In the first stage, called there the structure plan stage, transportation facilities are specified only to about corridor level. The plans simply indicate the mode of transportation proposed -- perhaps rapid transit, rail commuting or private vehicle and local bus. Following the various reviews and approvals required, differing from one country to another, local jurisdictions and functional agencies, such as highway, rail or transit authorities, proceed with more detailed planning of specific transportation programs and projects as the second stage of the plan.

To integrate all aspects of the planning process to produce a balanced plan staffs are multi-disciplinary, including in the transportation field traffic engineers, civil or highway engineers, and transit specialists. Their function generally is to provide information as to the mode of transportation that would or could provide for the movement the land use proposal or proposals would require and to carry the planning of transportation in specific corridors to a point of insuring its practicability. In subsequent review and approval processes, it is then clear as to what the specific land use proposal, or alternate proposals, mean with respect to the transportation aspect. The pattern of development ultimately chosen would not, for example, expect to rely on travel by private vehicle in a corridor where highway capacity could not be made sufficient to accommodate it, or where the number of vehicles destined to the central business district would exceed the "holding capacity" of that area. On the other side of the coin if the pattern would not provide the ridership in any corridor needed to support a proposed rapid transit mode, that fact would be clearly indicated and the extent of the needed subsidy, were that mode elected, would be understood.

With respect to the technical procedures, transportation planning lends itself to a quantified approach to a greater degree than nearly any other aspect of planning. In the countries visited without exception the transportation planning phase accepts or stems from the urban transportation planning process developed in the United States, in many cases having been introduced into the other countries by American consultants. In one country, Sweden, it was remarked that "There is no point in spending time discussing our technical procedures. We've simply adopted yours even to the Highway Capacity Manual." Quite generally the process is being extended or improved upon. Accepting that the relationship between transportation and land use varies but little from one city to another, the central governments sometimes prescribe the simulation models to be used, subject to validation in each area by a relatively few home interviews, as a requirement for financial and technical aid in the process. More resources, financial and technical, can then be applied to analysis and application. In one country, France, the usual simulation models are supplemented by aerial photographs taken at 6-second intervals to permit detailed analysis of small areas. In one city -- Birmingham, England -- the process is being extended and refined to permit more detailed planning for transit operation.

In at least three countries -- England, Scotland, and Sweden -- efforts are being made to quantify some aspects of the social and environmental factors that enter into transportation decisions. Economic analyses of projects are customarily made in all countries, and in Sweden are required by law to include environmental factors, some of which such as effects of noise and visual intrusion can be quantified. The economic analyses are not expected to be decisive with respect to choice of mode of transportation to be provided in any area or corridor, that decision stemming from the desired growth pattern which usually dictates the mode that must be provided or provided for. The economic analysis is important as an element in the decision-making process, for it reveals the cost to the public of the transportation aspects of the alternatives that are available. The economic analyses generally are also regarded as important in developing priorities in programming, however.

Coordination in planning exists not only as an inter-disciplinary process within the metropolitan or local areas however. Quite generally there are plans developed at national level for national and regional development. While the principal agency in such planning is usually a department or ministry such as Interior, the plans are usually developed through committee action in which the transportation agencies are represented, and are approved at cabinet or parliamentary level. While national programs such as highway and rail systems generally rest with national agencies, it is in the metropolitan areas where the principal responsibility for implementation rests, for it is here that programs such as public housing originate and where lie the control of private development essential to the realization of the overall plan. To aid in maintaining metropolitan and local planning and development in keeping with national and regional goals, the central governments offer technical assistance in both the general and transportation areas. Beyond that, because transportation is such an important element in the overall plan and because of the sophistication that has developed in this phase, nearly all countries give financial assistance in transportation planning as well -- 50 percent in the United Kingdom and Sweden, for example, 75 percent in Ontario, and 100 percent in France -- and under various other arrangements in other countries (The statements of national policy or practice here and elsewhere in this report generally apply in Canada, where the word "Provincial" should be substituted for "national," and in Australia, where the substitution should be "state"). This close inter-governmental cooperation in functional areas, much like that in the Federal-aid highway program in the United States, is an important factor in extending the technical cooperation and policy coordination at national level to the metropolitan and local levels.

(Note: It seems ironic to the investigator that the urban transportation planning process developed in the United States, where it has too often been regarded as a necessary requirement to comply with Federal legislation has become perhaps the single most powerful tool in transportation and general planning in other countries.)

The Coordination in Timing and Financing of Improvements in the
Two Areas as They are Undertaken

One of the strongest reasons for the general success of coordination between transportation and general planning and development lies in the fact that the interdisciplinary planning agencies in the urban areas are line departments of the local jurisdictions. The plans they prepare are approved or adopted by the local elected officials prior to approval at higher government levels. All aspects, including transportation, are included in the plan that is placed in the approval pipeline. Likewise in nearly all countries long or medium-range programs also are prepared by the planning departments, in close cooperation with the functional agencies, both local and national, that must execute the programs. These programs also are approved by the local officials for submission to the national governments for their approval and to serve as the bases of subsequent preparation and review of annual applications for financial aid in specific projects. Financial aid from the national governments to local jurisdictions often is available for purposes of general government on some apportionment basis, based on such factors as population and the economic circumstances of the locality. Categorical aid, as for transportation facilities, is seldom so apportioned, but rather allocated to the local jurisdictions to aid in carrying out specific projects in approved programs. By so doing, programs in transportation and housing, for example, can be kept in reasonable coordination.

Coordinating private development, particularly in timing, with public programs such as transportation offers problems, problems that are being met with varying degrees of success. The most positive coordination, and one that works with almost complete success is found in Stockholm and Canberra, where in each case the governing agency owns or can own all the land. Land is made available for private use, such as for housing or commercial or industrial development under terms specified in long-term leases. While even this is a negative control, in that it cannot require desirable private development, it can prevent undesirable development and usually there is demand for opportunity for desirable private development at least equal to the ability of the public agencies to provide the infrastructure to serve it. The cities cannot only control the nature and density of land use but can control the manner in which it is used, for example the hours of operation and rates for parking facilities. In Stockholm the land use must conform to the plan proposed by the local officials and approved by both State and national governments. In Canberra the plan is developed by the National Capital Commission by its multi-disciplined planning department and approved by the Commonwealth Parliament, inasmuch as Canberra is a city within the Australian Capital Territory. In each case the public is apparently fully satisfied with the high degree of control. One positive plus is that there is no need for zoning. Land use is prescribed parcel by parcel as the detailed plans for new or renewing areas are prepared. While no other examples of such complete control were observed in the study, a similar situation exists in some of the British cities in urban renewal areas, some quite extensive, as in Glasgow, in which the local officials can and do exercise virtually the same degree of control over the renewal areas as Canberra and Stockholm do for their entire areas.

An interesting example of a fair degree of control over newly developing areas, which should be possible of adoption in any country, is seen in Perth, Western Australia. Here all land is classified in categories, two of which are "urban" and "urban deferred." In the urban area private development may proceed by building permit, in conformity with local zoning regulations. In the urban deferred area, however, land may be released for private development in amount, at a time, and under conditions laid down by local officials. In one example, land was released for a housing development to a consortium of developers only when agreement was reached under which the developers financed the infrastructure within the area and also participated in the cost of the arterial highway to serve it.

Generally, however, the only control over private development is through local zoning controls, although these controls seem far more effective in other countries than in the United States. In all cities visited, except for Montreal, the general plan approved at national level covers the entire metropolitan area, and under that plan each local jurisdiction must bring its zoning ordinances into conformity, for approval at higher level, and cannot change them without approval of the change at the higher level. That there are teeth in these requirements is seen in Toronto and Ottawa where buildings built under mistakenly issued local building permits were required to be demolished, and in Madrid where for some years a major high-rise office and apartment building stands incomplete while the merits of its violation of the zoning ordinance is tested in the courts.

While many existing zoning ordinances were not drawn up having in mind the capability of the transportation system to serve the development they permit, greater attention is now being given to this relationship. In France, for example, the density allowable in any area cannot exceed the capacity of the infrastructure, of which transportation is one element, to serve it. Local officials may approve a development of greater than the average allowable density on a particular parcel only by accepting a correspondingly

lower density on other parcels in the area. In the plans now being developed for Ottawa the total development in the central area is expected to be limited to the capacity of the transportation systems, taking into consideration the desirable modal split for efficient functioning of the area. Satellite centers along a transportation axis are expected to accommodate the additional development the metropolitan area may attract. Perth is looking toward the same development policy in its current planning review.

While there are good examples, such as those cited, the best of controls are not always effective. Toronto, long rightly regarded as a leader in North America in planning and urban transportation is finding development in its central area rapidly exceeding the capacity of the transportation facilities to serve it. Demand on the Yonge Street subway exceeds its capacity in peak periods, and the street system (even Yonge Street itself) is heavily congested even in midday. While massive new office, hotel, and apartment buildings rise in the center, relief of either rail or street congestion is years away. New developments in rail rapid transit (the magnetically supported system) are in prospect and relief in highway access may be expected if suspended work on the Spadina freeway-transit corridor is resumed, so ultimately the balance between transportation and other development, with neutrality between modes that existed until recently, may be restored. Even with the sound planning and programming procedures existing in both Toronto and the province of Ontario, the inability to control the timing of private development will hurt seriously.

The Sources of Funds for Transportation Improvements

Financing of transportation facilities in cities in all countries visited is heavily aided by the higher government levels -- national, state or provincial. While the manner in which the aid flows down to the cities differs from one country to another, the source at national level is invariably the motor fuel tax. In nearly all cases the proceeds of the gasoline or diesel fuel taxes are comingled with other government revenues, but in no case do the total expenditures for national highway programs and aid to the cities for highways or transit equal the revenues from highway user taxes. In all countries visited motor fuel is taxed only at national level, even in Canada and Australia where the intermediate government levels are dominant. Gasoline taxes are heavy by United States standards, exceeding 50 cents per gallon in U.S. units in Germany, for example. Here one half goes to the general funds and the other to highways and urban transportation. Road user revenues of the states or provinces are primarily derived from registration fees or weight or ton-mile taxes on commercial vehicles.

In some cases -- England, Scotland and Denmark -- for example, aid to local transportation goes directly from national to local governments, allocated as a percentage of the cost of projects included in approved annual programs. Funds in these countries are not specifically apportioned by formula to particular cities, but the amount estimated to be available over a long period, based on approved long-range programs, is made known to the cities. If one city is unable to "take up" funds as rapidly as they can be made available because of inadequacy of local matching funds or delays in the program for other reasons, funds tentatively earmarked for that city may be diverted to one that is ready to apply them to a more rapidly advancing program. Glasgow has moved ahead on its program faster than has Edinburgh, for example. In other cases, as in Germany, Switzerland and Australia, funds are allocated to the states (cantons in Switzerland), portions of which either by formula or negotiation are available to the cities on a project-by-project basis.

While generally routes of national highway systems do not penetrate the cities, sections sometimes lie within metropolitan areas, and they generally are 100-percent nationally financed, although again there are exceptions as in Australia and Canada. Sections of routes of state or provincial systems that lie within urban areas generally are fully financed by the states or provinces or their construction is heavily aided, usually as much as 75 percent by state or provincial funds. Major arterials within urban areas are universally eligible for state or provincial aid, again on a project-by-project basis.

Quite generally national, or state or provincial, funds that are allocated to the cities for transportation improvements are available for rapid transit as well as highway improvements. With the exception of Ontario, such aid is restricted to capital improvements. In Ontario the Province may participate in operating subsidies up to a specified level. What items are included as capital expenditures vary from one country to another, as does the matching ratio, with the most severe limitation found in Sweden where national participation may be up to 95 percent, but may be applied only "up to the rail," all stations and rolling stock having to be financed from the fare box or local subsidies (In Stockholm the subsidy amounts to \$75 million annually). In all cases transit improvement projects, as do street and highway projects, become eligible for participating funds only by their inclusion in the long-range general plans previously

prepared by the local jurisdictions and approved at the higher government level, and in the annual budget proposals also developed locally and approved at the higher level. An example of the manner in which a transportation program in an urban area is tailored under this flexible program approach is seen in Hamburg, a unique city-state in Germany. Here Federal aid is assisting both the highway and the extensive rail rapid transit programs. A route of the bundesstrassen passes through the area, and has a high priority in the national program. Federal, state and city funds are all involved, with the city's share related to the proportion of the traffic that will be drawn from the city streets, in the range of 40 percent. The city's share is such a large item in its construction budget, however, that it is necessary to stretch out the construction program on its third subway line, even though federal and state funds were available, had the city been in position to take them up, for the transit improvement.

In all European cities and in Australia rail commuting plays a more important role than in most United States cities. In all these countries, also, the railroads are nationally owned (state owned in Australia). As a service to the cities the railroads generally operate the commuting service, absorbing its cost in its overall operating expense. In some cases, as in Germany, the railroads provide commuting service on separate tracks within their rights-of-way with the city participating under agreement with the railroads.

Local street improvements and the operation of transit is uniformly a local responsibility. Cities are primarily dependent on real estate taxes for local revenues, but business and industrial taxes and license fees also contribute. In one country at least, Germany, the cities also share in the federal income tax. Often block grants are made by the national governments, England and Scotland being good examples, for purposes of general city government, allocated by formula based on population and need. These block grants are comingled with other city revenues and, contrary to the practice in the United States, can be used to match categorical grants from the central government.

Public transportation in metropolitan areas is the responsibility of the local jurisdictions within the area as municipal functions, as in Denmark, or more generally operated by an area-wide commission or public authority or corporation in which the principal city or all the jurisdictions of the area own the stock. They provide local bus and tram (street car) service and operate the rapid transit system where it exists. In cities in all countries except Switzerland it is accepted that the cost of owning and operating the transit system cannot be met from the fare box. In Switzerland it is a legal requirement, in some cities at least, that transit pay its own way, while in other countries the policy is to make all reasonable effort to do so. In still others, however, it is accepted that transit service is a function that should be provided at moderate cost to the users, and subsidies as necessary are provided from the general revenues. In Stockholm housing is offered on the basis of the need of the families for more or upgraded space, without regard to its location with respect to places of employment of the occupants, and at the same time a single fare structure without regard to trip length has been adopted in order not to penalize those required to make the longer journeys to work. In Montreal, as another example, a fare of 35 cents has been adopted as the limit. In each case a subsidy is accepted, heavy in the case of Stockholm and small but expected to increase in Montreal, spread among the local jurisdictions the systems serve. (Note: Under such circumstances transportation can hardly be viewed as a discrete function in any economic analyses.)

To generalize, funds for national highway systems and to aid local governments in improving their arterial street systems and rapid transit networks are available in all countries, derived universally from motor fuel taxes. In no country are all road user revenues earmarked for highways or even for transportation; good portions of the funds are diverted to general revenues. The manner in which funds flow from national to local levels is tailored to meet the political structure peculiar to each country, but in some way categorical aid to urban transportation reaches the local levels in all countries. And in all countries local matching, with funds derived generally from real estate taxes, is required. National funds generally are not apportioned by formula, but are allocated to implement the transportation elements of the overall long-range plans developed locally and approved at higher level, appropriated by line items in annual budgets, also developed locally and likewise approved at higher level.

The Legal Requirements and Administrative Practices that Either Require or Permit Desirable Coordination in the Two Areas

It is in this area that the sharpest differences between practices in the United States and those in other countries were observed. These differences emerge as four quite prominent features; they are listed below and described in more detail in the following pages:

- a. Broad general planning starts at national or at least state or provincial level, and extends to planning regions.
- b. Local jurisdictions prepare plans for their own areas in line with the general national and regional plans or guidelines, for approval at higher government level.
- c. Planning is a function of line departments in the local jurisdictions, reporting to the local elected officials, who also have responsibility for implementation of the plans, through long- or medium-range programs and annual budget approvals.
- d. Transportation planning is regarded as but one element of the overall plan to be developed by the multi-disciplined planning departments, generally large by United States' standards.

a. General Planning. National or state-wide planning is universally regarded as an important function. The planning process seeks to encourage or channel appropriate development in areas best suited for it on an overall basis. Universally there is a policy of discouraging further growth in the largest metropolitan areas and encouraging growth of the moderate-sized metropolitan areas or in new or greatly expanded small cities. Industrial development is attracted to specific areas by policies of taxation or other inducement, or actually directed by the adopted plan as to areas in which it may or may not locate. Housing programs and programs such as the British "spill-over" programs that relocate people from the overcrowded areas into new or expanding towns where industry may locate or expand, are developed at national or state level. Development of the infrastructure, particularly transportation, in areas that are economically depressed or retarded are other tools to encourage better distribution of economic activity and population. Two countries at least, Sweden and Denmark, plan to move some government departments well away from the capitals even as Australia is assembling in the Capital those now scattered outside, in all three cases toward the end of more effective functioning of the nations and their overall economy.

b. Local Planning. The national or regional plans are broad and general in nature, in effect spelling out policy as enunciated by approval of the plans at cabinet or parliamentary level.

Within the general policies or guidelines the local officials must develop their more specific plans covering individual cities or, where they exist, metropolitan areas. Generally the plans for the specific areas are developed in two stages, most precisely spelled out by regulations in England and Scotland, where the two stages are identified as the structure plan and the local plan. The structure plan is in effect a statement of goals and policies for development of the area, shown as statements and accompanying sketch maps at a "grain size" so coarse that individual parcels may not be identifiable. In England and Scotland the structure plan is prepared by the conurbations (metropolitan areas) by planning departments representing the individual jurisdictions joined in a voluntary effort, for approval by the central government. The central government's review is focussed on the adherence of the plan to the national policies and guidelines and the technical adequacy of the planning itself. It does not undertake to exercise its judgment as to the manner in which the local jurisdictions elect to provide for their development with respect to the character of housing (high- or low-rise) or the density of development for example, so long as transportation and other elements of the infrastructure can serve it.

Other countries follow procedures differing somewhat in detail, but not in principle. Generally the make-up of the metropolitan agency charged with the preparation of the first stage plan is more specifically spelled out than in England and Scotland (although quite specific requirements will become effective in England on April 1, 1974) but its function is roughly the same. In all cases, however, the plan must be reviewed at state or national level (sometimes both) and approved.

Once approved the plan universally either has the effect of law or becomes legally binding upon the individual jurisdictions within the area. At this point the local officials must prepare a finer-grained plan, showing the public development, including transportation, proposed and the allowable private development and the zoning ordinances to control it (Canberra and Stockholm are exceptions since in each case the land is all government owned and its use is controlled parcel-by-parcel through leasing to private developers and home owners. Zoning is unnecessary.) In England and Scotland this stage of the plan is called the local plan, but by whatever name, the local officials in all countries must produce detailed plans compatible with the first stage, more general, plans for review by the metropolitan agencies and generally for approval at a higher government level. Once these plans are approved they can be changed in any substantial degree only by repeating the process. And once approved they become the basis for specific long- or medium-range programs and annual budget requests through which the local jurisdictions seek financial aid from the higher government levels in implementing their plans.

Somewhat oversimplified, then, the national government spells out a national and regional development policy; the metropolitan areas, through agencies on which their local jurisdictions are represented, prepare coarse-grained plans in line with the national policy for the development of the area, to be approved at national level; following this approval the local jurisdictions prepare fine-grained local plans showing how the proposed public development, such as transportation, and private development will be kept in balance, for review as to technical adequacy and adherence to the coarser-grained plan and for approval at national level; and finally the local jurisdictions may seek financial aid from the national government through budget requests in projects to implement the plan. (Note: In Switzerland it was observed that the franc is a more powerful inducement than the law.)

c. Adoption and Realization of the Plan. Uniformly the planning units are line units of local government. In the metropolitan areas the planning agency generally reports to a commission or agency on which the local jurisdictions are represented in a manner prescribed by legislation. This agency can approve in behalf of the metropolitan area and its local jurisdictions the coarse-grained plan for submission to the higher government level. Some elements of the plan, such as rapid transit facilities, sewerage, or water supply quite generally are implemented by the metropolitan agency, financed by assessments against the local jurisdictions. Most elements of the plan, however, and the control of private development, are the responsibility of the local jurisdictions, where lie responsibility for development of the local plans and for their adoption prior to their submission to the higher government levels for review and approval. Thus a city planning department must have its plan approved by the elected city council, and it is this same council that must review and approve, and find the revenue to finance the programs of the other departments which have responsibility for implementing the plan. The council also has responsibility for controlling private development through its approved zoning ordinances and its building permit processes, to maintain the planned balance between private and public development.

Thus the city planning department is not only a line department; it is a key department. The plan it prepares must be approved by the council members who are conscious in their review that they must find the funds to implement it. They are not unconscious of the fact that they must stand for reelection, so the plan they adopt must be politically acceptable, or at least not too unacceptable. So it is incumbent on the planning department to prepare a plan that is financially and politically realistic and compatible with the broad goals and policies of the metropolitan area as expressed in the first stage plan. And it has the further and continuing function of working with the other functional departments in developing, also for council approval, the programs and annual budgets to implement the plan. (Note: With these practical constraints it is not likely that the city planners can succeed, even if so inclined, in doing what they are sometimes accused of doing even in Europe -- to put down on paper everything they'd like to see happen regardless of cost.)

d. Planning an Arm of Policy. The multi-disciplined approach to planning observed in all countries was described to some extent in the discussion under area (1) at the beginning of this chapter, pointed specifically to the technical aspects of the plan, and need not be repeated here. One feature that seems to emerge quite generally, however, is that the integrated, as distinguished from coordinated, planning extends to all levels of government and includes, or perhaps better, begins in the policy area. As noted earlier transportation is regarded generally as a land use and planned along with other land uses in the overall planning process. Whereas quite generally in the United States the effort has been to coordinate planning in transportation and other areas, sometimes with considerable success through a variety of ad hoc arrangements, in the other countries visited transportation is viewed simply as an integral element in the total plan. To say that it is "simply" so regarded is not to imply that it is not regarded at the same time as one of the most significant, if not the most significant, element of the plan, as evidenced by the sophistication with which it is planned and the resources applied to it. It is the one element in planning that receives in all countries visited specific financial aid from the national governments.

A variety of approaches are used at national level to insure that planning is viewed as a single overall function. In England the former Ministries of Housing and Transport were combined in a government reorganization into the new Department of the Environment. In several countries the national and regional planning and development policies are the responsibility of a department such as Interior, but the development of the plans is carried on through committee action on which the transportation agency or agencies are represented. Approval of these plans is sometimes at cabinet or chief executive level, and sometimes at parliamentary level. But in all cases all concerned agencies have input in the development of policies and plans.

At the metropolitan level the planning most commonly is at a coarse-grained scale but must be sufficiently refined to insure that a balance is maintained among the various elements of the plan --

housing, industrial and commercial development, schools and similar functions on the one hand, and elements of the infrastructure on the other, such as water supply, sewerage and especially transportation. At this level the professional staffs of the planning agencies include a multiplicity of disciplines, with increasing emphasis on the social sciences as public concern with social and environmental considerations mounts. Where a staff cannot include all the disciplines that need consideration the agencies commonly can call on the functional agencies of the higher levels of government, facilitated by the progressive nature of the planning process and the continuing responsibility of the higher levels of government for approval of the lower level plans. Likewise, since the metropolitan agencies commonly comprise representatives of the local jurisdictions, liaison between metropolitan and local professionals, where needed, usually is easy.

At local level the city planning departments may not afford professionals in all disciplines involved. In these cases they have access to technical help from the metropolitan agency, and because they must work closely with the other functional departments of the city in program development, they also have easy access to professionals in those departments for technical assistance.

Stated perhaps too simply there appears to be in all countries visited a relatively easy liaison between national, metropolitan, and local governments in a planning continuum beginning with basic policy decisions at national level and extending to adoption of zoning ordinances and annual budgets for plan implementation at local level. At any stage of this continuum, technical input from just about any needed discipline can be provided in one way or another. (Note: Perhaps it is acceptance of this approach that avoids the competitive atmosphere, especially with respect to modes of transportation, so commonly found in the United States.)

The Degree to which, and the Manner in which, Public (citizen) Approval
and Support of Programs is Involved in Decision Making

In nearly all countries it is required that citizens have an opportunity to inspect and comment on the plans prepared by the local planning agencies before they are adopted by the local elected officials and forwarded for higher level review and approval. The manner in which this is accomplished in the various countries differs considerably in detail, but there are a few common features that reflect the general philosophy of citizen participation at least up to the present time. That times are changing, however, is recognized in a number of countries and varying efforts to organize a greater degree of citizen participation seem to be emerging.

A not uncommonly held view goes somewhat as follows: "The local officials are elected to represent the citizens, and they do so. They have responsibility to make decisions, and the citizen's role is to comment when asked on the plans that are prepared by knowledgeable professionals." Paralleling this view is a corollary: "Planning is for many years ahead, and it is difficult enough for trained professionals to visualize and provide for conditions perhaps 50 or more years in the future. To expect untrained citizens to do so is not reasonable. Any comments they might make must necessarily be subjective and made in light of the existing situation. They offer little help in long-range planning."

These views obviously have merit, and they no doubt were at the root of the procedures in effect in the majority of the countries visited. A number of features, of course with some variation from one country to another, are common to many of the countries in the course of preparation and approval of the first level or coarse-grained plan.

- a. Once the plan is prepared it must be made available for public inspection. Citizens are advised by notices in the press where the plan may be viewed and perhaps where copies may be purchased. In one case, Sweden, every citizen directly affected, must be advised in writing of his opportunity to review the plan, and must acknowledge receipt of the letter, even though he does not wish to comment.
- b. A period of three to six weeks is commonly allowed for comment.
- c. The comments must be in writing, and it is not expected that favorable comments will be received. The words "objections to" or "criticism of" the plan appear in some laws and regulations, for example.
- d. At the end of the period, an inquiry or hearing is usually held. Only those comments previously submitted in writing may be considered.

- e. Following the hearing the local officials must act on each comment, and in forwarding the plan, revised if thought appropriate as a result of the comments, to the higher level of government, they must advise the higher levels of the action taken on each comment, and in several cases, must also advise the citizen who submitted it as to their actions.
- f. At the higher government level the plan and the actions on all comments are reviewed, and ultimately approved, perhaps with revisions, or returned for reconsideration at local level.
- g. Upon approval the public is advised of that fact, and that the plan is legally binding on all local jurisdictions included in the planning area.
- h. Appeal by a citizen to a court or a national ministry is generally provided for, but on matters of procedure, not substance of the plan.
- i. Once the coarse-grained plan is approved the citizens generally have no further opportunity to comment on the local finer-grained plan, or on the resulting programs or projects.

Under these procedures the local governments, and the functional agencies of the national government which may have programs in the area are reasonably free to go ahead without further delaying actions once the plan is approved. This is in marked contrast to the practice in the United States in the highway area in which the two hearing process does not begin until the route location stage, long after public participation has been completed in Europe. Moreover in Europe the public sees and comments on the plan in all its breadth, if not in detail, and can better understand its full import, rather than viewing a single route or project that may be difficult to view in full perspective.

While the steps described above reflect generally the required practice in most of the European countries, there are marked differences in some areas. In Western Australia and South Australia, and in Denmark no public hearings or citizen review is required by law, although in all three areas the officials recognize the importance of public support of their plans and programs and have organized excellent public relations programs to describe their problems and seek comments from the public in various ways. At the other extreme is Switzerland, where after going through a public review and hearing procedure much like most other European countries, and after approval at national level, the plan must be submitted to the public for ballot at an election. Beyond that major projects within the approved program may be brought before the citizens for ballot by initiative petition.

While these practices generally have had good reception by the public it is quite apparent that, as noted earlier, times are changing. Citizens are seeking greater involvement in the planning processes, and local officials in several countries are recognizing or being urged by higher-level governments to enlist citizen participation in the planning as it develops, rather than simply in the review of the product of the planners. Notable programs, described in some detail in succeeding chapters are found in the United Kingdom and in Ontario.

In England and Scotland the procedures to bring the public more directly into the act are spelled out in a formally structured program. The law requires a period of review by the public, consideration of objections at metropolitan and central government level and ultimate approval of the structure plan much as outlined earlier. In addition the local plan must go through somewhat the same review. One of the features of the higher level review is to insure that all required steps in public participation were precisely followed. The British go much beyond these requirements, however, by requiring an organized review process as the planning itself proceeds. The results of surveys that may be conducted in connection with the preparation of the plan are made available for public review and comment. Citizens are urged to discuss features of the plan in neighborhood groups and if necessary "Community Development Officers," paid with planning funds, go into the neighborhoods to organize groups, not only to review and comment on the planning proposals or alternatives as they are prepared but also to participate in surveys to produce needed data. Along with these efforts directed toward informing the public as to the detail of planning problems in their areas, broader scale public relations programs featuring media releases, films, and exhibitions portray the long-range area-wide goals. Outstanding public participation programs in Glasgow and Liverpool are described in Chapter II.

Other outstanding public participation programs are found in Ontario, one where citizen input was achieved to good advantage in Ottawa, and another in a program now being formulated in the current planning resurvey in Toronto. In Toronto a scheduled 10-year resurvey of transportation needs has been

advanced by two years as a result of the suspension of work on the Spadina freeway-rail transit project because of a political decision based on public objections. To insure public participation in this resurvey an ambitious high-budget effort has been launched, designed to develop public awareness of the problems, to provide mutual education of the public and local and metropolitan officials, and finally to distill the total information obtained in the survey into feasible alternatives for further public discussion and, hopefully, a consensus.

Summing up this area, the majority of the countries visited require that the public be given opportunity to inspect the plans the professionals prepare and to have their comments considered at local, metropolitan and national level as the review and approval process goes forward. As growing public concern in urban development emerges, however, many countries are exploring means to introduce the public into the planning process in more meaningful and objective ways. Universally the public is expected to be concerned in the overall plan, not just the transportation element, and at the early planning stage, rather than at the time of location and design as called for by Federal-aid highway legislation in the United States.

Planning Philosophy

As noted in the Introduction, the five specific areas of investigation just discussed briefly were thought to cover the aspects of planning and development coordination most significant to the United States. Also, as noted, several other features emerged as the study proceeded, more related to philosophy or policy than to procedure, that seem to be worthy of comment in this report.

Transportation and the Environment. First it is clear that all countries visited face the same problems as the United States in their urban areas. The largest metropolitan areas tend to get larger and the central business districts to become more congested as reliance on personal transportation intensifies. To meet this situation national and regional planning policies call for dispersal of industry and population to underdeveloped or depressed regions of the countries, and to retard or curtail further growth of the center cities by new towns or satellite centers on transportation axes that permit good area-wide communication.

Relief of congestion by such measures is a long-range prospect, however, and meantime steps are being taken to reduce the undesirable aspects of the automobile in the center cities. In Europe the problem is perceived to be the invasion of residential and commercial streets by traffic seeking only to pass through the area, and the visual and aural "intrusion" and hazard thereby created. Generally the freeway is looked upon as the answer, not the culprit, as too often is the case in the United States. Air pollution, at least up to now, does not seem to be regarded as a serious problem, perhaps because the air is now so much better than in former years with the increased use of smokeless coal and other measures.

The use of the freeway is severely restricted in the center city, however, especially in the older cities with historically and architecturally important buildings or areas. In many cities blocks or entire areas are "off limits" to the automobile, as efforts are made to "rehumanize" the downtown areas and to create traffic-free "pedestrian precincts." These efforts are succeeding, perhaps best in the areas to which good access by public and private transportation is available and nearby parking ample, as in Cologne, Dusseldorf and Hamburg, for example. In some other examples, business in the areas freed from traffic does not appear to fare so well.

Almost invariably the general plan of transportation improvement calls for a ring or series of ring roads centered on the central business district or sometimes the old historic center. In Madrid, for example, five circumferentials are planned. The first is simply a series of marked streets delimiting the old city, within which no new construction, either streets or buildings, is allowed. The second is an expressway at grade, with high capacity and sophisticated traffic control. The next is a freeway, virtually completed, at which the freeway radials approaching the city will terminate, access within it being by arterial streets. The fourth or outer circumferential is located and programmed for construction, and the fifth located only in a general way where it is known it can be constructed when needed. While this general pattern is followed quite generally, the number of rings and their diameters and their design standards differ considerably from one country or even one city to another. One interesting example is Glasgow, where the radial freeways terminate in a freeway ring only about a mile in diameter and up to 10 lanes in width, the "tightest" freeway ring observed. Here slum clearance and urban renewal made land available, and the new street pattern is designed to serve the changing economy of the city as shipbuilding and associated heavy industry gives way to commercial activity and light industry.

Parking facilities are generally associated with the inner one or two rings, usually with the facilities having no direct access from streets within the inner ring as the street and highway programs and

other public and private development goes forward. The capacity to be provided is based on the anticipated demand, or on a maximum figure in line with the total number of vehicles to be provided for in the area. Trips beyond the number that can be thus accommodated would then be forced to the transit mode.

Transportation Philosophy - Balance vs Neutrality. It is at this point that the terms "balance" and "neutrality" come into play. As a general philosophy most countries' purpose is to provide or provide for transportation to meet the desires of the travelers, in other words, to maintain neutrality with respect to mode. But when the time comes that the capacity of one or another mode is reached and development is allowed to continue, neutrality can no longer exist. This can occur when travel to an area, such as the central business district, by motor vehicle reaches the "holding capacity" of the area (to borrow a term from Colin Buchanan in "Traffic in Towns" of a decade ago). Or it can occur when the arterial route connecting a downtown area and a residential district does not have the capacity to accommodate the vehicles of all those who wish to drive. And likewise in the latter case it can occur when the capacity of public transportation in the corridor is insufficient to accommodate those who prefer that mode. Transportation is then no longer a neutral factor in the economy or social structure of the area.

The term "balanced transportation" has wide use in the United States, but its definition is in no way clear and differs with the user of the term. But it usually implies balance between modes, with the units by which "balance" is measured quite generally referring vaguely to funding. In Europe, Australia and Canada, however, the term "balance" has a more significant meaning, even though the term is not consciously applied. Planning philosophy with respect to transportation in other countries construes the term to mean balance between transportation and other development. While transportation may or may not be in balance with respect to mode, that is "neutral" it must be in balance with other development if the vitality of the area is to be assured.

Many interesting examples of the interplay of these terms were observed. Geneva and Berne have decided as a matter of policy to restrict motor vehicle travel to the old city to its holding capacity by arbitrarily changing the phasing of the signal cycles at the outlying intersections to restrict entrance as the city center fills up. Travel to the old city is facilitated by express buses operating in reserved lanes. In contrast along the outer circumferential, development will be limited to the capacity of the highway to serve it, a seeming incongruity.

Toronto, Dusseldorf, Perth and Birmingham are examples of cities where transportation has not only been kept in balance with other development, but also neutral as to mode. But in all these cases pressures for center-city development are forcing decisions as to whether further development will be decentralized and neutrality maintained or whether the logic of further development in the core is sufficient to forego neutrality in transportation.

Stockholm presents an example of a city in which neutrality has given way. National policy calls for neutrality in transportation, with each mode free to seek its most desirable place. Stockholm's plans called for acceptance of this policy by providing that no point in the center city should be more than a quarter-mile from a rapid transit station and a parking garage. Recently, with public support, emphasis has shifted, giving priority in programming to extension of the rapid transit system. Balance is being maintained as high-rise working in the center city and high-rise living in the outlying areas are connected by rail rapid transit. But neutrality has been lost, here by deliberate policy inasmuch as the city by ownership of all the land has total control over development, public and private, and could have maintained neutrality, even at the expense of other desires had it so chosen. In contrast, Canberra, the only other city visited that has total control of development through ownership of all the land, balance and neutrality are both maintained, not a difficult feat in a city of 150,000 population. But under its planning, transportation will still be balanced and neutral when and if the population reaches the million level.

The significant factor in this consideration of balance seems to be that it can be readily attained by the planning and development controls existing in most countries visited. It can be attained in planning because transportation is regarded as an element of the overall plan, and not a separate or discrete item that somehow must be coordinated with other planning. And it can be attained in development in scope (but not necessarily in timing) by virtue of the requirement that local zoning be compatible with the broader metropolitan area plans, that it is legally binding on the local units of government, and can be changed only with approval of the higher levels of government. While transportation in balance with development can be an achievable goal as cities develop, maintenance of neutrality between modes may not, and perhaps should not be so readily achieved. Many reasons can be seen -- physical, financial, or social -- for allowing development to proceed beyond the point where neutrality between modes can be maintained. The significant point is, however, that under planning procedures in other countries this can be a deliberate public policy decision and not a situation forced by unrestrained development.

In pursuing the matter of neutrality, planners in Ontario have accepted that regardless of how good may be the service provided by public transportation, there are still many trips to and within the downtown area that can most effectively be made by private transportation. And reviewing the situation in a number of cities they have concluded that in peak hours it should be possible to provide for 30 percent of the total trips by private vehicle. That is the figure found in Toronto when transportation could have been regarded as neutral with respect to mode. In reviewing the situation in other cities visited, the investigator notes that in other cities too in which neutrality still seems to be the case generally, similar figures seemed to prevail. While this "magic number" 30 may not apply generally, it provides a useful starting point for planning the total development that should be allowed in an area if transportation to and within it is to be maintained at a desirable level of quality. This approach was applied in the planning now underway in Ottawa. Here a limit to the total development of the center city was set at a level at which 30 percent of the peak hour trips to serve it would equal the capacity of the street and highway system that can feasibly be provided. Development beyond that amount will, under the planning proposals that appear to be receiving favorable response, be directed to satellite centers in a transportation corridor extending east and west of the center. As this time approaches, of course, the nature of the development in the center city may change and its transportation requirements may change with it. But it offers an interesting and potentially very useful approach to policy decisions with respect to maximum allowable development in any area. Development beyond that level may of course be possible or even encouraged, but at the expense of the quality of transportation.

Capsule Summary

Table 1 (a chart enclosed in the pocket on the inside of the back cover of the report) shows in capsule form the more significant features of the planning and development procedures observed in the several countries visited. A reader may find the chart useful in comparing specific features of the planning process as observed in the different countries and in aiding him in locating easily within the body of the report more detailed descriptions of points in which he may have a particular interest.

CHAPTER II

PLANNING IN ENGLAND AND SCOTLAND

October, 1971

The British have of course been planning for many years, and under varying controls, development generally has proceeded in reasonable accordance with the plans. Currently, planning throughout the country is carried on under the requirements of the Town and Country Planning Act of 1968.

The 1968 Act superseded an earlier law (1962) under which the local jurisdictions were required to prepare Development Plans to be approved by the Central Government and brought up to date at five-year intervals. The planning called for was found to be too fine-grained, almost on a parcel-by-parcel basis, and land use in such detail over a long period ahead could not well be planned or anticipated, posing problems for the local authorities, and the problem of review of the plans by the central government within a reasonable time was virtually insurmountable.

The 1968 Act is designed to overcome these difficulties but at the same time to insure that planning at the local level is competently done and consistent with national and regional goals, and to provide adequate controls to insure that development follows the plan.

The Two-phase Planning Approach

The most significant innovation in the current legislation is the introduction of two-phase planning -- a "structure plan" for a broad area and "local plans" for implementing the structure plan by the local authorities within the broader area. The two-phase approach gives greater flexibility in producing the plan and facilitates review, approval, and adoption.

The structure plan is more a statement of policies than a specific plan, yet it must be realistic and based on thorough surveys of the area, including such factors as population trends, economic trends and prospects, environmental and social factors and physical needs such as housing and transportation. The integration of land use and transportation is specifically required as a basic concept. The plans look 20 years ahead and must be related to national plans for population distribution, location of industry, and other plans or guidelines of the Central Government. The area-wide structure plan is prepared by joint action of the local authorities within the area, collaborating as necessary with officials of neighboring areas and maintaining liaison with Government departments through their regional offices. After public review and opportunity for objections the plan is submitted to the Department of the Environment for approval. Once approved by the Secretary of State for the Environment, or modified as he may require, the plan becomes the official document on which local plans thereafter must be based. It can be changed in "substantial" degree only with approval of the Secretary. It thus becomes a legally binding framework for development of the area by both public and private agencies. It does, however, provide latitude for initiative and ingenuity at local level within the generalized planning constraints such as density of residential development, capacity of transportation facilities, allowance for the amount and character of industrial or business opportunities or recreation area and open space.

The local plans for development, public or private, under the structure plan, are prepared or approved by the individual local authorities, for they, not the area-wide planning agency, have authority over private development and resources for public developments. Local plans are prepared in detail, not necessarily for the entire area of the local jurisdiction, so long as all features of the plan are properly related to the structure plan. A private developer might prepare a plan for an industrial development, for example, or the city might prepare a plan for the intensive redevelopment of a small area or an express highway plan, but in either case it would be necessary to show that the proper relationship between land use, transportation, and environmental and other pertinent factors has been observed. Local plans are displayed for public review and opportunity for objections, and ultimately adopted by the local authority, after an "inquiry" by the Secretary of the Environment if there are objections that are not met by the local authorities. The significant feature, aside from the technical detail of the local plan in contrast with the breadth and generality of the structure plan, is that the local plan is adopted by the local authority, not the Central Government, which approves the structure plan. The Secretary can at any time, however, "call in" a local plan for review if he finds on his own initiative or on complaint that the local plan is not in accordance with the structure plan for the area. This feature relieves the Central Government of a heavy work load of review and approval of local plans, permits more expeditious implementation at local level than under the earlier legislation, and insures that development in each local area is in harmony with that in the other jurisdictions within the broader area covered by the structure plan. It allows full scope of local initiative and determination of the course of local development by the authorities closest to the people,

constrained as necessary by conformance to regional and national goals and policies. An the planning proceeds under procedures and guidelines prescribed by the Central Government to insure quality of planning, with the authority of the Central Government, if needed, to require adherence to the locally-developed plan as it is implemented.

The planning process under the 1968 Act is too new yet to have produced conclusive proof of its merits, but officials both at local and Central Government level are enthusiastic as to its prospects. The legislation is being implemented progressively; in fact, regulations for its implementation were published only in July 1971. But the planning on the new basis is going ahead in numerous areas as a transition from the development planning well advanced in those areas under the earlier legislation.

Preparing the Structure Plan

The regulations, published in a 55-page printed circular prescribe in detail the mechanics of the preparation of the structure and local plans. They were carefully prepared over a period of some three years, and appear to present a workable approach to sound planning and development, and at the same time preserve in proper relationship to one another the responsibilities and authorities of the public, its elected and appointed officials at local and Central Government levels, and their professional staffs. A brief statement of the procedures seems to be in order.

The Planning Area. The basic unit of local government is the county, although within a county are local authorities termed boroughs. The county is governed by an elected council; the local authorities, set up as corporations, by elected corporation councils. For planning purposes the county may subdivide itself into districts, which may be either rural or urban. The local authorities within an urbanized area in a county may be combined into county boroughs, and in the larger urban areas the county boroughs may be combined into conurbations. The conurbation is a voluntary association of authorities similar in area to the urbanized area in the United States and in responsibility to American councils of government. The conurbation is the basic unit for urban land use - transportation planning, but like the U.S. councils of government has neither authority nor resources for implementation of the plans. As in the United States, it is in the conurbations that the major problems of integration of land use and transportation planning lie. Structure plans for the rural districts are the responsibility of the county council, as are the plans for urban areas not included as county boroughs, but the responsibility for planning within the county borough rests with the county borough council. In practice a distinction has been made informally between county structure plans and urban structure plans, although the difference lies mainly in the range of items included and the depth of study of the different items. There is no legal distinction, and ultimately structure plans, county or urban, will cover the entire country.

The Survey. The first step in the plan is to conduct a thorough survey of all features within the area that have a bearing on the structure plan - the growth policy of the area. The survey includes items natural to the area, such as the characteristics of the land within it, but also involves many items that are of mutual concern to neighboring areas or are subject to determination at regional or national scale. Population growth will be dependent on national policies set by Parliament, for example, and industrial development also will be governed largely by national policies. Residential development will likewise be influenced by national policies, for example by the approval of new towns or the working of the "spill-over" policy of resettling people from overcrowded areas to supply employees for new industry. Thus the planners in conducting the survey must work in close collaboration with their counterparts in related geographical areas, and must maintain continuing liaison with government departments.

The regulations do not specify in detail the items to be included in the survey. They emphasize, however, one particular item - "the full integration of transportation considerations with . . . related considerations, particularly the greater integration of what used to be described separately as transportation and land use planning . . ."

The survey forms the basis of the structure plan covering the current situation and expected changes with respect to population, economic activity, housing, shopping, education, transportation, communications, recreation and "appearance" of town and country. The survey must be reported in detail by written statement to the Secretary of State, with copies to officials of neighboring jurisdictions and public bodies concerned. A shorter or more popularized version is given publicity within the area and a period of at least six weeks provided for "representations" by interested citizens or groups, giving them opportunity to advise the local officials with respect to features or items thought to be important to include in the structure plan. There is no requirement for a hearing on the survey report. The Secretary of State has no responsibility for approving the survey report, but may require that other items be surveyed, or even a new survey undertaken. He does, however, have responsibility for seeing that the required publicity and opportunity for representations have been provided.

The Plan Itself. The structure plan is the most innovative feature of the British planning system. In effect it is a statement of strategies and policies to be adopted for the development of the area. Fundamentally it is a land use plan, recognizing transportation facilities as a land use. Provision of or for transportation, the agent for mobility, is now accepted as an important feature to encourage desired development. While the survey depicts the current situation and changes to be expected under present trends (what might be anticipated under a "do-nothing" policy), the structure plan will be the result of examination of various development alternatives, as a result of which the most appropriate one will be selected. The plan must deal with the physical environment and the management of traffic, and must recognize the relationship of its proposals to those of the neighboring areas and give attention to regional and national policies or other matters specifically required by the Secretary of State. Each alternative must be examined with respect to its financial requirements and its merits in reaching the desired goals of the area. One set of alternatives might relate to the development of the urban center, to show the concentration of economic or cultural activity that could be supported by different mixes of road and transit access without destroying historic values. Another might be the density of residential land use by high-rise as against low-rise multi-family housing in relation to open space and required transportation facilities. And of course broader questions with respect to amount, character, and location of industry offer alternative opportunities, but depend heavily on national policies.

The structure plan is prepared as a written statement, illustrated by diagrammatic sketches rather than precise maps. Areas of land use are depicted only in general terms without specific boundaries, except for natural ones or significant man-made ones such as railroads or established motorways. Each alternative considered is discussed and reasons for and against it given, with the set of alternatives that finally makes up the overall strategy to be recommended fully justified in this way.

Obviously, to examine each alternative to determine its cost and its impact requires detailed analyses. The transportation element alone, to provide a means of estimating requirements under the many alternatives of land use and travel modes even for the broad structure plan requires a sophisticated computerized approach in the larger urban areas (There are 117 areas of more than 50,000 population). In a number of such areas land use-transportation studies using the home interview technique have been conducted. The earliest of these generally followed the procedures widely used in the United States, and in fact were carried out by American consultants. The experience in Britain has convinced the professionals there that the extensive home interview approach is not required in all areas now that models have been developed and found valid in the earlier studies. The Department of the Environment is satisfied that transportation requirements can be adequately estimated for the structure plan alternatives by the application of models using for trip generation six categories of family structure, six income levels and three car ownership categories. Trip ends at destination are broken into 18 categories. For the purposes of the survey and structure plan, the Department is satisfied that this generalized model, calibrated in each urban area by no more than 1,000 home interviews, can produce acceptable estimates of demand from which cost estimates can be made. (Note: Whether the local authorities in Britain will be satisfied to accept such a procedure for estimating travel demands and cost of facilities, in contrast to most local officials in the United States, may be open to question. However, the cost of the survey and the structure plans are the responsibility of the local authorities, except that the Central Government will participate to the extent of 50 percent of the cost in the transportation phases. While there is no statutory or regulatory requirement that the local authority accept the recommendation of the Department of the Environment as to survey method, the availability of funds to assist in the transportation study can be strongly persuasive.)

Once the structure plan has been completed copies are required to be sent to the Secretary of State for the Environment and made available for public inspection in the local area. Six weeks are allowed by law for "objections" to be raised, and advanced to the Secretary. At the end of this time, unless the local authorities can meet all the reasonable objections, an "inquiry" is held in the local area by the Secretary. After hearing representations made by the objectors (who will have made their objections known to the Secretary in writing during the six weeks period) the Secretary will approve the plan, or require modification to meet objections that he considers meritorious. He could in an extreme case return the structure plan to the local authority to be redone. Once the plan is approved by the Secretary announcement to that effect is given publicity in the local area and the public informed that questions as to the validity of the plan (conformance to legal and administrative procedural requirements) may be brought to the courts.

This approved plan then becomes the master strategic plan on which local area development plans, public or private, must be based. It covers a period of 20 to 30 years ahead, 20 as a minimum, and may be modified if conditions change in unanticipated ways following the same process as in the preparation and approval of the original plan.

Prospects for Success. As noted earlier the planning system is being applied progressively and experience to date is not sufficient for appraisal of its success, but as also noted, optimism now prevails. One reason for optimism is the fact that the new system is an outgrowth of the earlier system that proved unwieldy and that the main difficulties associated with the previous system have been recognized and hopefully overcome. The two level approach leaves the planning in the hands of the locally elected officials (acting together in a voluntary association in the major urban areas), yet provides that it be responsive to national and regional goals. It gives the Central Government authority to require planning and to insure its adequacy with respect to quality by the Department of Environment's responsibility for review and approval. It leaves implementation and local plans for it in the local areas where local funds and Government financial aids to the local authorities are brought together.

The establishment of the Department of the Environment is universally said by the professionals within it to have facilitated Central Government review and approval of local planning. Prior to that, and under the previous planning system, land use plans were reviewed and approved in the Ministry of Housing, while transportation plans were the responsibility of the Ministry of Transport. Often the plans for one were inconsistent with those for the other, and resolution of the differences at Central Government level was difficult. Under the new Department, land use plans are reviewed by the "wing" of the Department called Local Government and Development, in which are located the professionals of the two former ministries who formerly had independent review responsibility. Should they disagree decision will now be made by the Secretary to whom both groups report. This, coupled with the strong representations in the new statutes regarding integration of land use and transportation planning, seems to be bringing about a better mutual understanding in the two areas, with recognition that neither can succeed without the other. (Note: As to which of the two is the dominant partner may still be viewed in different light, however, depending to some degree on one's previous experience and area of responsibility.)

Public Participation

The law is specific with respect to minimum requirements for publicity and opportunity for the public to comment on the plan once it is prepared and submitted to the Secretary. Six weeks is specified by statute as the minimum period for review and presentation of objections, but as described in the report of the Committee on Public Participation, "People and Planning" a longer period for and specific encouragement of comment is urged and increasingly expected. It is recommended that the method for public participation be kept flexible and informal so that the ordinary citizen might feel free to express his views. Public participation is expected to be regarded as an essential step in the continuing planning process and not an independent requirement or an end in itself.

In Britain the whole area of public participation is viewed with concern and is receiving widespread attention, but its benefits by no means are universally accepted. The extent to which the public may be invited to participate or the effectiveness of such participation is still subject to discussion and question. But it is fully accepted that means must be found to provide for and to insure the degree and manner of public participation that is found to be effective, whatever they may be.

Public Participation in Trunk Highway Planning. It is pertinent that different approaches obtain in the land use-transportation planning process than in planning for trunk highways, although responsibility for both rests in the Department of the Environment. Trunk highways are wholly the responsibility of the Central Government -- planning, financing, and construction and maintenance. The location of a trunk highway must be accepted as a "given" in local planning and development, although since trunk highways are not built or financed within the county boroughs by the Central Government, the "given" with respect to local planning pertains primarily to county rather than urban planning. Trunk highways are carried through or into the larger urban areas as "principal" roads, toward which the Central Government contributes 75 percent of the construction cost, but which for planning and construction purposes are the responsibility of the local authorities. Thus to insure the integrity of the trunk highway system in providing for travel through the urban areas requires close liaison between the Department of the Environment, through its Divisional Road Engineers, and the local authorities.

The law requires, under the Highway Act that once a line of a new trunk road is established a Draft Order be published, and anyone affected is allowed six weeks to "object." If the objections are serious, the Secretary can give more time, can order an inquiry, or both. After considering all the objections the Secretary may proceed, either modifying the original proposal or retaining it. If the modification is substantial, and a different group would be affected by the revision, the owners or tenants affected by the new proposal must be given similar opportunity to object. Ultimately the final Order, or Scheme in the case of a motor way, is published and the Government may begin to acquire property as needed. In case the value of a property is reduced by the prospect of acquisition in the future, the owner may require the Government to purchase the property in advance of its actual need.

It is the problem of "blight" that brings about differences in opinion and approach with respect to public participation in planning and releasing of advance information as to alternatives being considered. The fact that blight sets in along the line of a new road immediately upon announcement of its location is unquestioned. Moreover it is found that even the knowledge that a line is being considered is cause for blight along it. Thus there is disposition not to reveal to the public the alternatives being considered until the final choice has been made and to keep to a minimum consistent with proper relations with the public the time between reaching the initial proposal published in the Draft Order and the Order finally published, at which time property acquisition can begin. As the various alternatives are being considered the Department keeps in close touch with local officials and other public bodies that might be concerned, and once the Draft Order is published the alternatives considered are described and the reasons for the selection of the one chosen are given publicity, to assist the public in commenting upon the proposal.

Public Participation in the Structure Plan. Within the Department of the Environment is thus found differences in approach to public participation in planning, related to the nature of the facilities and the geographical area involved, reflecting the results of actual experience. In the case of trunk highways the approach is to satisfy the public that the right choice has been made, after the decision by Central Government officials working in collaboration with local officials has been reached. In the case of transportation facilities in urban areas, with their more disruptive impact on neighborhoods and community values, it has been concluded that participation of the public in the formative stages of plan preparation is, if not essential, at least conducive to ultimate acceptance of the plan. (Note: In reviewing the procedures in England in October 1973 the investigator noted that opinion in the Government was swinging toward the desirability of earlier and broader discussion of alternatives in trunk highway planning.)

Experience on how to obtain effective participation by the public, to get the benefit of its views, many of which have been found to be constructive, without becoming enmeshed in controversy and interminable delays, has not yet been sufficient to enable the Government to prescribe procedures nor even to issue firm guidelines. It has made suggestions, however, and in some local areas the means employed have been found quite effective.

If the public has been kept advised of the progress in preparing the structure plan, following the publication of the survey and solicitation items to be considered, there is more likelihood that the plan will be well received. In the first place, public reactions as the work progresses may serve to remove unacceptable items before the plan reaches final stage. And in the second place the public may be better conditioned to review the final plan if they have been exposed to it as it progressed. Meantime it is thought to be useful to establish a program of educating the public as to the desirability and limitations of planning, that they may better understand what is being proposed by the officials. A suggested way to do this is to establish forums within the community for discussion of the issues under consideration, and to encourage local civic groups and associations to keep abreast of the work. The local authorities are encouraged to appoint Community Development Officers to maintain liaison with the groups and to enlist the involvement of individual citizens who do not join such groups. Citizens or groups might be invited to assist in surveys as well as to comment. In many cases consultants carry out specific studies or the planning staff prepares interim reports that are suitable for distribution for review and comment. And discussion of alternative courses of action are possible at various stages in the planning, and these could be subject to public participation. Here, however, it is recognized again that the possibility of blight is multiplied as the number of alternatives increases, so discretion must be exercised as to how widely it is feasible to discuss alternatives.

The final opportunity for public participation is in the "inquiry" held by the Secretary under an "inspector" who reports to him his recommendations as a result of the inquiry. Six weeks are allowed by law for citizens or groups to make known to the Secretary in writing any objections or alternative proposals. If alternatives are proposed they must be accompanied by adequate factual support. It is possible to extend the six-weeks period if the local concern appears to warrant, recognizing again the blighting effect of published plans for improvement, whatever final or tentative. (Note: Evidently the British do not expect an "inquiry" to be exactly what the U.S. "hearing" is thought to provide -- an opportunity for stating views pro and con -- for the "inquiry" is generally regarded as providing an opportunity for presentation of "objections." The British approach is to provide opportunity for public contribution to the plan as it is being prepared, and to accept that the local planning authorities, competently staffed and supplied with adequate data resources, will take proper account of all representations made.) At the inquiry points previously made to the Secretary during the six weeks or longer period may be brought up for discussion. The responsibility of the inspector is to insure that the local officials have taken proper account of the objections. It is the responsibility of the Department of the Environment to see that the structure plan is in conformance with national and regional policies and plans of other public bodies. While the public is invited to contribute to the planning and the local authorities are required to give adequate publicity to their plans and planning, there is no question as to the responsibility and authority of the local officials to decide upon the plan and recommend its approval by the Secretary, and for the Secretary to approve it.

In order for the public to have ample opportunity to review and comment on the structure plan, local officials must make the details of the plan available for inspection in its own offices by groups competent to do so and to make abridged or popularized versions widely available throughout the planning area by use of the press and radio and television media, and by displays at convenient points, where the proposed plan and alternatives explored may be explained by the planning professionals to interested citizens or groups. Of course, the planners are expected to appear at meetings arranged by civic or neighborhood groups and associations, as during the preparation of the plan.

Stature of the Structure Plan

Once the recommendations of the inspector are made, the Secretary acts promptly, approving the plan or requiring modification as he regards necessary. Approval action is publicized in the local area, and thereupon the plan becomes the official framework for local planning and development. Local authorities may prepare and execute plans to implement the overall strategy and local planning officials may approve plans for private development that are consistent with the structure plan, but neither can public developments proceed nor private development be approved contrary to the plan without approval by the Secretary. With the Secretary obviously less subject to local pressures for approval of nonconforming development than are locally elected officials good adherence to the structure plan may be expected. Yet if conditions do not develop as anticipated, either economically or time-wise, for example, the structure plan may be modified to conform by repeating the procedures followed in its initial preparation.

Local Plans

In contrast to the structure plan, which is "approved" by the Central Government, the local plan is the responsibility of the local authorities and must be "adopted" by them. A local plan for development of the area as envisioned in the structure plan need not cover the entire area, but may cover only a portion of the area or a specific subject. In contrast to the structure plan, which is general in nature and illustrated diagrammatically only, the local plan is detailed and shows by maps precise boundaries and individual parcels of land affected. Thus in gaining acceptance by the public of the local plan the officials find objections arising from very subjective considerations of the impact of the plan on the individual citizen and on the neighborhood in which he lives. The requirements for the structure plan were deliberately designed to avoid its appraisal in a subjective manner.

Ultimately the members of the local corporation council must adopt a plan to which it may be assumed there will be objections by some or many of the citizens who elected them. But the council cannot adopt a plan that does not serve to advance the structure plan as already approved by the Secretary of State for the Environment, and therein lies the hope of success of placing planning and development responsibility at the local level.

Once the structure plan is approved the local authorities proceed with local plans for public and private development, giving first attention to the most pressing local problem areas or to areas of such national or regional importance that the Secretary may call for the preparation of local plans for those areas. Ordinarily, however, the timing is up to the local officials. The local plans are not expected to include as long a period ahead as the structure plan, in effect covering more nearly what would be called a program period in the United States. Whereas a Structure Plan might look 30 years ahead, the transportation phase of the local plan might cover a 15-year period - not much beyond the "pipeline" length of a major project such as a motorway or a transit facility.

As the plans are developed it is expected that the public will be encouraged to take an appropriate part as in the case of the structure plan. The surveys and analyses on which the plans are to be based must be available for inspection and the general approach and proposed content of the plan described and made known to the public. Again, however, discussion of specific alternatives must be handled with discretion because of the blighting effect even of proposals. Once a local plan for an area is completed it must be given wide publicity, and copies made available for discussion with individuals and groups concerned. At this point a copy of the plan is transmitted to the Secretary of State for the Environment with a statement of the steps that have been taken to publicize the plan and its preparation and to allow for its review by concerned parties. The Secretary must satisfy himself that the plan is in conformance with the structure plan and that the local authorities have taken the required steps with respect to discussion with the public, with officials of neighboring authorities, and with appropriate public bodies and Central Government agencies. During this procedure the Central Government acts through its regional offices, which are staffed to review all technical aspects of the plan, and with whom the local planning officials work closely as the planning progresses.

Six weeks must be allowed for representations by citizens or groups to the local planning officials with respect to specific features of the plan. If it is feasible to meet the objections, necessary changes are made to do so, but if not an inquiry must be held. This inquiry is held by an inspector appointed by the Secretary of State, but who reports his findings and recommendations not to the Secretary but to the local authority. Six weeks must be allowed after the decision to hold an inquiry and the actual inquiry. The fact that it is to be held must be given wide publicity and all objectors notified of their right to appear.

After the inquiry the local authority must consider all the objections and the inspector's recommendations and decide whether to adopt the plan or modify it. If it is decided to modify it, then the process of publicizing and hearing objections on the modifications, following the steps for review of the original plan must be repeated. Finally the authority decides to adopt the plan, gives wide publicity to it, and forwards a copy to the Secretary for his information. The Secretary then has four weeks to review the plan, within which time he may "call in" the plan for his own decision should he find that proper procedures have not been followed, that features of national importance have not been adequately treated, or that the plan is highly controversial or particularly complex from a technical viewpoint. Presumably the latter situation should seldom obtain for the local and Central Government officials should be alert to such situations and take steps to reach agreement on technical matters as the work progresses. Unless the Secretary acts within the four week period, the local authority may adopt the plan and it then becomes an official document, subject only to review in the courts on the question of compliance with statutory procedure. Copies of the plan must be placed on sale and index maps and other pertinent material kept available for inspection. The plan may be modified only by repeating the entire procedure.

The Planning System -- Responsibility and Authority

The system is being applied progressively, some regulations covering the procedures in detail having only recently been issued, and some, specifically those relating to citizen participation, still under consideration and held in abeyance pending more experience. Yet the system gives promise of feasibility and those responsible for its administration are optimistic as to its success. It leaves no doubt as to the responsibility and authority of the elected officials at local level and of the appointed officials at Central Government level in the process. Yet it requires citizen participation and formalizes the manner in which it is to be assured. And it is realistic in accepting that the citizen contribution will be heavily weighted on the "objection" side, and organizes the hearing process to provide that the objections will be heard and given consideration, but that the hearing or inquiry be confined to matters pertinent to the phase of the plan under consideration. Local officials must face up to their responsibility, but their authority is backed up by the Central Government.

PLANNING IN SCOTLAND

Scotland maintains considerable independence from the Central Government in London. While matters of overall British policy such as defense, economic development, foreign trade, and population distribution are considered in Parliament on the basis of the entire United Kingdom, others such as planning within the framework of U.K. policy are entirely the responsibility of the Scottish Office. The Scottish Office is headed by the Secretary of State for Scotland, who is a British Cabinet Minister. Within the Office, established in Edinburgh, are four departments, one of which is the Development Department, responsible for the physical and economic development of Scotland. Its functions include town and country planning, new towns, roads, housing, transport, utilities, and general local government administration. Each department is headed by a Secretary for that department and has, as well as staff in Edinburgh, liaison officers in the Scottish Office in London to work with their respective counterparts and with Parliament.

Parliament often enacts legislation pertaining specifically to Scotland, and under this procedure passed in 1969 the Town and Country Planning (Scotland) Act following generally the Town and Country Planning Act of 1968 applying to England and Wales. The Scottish Development Office is now issuing manuals and interim memoranda to implement the process called for in the legislation. Consultations and liaison between the local authorities and the Scottish office is handled directly from Edinburgh, rather than through regional offices. The organization of local government in Scotland is the same as in England and Wales, save for the spelling "burgh" rather than "borough" but which is pronounced the same.

The requirements for structure plans and local plans, including their content, manner of submission, review and approval procedures, and steps in publicizing the plans and planning and seeking public participation follow those of the 1968 Act. Each county and large burgh must prepare the structure plans and submit them for approval by the Secretary of State for Scotland, and in conformance with that plan prepare and adopt local plans to carry out the approved strategy. Where problems involve more than a single

authority, such as a large burgh and the urban fringe in the adjoining county area, the two (or more) authorities may be required to develop their structure plans for the area jointly and submit them simultaneously for review and approval.

Scotland has been divided into eight regions for economic planning, and under anticipated re-organization of the structure of local government in England and Scotland, these regions would become more significant factors in planning and development. Each would be set up as an authority governed by elected members, and would have right to levy "rates" to raise funds for developments of regional significance. The authority would have responsibility for preparing the structure plan but the local jurisdictions within the region would still have responsibility for matters of local significance and for preparing the local plans.

Development planning has been carried on formally in Scotland since 1947 under the Act of that year that required such planning for all local areas, with provision for updating the plans at five-year intervals. All jurisdictions have prepared the plans, following the requirements of the earlier legislation for showing the planned development almost on a parcel-by-parcel basis. This approach proved unsuitable and unrealistic and some authorities have done little toward the required updating. Beyond that, while planning for the various functions, such as transportation, was intended to be carried out cooperatively with planning for land use and other related functions, too often it was not. And finally most of the plans had given inadequate consideration to the unanticipated emergence of the motor vehicle. In the early post-war years the general use of the private vehicle for urban transportation seemed most unlikely and consequently that mode of transportation was given little consideration.

Thus Scotland was ready to move toward the new development planning system and is approaching it with enthusiasm. Problems of transportation and pressure for local developments, both public and private, demanded immediate attention, and the product of many of the detailed studies for local improvements can be important inputs into a realistic structure plan. So with full acceptance of the present requirement of closely integrated land use-transportation planning, and with the responsibility for both resting in the same department in Edinburgh, structure planning and planning for certain local developments, both under the same authorities at local level, can proceed together without hazard. The change-over from the old to the new system is being gradually and easily accomplished.

PLANNING IN SELECTED CITIES

Opportunity was afforded to observe the manner in which the planning system is being applied in three cities - Birmingham, Liverpool and Glasgow. It is not to be expected that these three cities offered representative examples of planning in practice; rather they reflect what can be accomplished where planning is effectively handled. Characteristic of all three cities are several factors:

(1) Planning is regarded as a line function and is carried on by city planning departments headed by professionals who report directly to the corporation councils.

(2) The departments are large and well staffed with professionals in a variety of disciplines. In Liverpool, for example, there are some 90 professionals in a department totaling some 130 employees.

(3) The planning departments have responsibility for functional planning, as well as for land use planning, up to what might be termed project design stage. In transportation, for example, the planning department carries the development of the plans for main highways through the stage of corridor selection, location and schematic design of interchanges and major intersections, and fairly specific decisions with respect to line and grade and related requirements for noise abatement, landscaping, and similar environmental protection features. Close liaison is maintained with the city engineering departments in all cases, however, as the planning progresses, and while the responsibility through those stages rests with the city planning departments, the final product is the result of practical cooperative effort.

(4) Planning is carried on with realism with respect to resources likely to be available. The planning itself is financed locally, except as noted earlier, the cost of the transportation phases can be reimbursed to the extent of 50 percent by Central Government grants. These grants are in addition to the grants for general government support (what might be called block grants in American parlance) that are apportioned to the local authorities on the basis of population and need, the need being expressed in relation to the funds that can reasonably be raised through "rates" as the local tax revenues are termed. These grants can be very substantial, as much as 65 percent of the total local authority budgets in Scotland for example, where the entire country has been designated a development area. In the transportation area substantial Central Government grants earmarked for the purpose of "executing" transportation plans are also available. While such

grants are not formally apportioned over long periods ahead, the Central Government gives assurances that prospective grants, while not commitments, are estimates that may be accepted with confidence as valid for planning purposes. These grants must be supplemented from the general funds available to the local authorities made up from local rates and general purpose government grants combined. Grants for "principal" highways (the main road system in the urban areas) must be matched 25 local-75 Central. Grants earmarked for transportation may be used for highway and street construction or for capital cost of transit improvement, but not for operating or maintenance expense. While these transportation grant funds are apportioned among the various cities administratively on the basis of transportation needs, the rate at which they flow to the different cities will depend to some extent on the ability of the local authority to "take them up" and apply them to advantage. For this reason improvements in transportation facilities may move ahead much faster in some local areas than in others depending on the importance placed on that factor in the local area, and the ability to program planned improvements. For example, particularly in Glasgow and Birmingham, redevelopment programs in residential and industrial districts have cleared extensive areas, within which transportation facilities related to the newly planned land use can readily be fitted. Where redevelopment is less extensive (more comparable to the situation in the United States) transportation improvement programs proceed with more difficulty and at a slower pace.

(5) The Planning Authority can approve all private development plans as well as having responsibility for coordinating public programs with the approved development plan. Housing may be provided through Public Sector Housing (called "council" housing rather than "public" housing since a public house is a "pub" in Britain) or by private developers in what is generally called "estate" housing. There is only a small amount of individual single home building. In industrial development new or expanded industrial development involving more than 5,000 square feet of space must have a Central Government certificate. Such development may be in a single plant, as an automobile assembly plant, or individual firms in an "industrial estate" (a privately financed industrial park in American terminology) or in a "council" industrial development area. In any event the industry may locate in the area only with Central Government approval, and often is encouraged by tax advantages or other subsidies from the Central Government or local authorities. But its specific location within the area is the responsibility of the planning department, and approval depends on the ability of the local authority to provide the services needed, with transportation perhaps leading the list of services to be considered. Likewise, the planning department has responsibility for planning and coordinating development of parks and open space, cultural centers and the general location and density of commercial and retail space and related transit, street and highway, and parking facilities. Development is being made compatible both in function and timing through effective application of this authority.

(6) The planning departments have responsibility for organizing public participation and education with respect to the plans in process and holding the required inquiries. Ultimately the plans produced by the planning departments require approval or adoption by the corporation councils. The council operates through committees, a committee of council members being responsible for a particular function such as education or transportation. In the case of planning, however, in at least one city, the committee consists of the entire council membership. They can hear advocates of the various functions with respect to any differences that have not been reconciled between the planning department and a department responsible for a specific function, prior to considering a plan for formal action. Decision, through recommendation of a structure plan or adoption of a local plan, rests ultimately with the elected officials.

(7) The planning departments maintain close collaboration with their counterparts in the adjoining local authorities, and with the Central Government through the professionals, in the regional offices in England and in Edinburgh in Scotland. Thus there is reason for confidence that the plans prepared for approval or adoption will move ahead to such actions somewhat as a formality.

The proof of the effectiveness of the planning system can best be seen, of course, in its acceptance in the form of programs in being or committed. A brief description of some of the problems and how they are being met follows:

BIRMINGHAM

Current transportation planning in Birmingham is primarily based on the comprehensive land use-transportation planning study of the West Midlands Conurbation, begun in 1964 by American consultants working together with the staffs of the local authorities. The report of the study was published in 1968, showing estimates of travel demand in 1981 and 2001 based on anticipated land use. The basic data are being kept current largely through the day-by-day operations of the various departments of the several local authorities. Analyses of the data and planning for current and future programs are being carried on by a staff located in the city of Birmingham but planning on a conurbation-wide basis.

With the broad powers to control development resting with the local authorities means are at hand to insure the desired form of redevelopment and growth of the area. Like many eastern American cities Birmingham has grown from a small center served by routes radiating to other parts of the country to a major metropolitan area (second only to London in population). It was and still is a "downtown" oriented city with much of its area ripe for redevelopment if not already redeveloped. Much of it, particularly in the University area, is of relatively recent construction with good and useful life expectancy. In contrast to American cities redevelopment in areas where it is needed because of obsolescence or high population density is in progress or in prospect. It is the redevelopment program that at the one time gives opportunity for highway development to serve the downtown area, and also to embark on a deliberate policy, whatever it may ultimately be decided to be, to direct new commercial and residential growth toward the city center or to a suburban pattern. At present both patterns are possible and both are being followed. Looking toward the end of the century, however, choice will have to be made.

Transportation Policies. Basic to land use development is an inner ring road about a half mile in diameter encircling the business district. This road was planned and construction started soon after the war, well before the current approach to planning was begun. In principle it was and is regarded as sound, although there is thought that were it to be planned today the ring would have been larger in diameter and probably would have been to higher design standard. As it is, however, it is an effective highway facility, built to expressway-at-grade standards with grades separated at intersections with the major radials. Generally it is six lanes in width with additional parking lanes.

The intersections with the radials have provided opportunity for ingenious treatment. Uniformly provision for pedestrians at separate grade is made, and in some cases there are opportunities for shops associated with the below-grade sidewalks as well. The intersections between the "ringway" as it is called and the major radials generally include intersections with other streets as well, so a common pattern is a "gyratory" into which the local streets feed, with the ringway depressed or elevated and connected to the gyratory by diamond type ramps. The gyratory in one case includes about an entire city block within which are being developed activities usually associated with a cultural center. Another provides space for a park and a memorial to former President Kennedy.

In order to assure land use compatible with the transportation facilities that will be available, and vice versa, the local authority can and does acquire land for lease to private developers as well as to build on its own account. An office building may be constructed by a private concern, for example, but with strict controls over its size and appearance, the number of parking spaces that are to be included, and even to the rate structure and hours of operation of the parking facility. At present publicly-owned short-term parking facilities are often not opened until ten o'clock in the morning and a rate structure is applied to encourage short time parking for shopping and business purposes, and to discourage the all-day parker. While such controls cannot be exercised over present privately-owned buildings, they can and will be under the terms of the leases of buildings to be built in the future on land to be leased from the corporation, as a condition of the lease.

Parking is generally in multi-story buildings because of the need to conserve land and is financed on an "economic" basis (The revenues will meet the operating expense and in reasonable time amortize the initial cost). Multi-story parking is also found in suburban shopping centers and in the centers of the "new towns" as well, both to conserve land and keep the parking near the traveler's destination. As a dividend there are few "eyesore" ground-level parking lots as in American cities. (Note: This may be partly attributable also to the fact that with public control of development obsolescent buildings once removed are quickly replaced with the planned redevelopments, and owners or lease holders of the land are not faced with the need of producing some tax-paying revenue pending the construction of new buildings.)

As noted earlier, all planning is under the city planning department, with the product of the transportation planning geared to land use planning and to overall development policy. In the transportation area it is recognized that population growth in the area and increasing income levels will result in greatly increased car ownership and desire for use of the motor vehicle. The policy appears to be to provide for the maximum use of the motor vehicle consistent with the space that can reasonably be devoted to it. It is assumed that most shopping, business, and recreational and social trips will be made by motor vehicle, and that so will work trips to the extent that provision can be made for them. To this end it is planned to provide 25,000 long and short term spaces in the downtown area. The long term spaces will be served by the principal traffic routes, such as the inner ring, and the short term spaces will be located within the central area. The goal of 25,000 spaces compares with the 9,000 cars parked in the city center in 1968-69, an indication of the policy of providing for the maximum personal travel. The figure was arrived at not by the demand or desire for parking so much as by the capacity of the street and road system to accommodate that number.

To accommodate trips beyond those that the parking facilities can accommodate and the trips by those who do not have access to a motor vehicle or prefer not to use it, public transportation will be provided. With the transit systems owned by local or regional authorities, transit service will be planned to provide effective supplementation of motor vehicle travel as needed. In Birmingham as in other British cities travel by rail is commonly accepted, particularly for commuting, but such transportation is the responsibility of British Rails, a Central Government function. Track and equipment is generally good and well maintained, cars are clean and service frequent and fast. Yet despite the usual image of heavy rail commuting in England, peak period work trips to the downtown area in Birmingham in 1964 were divided 72 percent by bus, 18 percent by private vehicle, and 10 percent by rail. By inspection it is concluded that just about everyone arriving by rail walks from the station to his destination. (Note: The British seem to like to walk and to walk fast.) But since 1964 it is certain that there has been a swing toward the private vehicle (whether away from rail or transit was not ascertained). And in planning for the future the swing might be expected to be strong, more away from transit than rail.

Housing Policies. With respect to residential development provision has to be made for both population increase and relocation of residents of areas to undergo redevelopment. Most of the new housing is publicly built "council housing." When extensive redevelopment and slum clearance began in Britain after the war the policy was to resettle families from the three or four story tenements to high rise buildings, both from the viewpoint of conserving land and for economic reasons. The high-rise buildings were expected to be cheaper to build and maintain than the same number of units in three or four story developments. What was not anticipated was the general distaste for high-rise living especially by families with children. Beyond that the hope that relocating people from a neighborhood into a single building would somehow preserve the social advantages of neighborliness did not materialize. Consequently there is now a shift away from high rise apartments to lower buildings even at the expense of greater land requirements.

The housing situation is complicated by the question of renting as against owning the residence, a political as well as an economic issue. The Labor party, both nationally and locally is committed to a policy of rental, whereas the Conservatives would encourage and make possible eventual ownership of the living space. Thus the policy differs from time to time and from place to place. Rents are heavily subsidized and are not dependent on income of the renters. Council housing is expected to be amortized through rents, but only over a very long period, and is financed by Central Government loans at low interest, supplemented as required from local rates. At the present time (1971) the whole question of housing policy, particularly the level of rents and the establishing of priority for admittance to new housing is under review at Central Government level. And the change in policy in Birmingham as well as in other cities as experience has shown that to be desirable, is sure to have influence on transportation requirements.

In Birmingham new housing is increasingly oriented toward low-rise construction, and as such space becomes available it will be occupied generally by families with children. At the same time as space becomes available in high rise buildings preference will be given to families without small children. Progressively space will be available only to families with no children below five years of age, for example, then eight or ten and so on until the high rise buildings will be accommodating only adults. It has been found that families with children do not like high-rise living and families without children do not favor families with children as close neighbors. Thus it can be expected that in and near the downtown area high rise apartments will continue to be built, but that they will be occupied by single people or childless families, presumably working in the downtown area and within walking distance of their employment. As the families with children are transposed gradually to suburban areas or the outer areas of the central city, they will require provision for personal transportation or greatly improved transit service. And of course this policy will have impact on other functions as well, particularly schools.

This recital of these few aspects of the housing problem and policy in Birmingham is not so much to emphasize the importance of housing policy in relation to transportation just in that city, but is believed to be reasonably typical of the experience in other British cities. Beyond that it shows how closely bound together are land use and functional planning, particularly transportation planning, and how planning and growth policy are interrelated for both economic and political reasons.

Transportation Planning and Programming. Transportation planning in the Birmingham area involves connections to other parts of England by air, rail and highway, with emphasis on rail and motorways. Two motorways intersect near the city, and this intersection will become the center of a major exhibition area to be developed by the Central Government. Normally motorways (the "backbone" of the trunk road system built and financed by the Central Government) are not located within the corporate limits of major cities. In the case of Birmingham, however, by agreement with local officials M6 runs through the northern edge of the city, and gives ready opportunity to connect this route and consequently the motorway network with the

city center. Two interchanges lie within the city limits, but the ramp designs are such as to prevent the motorway link within the city from being used by local traffic. The major interchange connects with a trunk road leading to the inner ring road noted earlier. This is designed to motorway standards, having available a path through an area proposed for redevelopment, and provides for three lanes in each direction with a seventh lane in the center designed for reversible operation. This awaits only the opening of the interchange with M6 to be put into service, and thus to provide excellent connections for intercity personal and goods movement. A connection is provided with the middle ring road now also under construction, and like the inner ring road built to expressway standards with major intersections at separated grade. As with other "principal" roads these programs are the responsibility of the local authorities but can receive 75 percent of the construction cost reimbursed by the Central Government from funds earmarked for transportation purposes in the budget.

By similar cooperative approaches other trunk roads in the region are being brought into and through the city, although none to the high design standard of the Aston Expressway just described. This approach, requiring close cooperation between the local authorities and the regional offices of the Central Government is producing the needed intercity connections of the national trunk road system and the roads and major streets needed for circulation within the area. Support from the Central Government for the required long range program is assured (although not formally committed as noted earlier) and awaits only the decision of the local authorities to appropriate the required 25 percent matching funds to advance the program.

The road and street program is well along in its construction and program stages, and will, as also noted earlier, provide the maximum access to the city center and to the development districts throughout the area that reasonable use of land and preservation of amenities will permit. It will provide access by motor vehicle to the city center sufficient to support a considerably expanded commercial and retail development, and permit the continued increase in center city activity while development in outlying city and suburban areas also goes ahead. Ultimately, however, when the capacity for access by private vehicle has been reached, policy decision will have to be made as to whether to allow further development in the city center when the additional access that will be required will have to be provided through public transportation.

Toward this end the transportation planning studies are now strongly oriented to transit planning, to attempt to learn how transit service can be made sufficiently effective and attractive to offer an alternative to the motor vehicle and not used only as a last resort. While the availability of the motor vehicle is increasing at a fast pace, it has not yet become virtually the sole means of personal transportation as it has in the United States. Thus the hope is that some sort of transit system and service can be developed and operated within resources likely to be available to slow down or arrest the rapid swing to automobile commuting that otherwise is to be expected. The hope is to keep those not yet oriented to the automobile as continuing patrons of public transportation rather than having to wean them away from it at some future date. Yet with increasing affluence and the inadequacies and limitations of current transit and rail service it will be a difficult hope to realize. And the degree to which it can be accomplished will be a strong factor in the extent of development that may be allowed in the city center, and collaterally the effort that must be given to the planning and programming of decentralized activities -- residential, industrial, commercial, recreational and cultural -- toward the end of the century. One thing seems certain, however; planning and execution will be coordinated and realistic.

LIVERPOOL

The principal feature covered in the visit to Liverpool was the approach to public participation in planning. The experience in Liverpool could very well have described the situations that have developed in many American cities, although it is inferred that the public meetings are less clamorous and the participants more restrained than in some that have been held in the United States.

The city planning department is responsible for organizing public participation in the structure plan and for the functional planning up to about design stage as in other British cities. In Liverpool efforts to bring citizens into the planning process began as early as 1963, with the decision of the Corporation Council to set up Community Councils to serve as forums for discussion of local planning matters, each covering an area having population in the range of 10,000 to 25,000.

The councils are organized under the guidance of community development officers paid for by the city who draw together a group within each area hopefully representative of the citizens of that area. Often they are middle class professional or business people who are not necessarily cross sections of the

population but who because of their civic activities and acquaintances, hopefully reflect the majority views. The need for some group to reflect the "majority" views is that the turnout of voters in municipal elections in Liverpool is only about 30 percent of the electorate. (Note: This seems to underline a question that has yet to be answered in the United States: Do, can, or should the elected officials represent the views of the majority of the electorate?) One complication that sometimes develops is that the community council finds itself working at cross purposes with other civic or locally organized groups.

The purpose of the community councils is to offer the planners or other officials a continuing opportunity to inform the public as to the planning that is underway for the area, the policies of the corporation council with respect to the development of the whole city, and the way in which this is all related to national and regional goals and policies. It is a means of giving out information and soliciting reactions to guide further planning, the planners taking into consideration the suggestions received as their work progresses.

Under a definition suggested in Liverpool this type of participation is called "induced" participation, within which the individual citizens or groups are advised of established policies and decisions and asked to discuss alternative approaches toward their implementation. This is a sort of semi-formal step taken in advance of the formal inquiry that is required prior to plan adoption, and is regarded as helpful to the officials in taking account of objections "early on" in the planning. The planners felt, however, that public participation should begin still earlier, at a time when the community councils might be asked to consider the policies themselves, under an approach they would term "indicative" participation. Under the 1968 planning act the public must be given an opportunity to object to a structure plan at local level and subsequently, if desired, at national level. Indicative participation would be a semi-formal step in advance of the inquiry on the structure plan, and presumably would make more meaningful proposals or representations by the local citizens and groups following the publication of the survey, required as the first step of the planning under the 1968 Act, and during the preparation of the structure plan.

Public Participation - A Specific Example. A recent public participation effort (April and May 1971) that has attracted attention nationally is seen in the Queens Drive project connecting M62 to the inner ring road. The ring road is under construction and the radial connection would traverse an area within which much of the residential property is owned by the occupants and is of such quality and age that renovation rather than redevelopment is indicated. The area is bounded on one side by a rail line and associated yard facilities. Decision has been reached to build the connection. The question is as to the alinement, not the details of design nor specific properties to be involved, although the various alternatives proposed fairly well indicate which parcels were likely to be affected.

The plan for the exercise called for two introductory "exhibitions" at which the situation was illustrated by maps and other visuals, and the advantages and disadvantages of the different alternatives described. Senior officers from the planning and transportation departments of the city were on hand to explain any points the people attending wished to discuss. The exhibitions were held in halls convenient to the people of the area.

Following two days of exhibitions two public meetings were held on consecutive days about a month later. A member of the Corporation Council chaired the meeting (the Chairman of the Transport and Basic Services Committee of the Council) and four "local personalities" were invited to form a discussion panel. Questionnaires were distributed to ascertain the participants' reactions to the specific proposals for route alinement and to give opportunity to list their reasons for and against each. The questionnaire was designed also to elicit suggestions as to how the process of enlisting participation by the citizens might be improved.

The results of the questionnaire returns as to the preferred route were probably foregone. Three of the five went through residential areas, and the others for the most part over the railroad. The railroad alinement was preferred by 89 percent of the 365 who completed the questionnaires. The result could hardly have been unexpected, but it was disappointing in that the exercise did not produce much useful information to guide the planners with respect to route location within residential areas.

The principal reason for preference for the railroad alinement was largely negative - it took the fewest houses - and was given by 220 of the 365 respondents. The loss of the home as a reason for opposition stemmed largely from the inability to acquire a new home for the amount allowed (the British can pay only fair market value) for the one to be taken, or to get reasonable interest rates on a new mortgage. Other reasons included neighborhood disruption and increased distance that would be involved in the journey to work.

The proposals for improving public participation were also disappointing. Two hundred and twenty-five of the 365 respondents had no suggestions. Those who did have views saw improvements that would be desirable as including more information farther in advance, an open vote at the meetings, and an "independent" chairman, hardly a helpful array.

Discussion at the public meeting illustrated the problems of holding questions within the particular phase of the planning under consideration. Some questioned the need for the motorway with its presumed disruptive impact, not accepting that decision to proceed with the project at some location had already been made. Other questions related to specific design features or the impact on specific parcels, a phase to which the project had not yet advanced.

The city planning department is continuing to explore the manner in which public participation can best be achieved, hoping to convert it from an induced to an indicative character. Local groups are being asked not merely to comment on alternatives for specific projects, but as to the functional areas to which they feel the corporation should give priority. While they may be asked to give their views on a high-way location, for example, it may be that they believe that resources could better be devoted to schools, parks or some other functional area. One experiment in ascertaining the preferred area has given the participants at a meeting a certain number of "chips" representing funds available and asked that they place them on spaces in a diagram showing the specific functional areas to which they would apply funds and in what amount, were the choice theirs. Transportation has not rated high in such experiments. (Note: Perhaps this indicates again the subjective view that seems not only natural but inescapable.)

Transportation Planning and Programming. Whether or not meaningful citizen participation will be introduced into the planning process in some formal way, plans for development, including transportation, are well advanced and development is proceeding under firm control. Liverpool relies heavily on manufacturing and activities associated with its port for its economic base. Good communications with London are essential, and in line with national policy intercity travel by rail is emphasized. Hourly service in comfortable equipment is provided throughout the day, with more frequent service morning and evening. Some schedules for the trip of approximately 200 miles are as short as two and a half hours, city center to city center. First class fare is less than air coach, so the service is heavily supported by businessmen and general travelers.

So far as intra-city and intra-regional travel is concerned, Liverpool is planning for a continued orientation toward the downtown. Recently a proposal by a private developer for a major shopping center at a motorway junction in a suburban location was rejected on the grounds that it would hurt the downtown business. As a corollary good transportation must be provided from the expanding suburbs to the city center, and this is to be accomplished by the inner ring road and radials to be built to freeway standards with some sections already open to traffic. Access to downtown by bus is also regarded as essential, of course, as is the provision of parking garages. As in the other cities visited development of the various modes of transportation is kept in balance with the development of residential, commercial, industrial, and other development.

The Liverpool area is the site of a new town, Runcorn, now being developed. New towns are built by corporations set up by the Central Government to which long term loans at low interest rates are available. Amortization is not expected in less than 75 or 80 years, but the experience to date is not sufficient to gauge whether this period is realistic. Planning for the new town must be approved both by the local jurisdiction and by the Central Government, although broad latitude in the plan is allowed. New towns are designed to be self-contained in that they provide for industrial development and housing for the employees, although it is not expected that everyone who works there will live there, or vice versa.

Runcorn is located on the main rail line from Liverpool to London, within a few miles of Liverpool, so commuting to Liverpool by rail will be convenient and presumably a significant factor in the planning. A community center is under construction, a prominent feature of which is a multi-story parking facility. Yet the scheme of transportation intends to emphasize the bus as the preferred means of internal personal travel. There will be a "figure eight" loop, crossing at the community center and serving the residential areas. Housing will be located in such a way as to make access to the bus line convenient, and to the parking for private vehicles less so, to encourage shopping and similar trips by public transportation. How this will be accepted of course remains to be seen.

Liverpool represents forward-looking development, with more than average concern for the social impact of its programs. The city planner is currently the President of the Town Planning Institute, a prestigious office, and he heads a large and competent multi-disciplined staff. The effort to bring citizens

into the planning process is a serious one, and requires a delicate approach. To seek the citizens' views and to make them feel that they have a part to play in the basic policy decisions as well as in the local planning, without surrendering the responsibility for ultimate decision by the elected officials, is not an easy assignment. The effort, to succeed, must involve not only the input from the citizens but the translation of their views into plans and programs that will be acceptable to the functional program officers who must seek their budgets from the corporation council. With the somewhat inherent distrust of the planners who sometimes are thought by the professionals in the program areas simply to propose what the citizens want with little regard to cost or efficiency, there is little likelihood, when all concerned report to the one group of elected officials, that planning can reach much beyond realism. Yet without citizen support neither planning nor programming is likely to succeed in the years ahead.

GLASGOW

A visit to Glasgow is an inspiring experience for a transportation planner, and should be for a planner of any variety. Faced with the necessity of replacing obsolete housing on a massive scale and encouraging a diversity of manufacturing to take up the slack of a declining ship building and associated heavy industry within the area, the city with the encouragement of the Scottish government is well along in a bold redevelopment program. The program is based on and is closely following an overall continuing planning process within which transportation planning receives major attention.

The obsolete tenements were uniformly four-story buildings completely surrounding a hollow square. In the center, as they were built mostly in the early nineteenth century, were open areas originally used for outdoor toilets, but which were later superseded by stacks of toilets attached to the outside rear walls of the buildings, each serving four families on each of the four floors. It is their living pattern - a density of 450 persons per acre and totally inadequate sanitary facilities - that made redevelopment so urgent.

In an effort to retain as many as possible of the displaced tenants within the city and in or near the same neighborhoods, and with a criterion of 150 persons per acre as the maximum residential density under redevelopment, two courses were followed. As many as possible were relocated in high-rise buildings in the same area, the others dispersed to the outer edges of the city, to council housing in the surrounding rural areas, or to the new towns East Kilbride and Cumbernauld. Some rehoused in the new towns found employment there, while others commute to Glasgow by rail or bus.

It was expected that the high-rise buildings would be cheaper to build and operate than lower-rise construction, even with the cost of elevator service, and it was thought that regrouping people from a block or a neighborhood in a single building would retain the neighborhood solidarity that is important to many. Neither proved to be the case. Of course, replacing the four-storied buildings with high-rise construction and at the same time reducing residential density by two-thirds opened up a good deal of land for other purposes. Full advantage is being taken of this opportunity by providing parks and open space and land for new commercial and light manufacturing activity, especially for transportation facilities.

It was recognized early that such all encompassing redevelopment could not be effective without an overall plan, and a strong city planning department was established, reporting to the Corporation Council as in English cities. It is well staffed and quite adequately funded to take advantage of consulting services as needed. It works in close cooperation with the functional program departments, particularly the City Engineer. The importance of maintaining both general planning and transportation planning on a continuing and coordinated basis is seen in a major change that has been made in the housing pattern based on the early experience, with its consequent change in travel pattern.

It has been found that the high-rise buildings are not economical due to higher-than-anticipated maintenance and operating costs, vandalism being somewhat a factor. (Note: The vandalism as described does not approach that reported in many American public housing developments.) Beyond that the neighborhood did not seem to be transferable to a high-rise building and the living conditions, while beyond comparison with those in the housing left behind, were not well accepted by the tenants. As in Birmingham, families with children did not like elevator living, and those without children did not appreciate the other families' children in such confining quarters. So as a matter of policy, Glasgow will build no more high-rise Council houses. (Note: It could be that there would still be opportunity for privately-financed high-rise apartments near the downtown area.) It has also been found necessary to provide much more parking space than was provided in the early developments. Whereas originally space was provided for one car for each three units, now the plans call for 1.10 to 1.15 parking spaces per unit.

This policy change, of course, has a heavy impact on transportation plans. With most land in the city already taken up or programmed for development virtually all new housing will be built in the surrounding rural areas, and many small towns in the area will attract families displaced from the central city. And, of course, this dispersal of population will mean longer trips to work and for other purposes, and the need for personalized transportation and more widespread transit service than originally expected. The present transportation planning shows how transportation can be responsive to changes such as this.

Transportation plans are based on the Greater Glasgow Transportation Study covering the "Clydeside" Area in the mid 1960's. It was conducted by American consultants cooperating with local officials and consultants. It is being kept current, based on data supplied by the program departments of the local authorities on a continuing basis, and analyses and plan development are being carried on by consultants employed jointly by the city planning department and the city engineer on a continuing basis. The consulting agreement is with two firms in a joint venture, one an engineering and architectural concern and the other a firm of landscape engineers. Under this contract development of highway facilities is carried on, as extensions of the staffs of the two departments, from the original planning phases through to final design plans including details of landscaping and other environmental preservation treatment.

Transportation Planning and Programming. With the pattern of residential development now fairly well established and with good control over industrial, commercial, and other development, public or private, the demand for travel and transportation can fairly well be forecast. It is estimated that the 2,000,000 residents made 3,000,000 daily trips in 1965, a number that will have increased to 5,000,000 by 1990. The modal split, now two-thirds transit to one-third private vehicle is expected to be reversed. And the length of trip by private vehicle will increase from four and a half to seven miles. Thus the increasingly important role of highways in serving and helping shape the area is clearly apparent. The total transportation program envisioned to meet 1990 needs calls for an investment of 485 million pounds (\$1,200 million) of which highways represent about 80 percent. But it is calculated that the area will receive two pounds worth of benefit for each one pound spent. While this is strictly called a plan, it is based on expected resources and much is already in program stage or effectively committed. Like the overall plan for redevelopment of obsolescent residential and industrial areas, it is indeed a bold plan, yet eminently practicable.

As in other British cities access to the downtown area ranks highest in importance in planning, and maximum access by all modes is being provided. Much commuting to and from work is by rail now, and it is hoped that this service can be expanded. Passenger service on many branch lines has been curtailed or suspended over recent years as the private vehicle has taken over. British Rails is proceeding with a program of electrification, however, which will eventually reach Glasgow (it is already half way from London) and efforts are being made to have the electrification extended to some of the branch lines. With the population increase expected in the suburban areas that some of these lines serve it is hoped that a well designed feeder bus service to the local stations might induce sufficient travel to warrant resumption of service. With the compact downtown area, most travelers could reach their destinations by walking. Service where it is now provided is rapid and popular, and it is to be expected that an expanded service would be well received by those working or shopping in the downtown area.

Glasgow recognizes, however, that over the full day, if not in morning and evening peak periods, the motor vehicle - passenger car, bus, and truck - will provide the preferred mode of travel and goods movement. Maximum access by highway to the downtown area consistent with preserving its amenities will be provided, and a system of motorways and expressways will permit easy communication throughout the region. Plans envision an expressway and motorway system of 285 miles anticipated to cost 380 million pounds (nearly \$1 billion at nearly \$4 million per mile). It will include three circumferentials, each having to cross the Clyde River or its estuary, and ten radial routes. The system as well as providing quick and easy access to the downtown area will interconnect the many small communities that are expected to grow as redevelopment continues. As noted earlier the plan is realistic in that it is based on anticipated resources. Some sections will be built by the Scottish Government as motorways or trunk roads to high design standards. Others will be built by the local authorities on the 25-75 matching-basis, the Central Government's share of which is expected to be available by implied commitment although not yet formally apportioned. The fact that Glasgow has an adopted plan and a program ready to go may be in its favor in gaining financial aid in transportation from the Scottish Office.

The most visible result of the redevelopment program - and indeed most impressive - is the highway improvement associated with the redevelopment of the downtown area. Here an inner ring designed to motorway standards encircles the central district with a loop of about a mile in diameter. Much of the land required has become available through the removal of obsolete residential or manufacturing buildings, so the

highway could easily be accommodated as a feature of redevelopment. Generally it is six or eight lanes in width, plus shoulders, but some sections are wider. Connections will be made with the principal radials, and ramps to give access to local distributor streets and parking facilities are being provided. Computer-operated signal systems and one-way traffic patterns on existing streets give flexibility in traffic management as the program advances. Ultimately (and soon, for the entire loop is either open, under construction, or programmed) there will be no reason for through traffic movement on the downtown streets.

As the highway program progresses redevelopment of the area also proceeds. Many buildings have historic value or architectural merit, and these will be retained with their exterior appearance unchanged, although they may be remodelled within. Private interests - banks and companies needing office space - are financing these improvements. The local authority is building, for lease, buildings to house light industry, as a shift from the declining heavy industry is appearing, and finding ready tenants, with good access for both employees and raw material assured. Presumably this new industry will also give employment to some of the tenants now housed in reasonably nearby high-rise council housing.

With the highway program well in hand, the planning department expects to devote major attention to the transit system in the period immediately ahead. Recognizing the need for transit service in addition to travel that the private vehicle will accommodate, both to the city center and throughout the area, reliance will be placed on the bus. There is no thought of extending the rudimentary underground rail loop now existing within the downtown area. The bus is seen as a means of providing better public transportation over the freeway-expressway system as it advances, with the route flexibility of the bus system permitting the service to take advantage of new routes or sections of routes as they are opened. It is also seen, as noted earlier, as a feeder service to the revived rail system if British Rails agrees to the extended electrification seen as needed by the local planners. And the bus will provide for the short trips throughout the area and express service, again taking advantage of the freeway-expressway network, between outlying centers. With automobile ownership increasing very rapidly it is thought to be urgent to offer improved bus service promptly to avoid further loss of transit patronage. Once a family becomes a two-car household the likelihood of regaining lost transit riders seems remote.

Intercity travel to and from Glasgow differs from that in English cities, because it is far enough removed from London to make air travel between those cities feasible. Also direct travel between Glasgow and European cities is important to Glasgow's economy. In travel to America, it faces competition from Prestwick but in any event Glasgow's airport and good access to it are important factors in redevelopment. A motorway connection between the airport and the inner ring is nearly completed, with the remaining sections delayed because of early local opposition in a high class residential area the route traverses. The fact that agreement to proceed has been reached is regarded as proof of the value of a responsive program of public participation.

Public Participation. Early in the redevelopment planning (at the stage that is now included in the structure plan) intensive programs of public education were begun. At public meetings the existing situation and problems for the future under various alternatives were discussed by the city planners and views of the citizens solicited. As the planning progressed and implementation by the earlier programs begun the people were kept advised through informal processes. By the time the general plan for the area had finally been drawn up by the planners, the public had been well informed as to the needs, and the means by which they were to be met under the plan proposed for adoption were portrayed in a formal exhibition set up at convenient location in the downtown area. Here permanent exhibits were displayed in the form of maps and charts describing the proposed redevelopment. Illustrations of the existing conditions of housing and industrial blight were contrasted with the proposed redevelopment and pictures of early accomplishments in these areas. The systems of parks and walking and bicycle trails connecting them were illustrated. How the transportation network would serve the redeveloped area was well described. Costs and means of assembling the necessary resources were covered by the displays. And a 30-minute motion picture gave a background review of the whole planning process and what it was designed to achieve. The exhibit has been open for several months and has been viewed by thousands of people. The high quality of the workmanship, carried out by the staff of the planning department, has contributed to its wide popularity.

This exhibition covers more or less what would be expected to be included in the structure plan under the 1969 Act. Its effectiveness is reflected in the acceptance of the plan by the elected corporation council and its approval by the Secretary of State. While there seemed to be some feeling in Edinburgh that Glasgow's plan emphasized highways unduly, the choice under the planning system is clearly Glasgow's, and the Scottish Government is participating fully in its share of the program execution. Glasgow's approach does not typify that of other cities. Edinburgh is still working toward its structure plan, employing a consulting firm - Colin Buchanan, IRF Highway Man of the Year - to advise the council. There is a definite feeling,

however, that Edinburgh will not follow the lead of Glasgow to a motorway system in its downtown area. The reasons evidently lie in the difference in physical characteristics and the economic and social bases of the two cities. The existing street system in the downtown area is reasonably adequate, and the need for redevelopment, such a major factor in Glasgow is not evident. Government employment is a major factor in the economy, with financial, retail and tourist businesses prominent. It is the home of the British Royalty when in Scotland, the site of Edinburgh Castle, is well supplied with parks and open space and with cultural opportunities. It probably does not need motorways downtown, but improvement in radials within the city would seem important to retention of the dominant position the downtown area now holds.

Acceptance of the overall plan or strategy does not mean acceptance of all the features that must be developed in the local plan stage. The airport freeway, as noted earlier is an example. Here there was support for the freeway in the rural area between the airport and the city, and no reason for opposition within the areas slated for redevelopment near the city center. But the intervening link traversed a residential area of moderate to high-priced houses, whose occupants were strongly opposed to the intrusion of the motorway.

Here the planning department undertook an intensive program of discussion within the area of impact, supported by its design and landscape consultants. In addition to the opposition of those whose property was subject to acquisition (under a "compulsory purchase" ordinance) there were objections particularly to the anticipated traffic noise and the "visual intrusion" of the motorway itself. The public relations program involved showing how the impact of the freeway would compare with the result of a do-nothing approach with traffic using the residential streets, and how by careful design the effect of noise and unsightliness might be minimized. Landscaping played an important role and is accepted as a necessary expense of construction in order to make a highway acceptable in a residential neighborhood. Much effort is being expended by the landscape consultants to enhance the appearance of the facility both for its users and those living along it, and to use extensive planting and physical design features to reduce noise to an acceptable level. Selection of trees, shrubs, and ground cover to hold first cost and maintenance to a minimum consistent with the needs for noise and visual screening is done with great care, and the details discussed with the citizens in the educational process. Finally as a result of many public meetings and the painstaking approach to meeting all the objections raised, public endorsement of the plans was obtained and the program is moving ahead.

Thus in Glasgow is seen a well organized positive program of public education and discussion both at the structure and local plan stages. The program itself is expensive, and at times the cost of meeting objections that are not overcome by discussion is high. But the expense and painstaking effort are accepted as necessary and desirable costs of fitting the system and its parts into the fabric of the community. And it seems to be succeeding, and perhaps in large measure its success lies in the soundness of the plan in the first place.

PLANNING IN GREATER LONDON

Review of transportation planning and programming in the London area was limited to that done by the Greater London Council (GLC) within the Greater London area as defined by the Parliamentary act setting up the GLC in 1963. The responsibility and authority of the Council are important in that the approach to planning, calling first for the preparation of a conceptual plan or strategy, proved to be a precursor of the planning system that is now a general requirement under the 1968 Town and Country Planning Act. Beyond that the Council was given authority to program and build facilities of regional scale, such as a major highway system, and authority to levy taxes to finance them. The members of the Council are elected to their offices and thus are independent of the local borough corporation councils. Again this structure, modified on the basis of the GLC experience, is a basic element of the proposal now before Parliament for a reorganization of local government in England and Scotland.

Review and Outlook in Transportation. Within the Greater London area in 1939 lived 8,600,000 people. By 1961 the population had declined to 8,000,000 and in 1971 stood at 7,900,000. The Council projects that if the decline is unchecked the population figure will fall to around 7,000,000 in 1981. Reduction in population density was desired, but not the change in population mix that has occurred. Some of the loss is caused by the moving of workers and their families to new towns, along with the plants where they were employed. But more significant is the loss of white-collar workers to the suburbs, who must then commute to work in the city, and thus add to the already overburdened transportation system. And as industry moves out to find more space or new industry is established in the suburbs, reverse commuting becomes a factor even as in the United States, for many employees from choice or necessity remain as inner city residents.

The Greater London Council would like to see the population stabilize at around 7,300,000, but with a mix of "labor" force of white and blue collar workers that would attract the type of economic and cultural development consistent with the needs of the government, business and social center of the nation, and

one of the world's great cities. It is the Council's belief that transportation is basic to this end, along with adequate schools and housing, and opportunity for construction of factories, offices and cultural and recreational features.

Public transportation in the London area is highly developed, and opportunity for much improvement in capacity or service is hard to visualize. British Rails now provides excellent service from the surrounding areas to a series of terminals in a ring around the central city area. All terminals offer easy access to the underground (subway in the United States) network which, with its "Circle" line and many interconnecting lines serves all parts of the inner city and itself provides services to outlying areas by its radial routes. An extensive bus system supplements the underground and provides for short trips on the surface. Both the underground and bus system are operated by a public authority - London Transport. Equipment is generally good, service on the underground is fast and frequent, with the newest line, "Victoria," fully automated. Yet between 1960 and 1970, by a report in the press, ridership on the system, underground and surface combined, dropped from a daily rate of 8.8 million to 6.8 million in the ten-year period.

London taxis are known the world over, and they offer good service (if hard to obtain in peak periods) at reasonable rates in vehicles of easy access and egress and with ample head room.

All in all public transportation in London must be regarded as good, or perhaps excellent. (Note: To an observer with limited knowledge and expertise in the transit field, except as a user, it is hard to believe that any city, even close to London in size, can offer better public transport. During the off-peak periods travel on any element of the system is easy, cheap, and not unpleasant. Yet in peak periods in the underground the individual becomes lost in seeming hordes of rushing, jostling travelers, swept into and out of car doors, along platforms and through endless connecting passages, almost without his own volition. How a pickpocket can snatch a wallet in such a milling throng is difficult to comprehend, yet travelers are publicly advised to beware pickpockets in the underground, for that is their favored hunting preserve. To define such transportation as "good" one must accept goodness as measured by the number of people moved or in time of travel only. It can be suffered by an able-bodied adult. It is no place for the young, the old, or the infirm. And there are no "amenities" to put into the equation.)

The increase in automobile ownership is no doubt a factor in the loss of ridership on public transportation. Suburban residential development attracting in-town workers able to own cars and the convenience of the private vehicle for those who formerly used public transportation have had their impact. As motor vehicle traffic has increased it has come to "permeate every street, presenting especially unpleasant effects in housing and shopping areas" in the words of the Greater London Council. Yet even with this present "down-right inconvenience," motor vehicle ownership is expected to double between the survey year of 1966 and 1981. The congestion that already has developed on the street system not only has unfavorable environmental impact and has brought traffic hazards to users and neighborhoods alike. It is also impairing London's efficiency to the point that "not only will its business suffer, but so also will vital services, fire and ambulance, refuse disposal and the distribution of food and goods," again quoting the Council. To meet this problem the GLC has two objectives - to improve public transport to provide "the maximum service for the purposes for which it is most suitable," and to improve the road and street network with dual purpose of extricating the city from the congestion of the automobile and providing for the effective movement of people and goods on a network designed for the purpose.

London's street system is principally a series of converging radial routes with an irregular street pattern within the city. Virtually all streets serve all-purpose use. With through traffic mixing with trucks, private cars and taxis and with bus routes having to follow the same streets, all traffic slows down and public transportation suffers perhaps most of all.

Transportation Planning and Programming. To relieve this situation the Council proposes a system of primary roads built to motorway standards consisting of three circumferentials, or ringways, and a suitable number of radials to give access to the central city.

The first ringway will be a close-in ring to relieve the most congested inner city area of its through traffic and free the existing streets for the movement of goods, to accommodate "legitimate" private cars, and provide for better bus service. It will generally follow railway lines and pass through areas of obsolescence that are ready or nearly ready for redevelopment.

The second ringway with a radius of about seven miles will be a route connecting the various radials and providing for peripheral movement. The third will provide similar service at a radius of about 12 miles.

This primary network will not by itself solve the problem of congestion. It must be supplemented by a secondary network, the construction of which will be largely the responsibility of the individual boroughs, and by improved traffic management. Beyond that the concurrent improvement of public transportation would be expected to relieve the highway system of the demand for a part of the private car traffic it otherwise would have to accommodate. As a strong inducement for commuters to utilize public rather than private transportation, the Council, which has authority to control parking facilities with respect to size, location and rate structure, will not permit parking facilities to open until perhaps ten o'clock in the morning and will establish a rate structure to discourage long-term parking in the central area.

It is significant that London sees the impact of highway transportation on the environment as the intrusion of traffic into the neighborhoods and on the residential and shopping streets, rather than the construction of freeways, exactly the reverse of much of the current attitude in the United States. It sees the major job in preventing the threatened immobilization of the city as the construction of an adequate freeway system and an associated secondary street network, with adequate controls to encourage each mode of transport, public and private, to be used in the way to which it is best suited.

Much of the needed highway program can be carried out by the Greater London Council, which has the authority and access to resources through its power to levy taxes, for projects of regional scale. It has responsibility for comprehensive planning and functional planning up to about design stage for the entire Greater London area, and has responsibility for design and construction of its own facilities. With respect to streets and highways, of the 8,000 miles of roads and streets in the Greater London area, the Council has responsibility for about 550 miles and the Department of the Environment for another about 300 miles of trunk roads. The remainder is the responsibility of the various boroughs within the area. Thus a high degree of cooperation in planning and coordination in programming are required for an integrated attack on the problem of transportation - between modes and between jurisdictions. Some of the most heavily traveled links in the network, the Strand in London for example, are the responsibility of the local authorities.

One reason that the freeway system may be better accepted in London than in some American cities is the broad authority given the Greater London Council (and which would be given other regional bodies under the proposed reorganization of the local government structure). In common with all local authorities the Council has authority to acquire land and pay for damages. Also, in common with other local authorities, it can receive 75-25 matching grants from the Central Government for construction of sections of its network designated as principal roads. But the broader authority of the Council, by equity rather than by law, permits it to utilize its funds for "environmental management" for as much as a mile on either side of its highways. While Central Government funds may be used only for acquisition of property directly required for a highway and for damages directly incurred, the Council funds may be used in supplementary fashion. Thus it is possible to pay any indirect costs for damages to property not actually acquired. For example if a property is found to have been damaged by the increase of traffic on a street that becomes a connecting street to a motorway, compensation may be paid from Council funds. Or houses in close proximity to the freeway, should the problem of noise be serious, could be insulated against sound.

The flexibility to meet objections from property owners or tenants only indirectly damaged is an important factor in gaining public acceptance of the improvement within the neighborhoods it traverses. In this respect the Greater London Council is a good step ahead of American practice, and perhaps of principal also, though like other authorities in Britain it cannot go beyond fair market value for property taken to make financially whole those who must seek new housing or business location. Within its authority in the housing field, however, it can assure all displaced families of adequate housing in space provided through the Council's own housing program, although under the British housing and rent subsidy policies economic factors are less of a problem than in the United States.

Responsibility and Authority of the Council. Indication of the importance of transportation in the redevelopment process is seen in the organization of the Greater London Council, within which is the Department of Planning and Transportation under the joint direction of two officers equal in rank. Within this department are branches responsible for general strategy, population and economic studies and forecasts, and various other functions of general concern. Under it also is an operating unit called the Traffic and Development Branch also under joint direction of an engineer and an architect-planner with equal rank. This branch has responsibility for coordination between planning and transportation matters and for carrying out the GLC program to bring about the proper integration of the overall redevelopment and the transportation system improvements.

This responsibility requires coordination with the Department of the Environment, London Transport, and British Rails in the transport field, and with the local borough authorities. The Council has full planning authority, but most of the functional programs must be carried out by the boroughs or other local or

functional authorities or by private interests. As an example of the degree of control the Council may exercise, it must approve any development within 220 feet of the centerline of any primary highway, and using this authority it denied a license to a developer proposing the construction of a 1,000 room hotel on the grounds that it would overload the highway facility. Meantime local borough officials, who have authority over all development within the boroughs, but who may be less inclined to use it, were agreeing to the construction of several smaller hotels which, although more than 220 feet from the primary highway, would depend on that highway for access. It is situations such as this that cause the Council to seek broader authority over development extending perhaps as much as a mile on either side of the highway.

In areas defined as Redevelopment Areas the Council has full authority. In one such area where removal of obsolete docks and other buildings will soon make considerable area available for redevelopment, the Council is planning for a mix of housing and economic development with associated transportation facilities and service and that will make the area attractive for residence and business alike. It has confidence that under its own programs and the controls it can exercise over private development an area of enduring self sufficiency can be developed. It is hoped that such developments can stem the net outward flow of both business and population and reverse the trend of separation of labor from its place of work or business. (Note: An observation in a report of the Council would seem to apply almost universally to urban life. It notes that "for some people London is probably as good a place to live as anywhere in the world. But for hundreds of thousands of people, especially those with families, it leaves a great deal to be desired." Recognition of the different requirements and different desires of people and families in different circumstances and different stages of the life cycle has too often been lacking in American planning, and evidently in some earlier British planning as well.)

The Council has a large staff, covering all disciplines that are relevant to its responsibilities. It places comprehensive and transportation planning as "equals," operating under an unusual organizational structure of joint directors as department and branch heads. It attracts highly competent professionals, for in Britain public employment is looked upon as a desirable career by planners and architects as well as by engineers. It sends as many as 30 to 40 employees to the University of Birmingham each year for training in transportation and environmental planning. And it has authority and resources to execute plans of regional scope. Its early experience will undoubtedly lead to provision of similar agencies in other major urban areas under the proposal for reorganization of local government now before Parliament (introduced, incidentally by the Secretary of State for the Environment immediately following his presentation of the award for IRF Highway Man of the Year, Colin Buchanan. It is an operation which, while unique in England, offers a showcase not only to others in Britain but elsewhere as well.

RESEARCH

As in the United States new ground is being broken in planning technique with the various land use-transportation studies around the country, and specific research projects are underway within the Department of the Environment or by consultants under contract to the Department. Emphasis is being placed on survey methods and analysis techniques, and much effort is being made to find a way in which to quantify social and community values.

One interesting contract calls for an in-depth study of what might have been done under existing statutes to make highway facilities more acceptable to the neighborhoods they traverse and what changes in legislation would be required to insure that needed programs could go forward. The consultants have combined interviews and actual environmental measurements in an attempt, that seems promising, to relate the degree to which highway noise becomes objectionable to its decibel level, making the measurements only at the locations of the interviews. It is hoped that criteria can be established that would indicate objectively when it is appropriate to acquire property or to bring about a change in land use, and when steps to ameliorate the effect (by highway design or improvements to the buildings such as sound proofing) will suffice. At the same time attempts are being made to quantify the effect of visual intrusion, another major factor in objections to freeways or arterial streets. It is assumed that the effect on safety and the conflict between pedestrians and traffic can be fairly directly measured. While the effect of fumes as an environmental factor is recognized, that subject does not seem to have aroused the concern in Britain that it has in the United States.

A considerable program of research is being carried on under the Department of Transportation and Environmental Planning at the University of Birmingham, along with a program of education at undergraduate and graduate level and short term training and conferences programs. This program is now established as a University Department, after the required 10-year demonstration that it could raise financial support for the activity from outside sources, such as contributions from industry or contracts with governmental agencies. It has been highly successful in drawing government and private funds (mostly from the automobile industries) together to focus on problems of transportation and the environment, as well as on other problems such as highway safety.

The Road Research Laboratory, now under the Department of the Environment, following a second reorganization of government in recent years, is carrying on research in a variety of transportation areas, mostly in the physical field. Research in traffic control, long an important function of the RRL, is continuing and the possibility of new technology such as various degrees of automation are being explored. The research program is being broadened to include transport system integration and fitting new concepts of personal and goods movement into major renewal and redesign of urban areas. Studies are underway also in the area of limiting traffic flow by design or pricing policies to the volume that an urban area can reasonably accommodate.

All in all, the research activities that were observed (and these observations as a sideline of the project should best be termed superficial), seemed to be non-duplicative and directed toward practical ends rather than conceptual in nature, so they stand to be productive.

SUMMARY
As of October 1971

Transportation planning up to project design stage is a function of comprehensive planning, and like planning for other functions, is carried on by a single planning agency in the individual urban areas, and under the direction of a single department of the Central Government. Planning is at metropolitan scale, but except for Greater London, programming is the responsibility of the local authorities. In London programs of metropolitan scale can be executed by the regional body, the Greater London Council, whose members are elected on a metropolitan basis and which has taxing authority. Under legislation now under consideration in Parliament for the reorganization of local government, this form of organization may well be strengthened and extended generally throughout England and Scotland.

The planning in the cities visited is producing not only plans but programs, with strong highway emphasis. Authority given the planning departments permits the control of development, public and private, to insure its relation to the capacity of the transportation system, and the consistent development of the different modes of transportation to serve adequately the planned over-all development of the area.

The desire for automobile transportation is accepted as a predominant factor in British life, and provision for maximum use of the private vehicle compatible with preservation of historic values and present and future amenities is basic to transportation system design. The British are prepared to accept as project cost necessary features of the projects to make them acceptable to the neighborhoods into which they intrude, and to pay compensation or undertake improvements to ameliorate indirect unfavorable environmental impact. By programs of education and public participation at planning stage it is believed that public support for properly planned projects can be attained.

Under new requirements being progressively applied, the Central Government must approve the "structure plan" or development strategy of each local area, prepared and recommended by local officials under guidelines imposed to insure adherence to national goals and objectives and high quality of planning, with appropriate citizen participation. The structure plan is implemented by "local plans" developed and adopted by local officials. Once approved the structure plan cannot be changed in substantial degree without Central Government approval and local plans are subject to continuing Central Government review to insure compatibility with the structure plan. Thus the plans, locally made, in effect, bear the authority of the Central Government and cannot be lightly modified, nor can development, public or private, proceed in a manner inconsistent with the plans.

ADDENDUM

Since the investigator's study in England in 1971 there have been two particularly significant occurrences in the area of planning and development - a major reorganization of local government and a political change in the Greater London Council - affecting plans or planning procedures. Opportunity to consider the effect of these changes was afforded in October 1973. Their effect is, on the one hand, to reinforce the planning system as described earlier in this chapter and to strengthen the hands of local government to implement it, and on the other hand to illustrate the problem in administering a long range development program in the face of a change in political philosophy.

Reorganization of Local Government

The purpose of the reorganization was to consolidate the many small boroughs, each with its elected borough council, into districts of sufficient size to permit effective administration of local affairs, and to assemble the new districts into counties, with the new counties in many cases covering somewhat different areas than the old ones through adjustment of boundaries to produce homogeneous administrative units. Under the new arrangement there are 53 counties and 369 districts. Six of the counties are designated as metropolitan counties, within which there are 36 districts. These six counties roughly include areas previously called conurbations, formed voluntarily under ad hoc arrangements but now formally constituted as metropolitan counties. Major cities that previously were county boroughs and the dominant forces in planning of the conurbations now become districts subordinate to the counties.

The Local Government Act of 1972 provides for elected county and district councils and prescribes the authority and responsibility of each level. Counties are divided into electoral divisions, each electing one councillor, and districts into wards, with the elections for county and district councillors held separately, roughly the pattern of the government of Greater London. Under the 1972 Act the new organizational structure becomes effective on April 1, 1974, but to permit a smooth transition elections have already been held and staffing is already underway.

As a broad principle the county councils are responsible for matters of county-wide importance, including developing in cooperation with the districts the overall policies to be followed, but the districts retain the responsibility for most of the administrative functions. In the planning area no change has been made in the two-stage process, but the structure and local plan inter-relationship has been strengthened.

The structure plan is the responsibility of the county council, but the new Act requires that it be developed in cooperation with the districts. While the county must assume responsibility for submitting and recommending the structure plan to the Secretary of State for the Environment, any district may appeal any issue to the Secretary. Local plans and most development controls are then the responsibility of the districts, except for "county matters" some of which are prescribed but others of which can be added by decision of the counties. District councils may be expected to become involved in the structure plan through joint committees, collecting information, carrying out studies and reviewing elements particularly significant to their areas. In some cases they may loan staff members to the county (and vice versa).

While the districts have responsibility for preparing local plans and controlling most development, they do not have a free hand. The areas of their responsibility are worked out cooperatively between the county and district councils and formally described in the Development Plan Scheme, a new element in the planning process. This scheme will define phases in which the responsibility rests with the districts and those that are retained by the counties, and indicate phases in which the local plans of the district must be advanced cooperatively with the county. Once the scheme is agreed upon in the county it is submitted to the Secretary of State who may at his discretion amend it or propose new regulations with respect to the preparation of the development schemes. It was noted that it is in the agreement on the development scheme that controversy is most likely to arise. There are no hard and fast rules for the division of responsibility; how it is divided may vary with the resources of the districts, as well as the compatibility of the district and county councils. Once the development plan scheme is approved the districts are free to go ahead with the local plans for the areas or phases within their agreed responsibility, although the county may request action in particular areas or call for simultaneous work on certain phases. Under agreement, the districts may proceed with local plans even while the county is still engaged in preparing the structure plan.

As noted, most control of private development rests with the districts, but in "county matters" the county council can preempt the district's authority, or join in considering the application for development before the district council. One area in which the county might (and presumably should) enter the act is in developments affecting transportation. The county under the act has responsibility for highways and street authorization maps. Yet the local authority under the act in considering an application for development must

ascertain whether the proposed development would "be likely to increase materially traffic using (a classified road) or . . . would change materially the character of traffic entering, leaving or using such a road . . ." Certainly a decision in such a case would have to consider not only the existing but proposed or potential capacity of the road or street network, and the decision presumably would not be made unilaterally by a district. (It is of interest that this is the only functional area in which the new act specifically calls for considering the balance between development and the infrastructure to serve it.)

While it is of course too early to appraise the new procedures, since they are not yet formally in effect, it must be inferred that they are intended to and presumably will strengthen the process of planning and development control, and make the local jurisdictions more effective partners in the process. Not only the Local Government Act but the necessary revisions in the planning procedures to bring them into conformity with the Local Government Act, as prescribed in the Town and Country Planning (Amendment) Act of 1972, were developed in consultation with the associations of local government officials and presumably have their support. The effectiveness of the new procedures could well be the subject of close scrutiny by officials of the United States.

One interesting feature of the transitional process to the new order is the increase in need for planners, for the new districts now generally having responsibilities and resources well beyond those of the old boroughs are in the market for trained planners. Another interesting aspect is that in the six metropolitan counties the new county councils must develop substantial planning staffs and the major cities within them, such as Liverpool or Birmingham whose planning procedures were described earlier in this chapter, become districts. Whereas previously the city planning departments performed virtually all the planning functions for the conurbation, they now become subordinate to the yet-to-be-created county planning staffs. While it might be expected that the city planning departments, or at least their senior staff members, would simply change hats and perform much as before, that is not happening. Not only the metropolitan counties but many of the larger new districts are actively raiding existing planning departments, leading to fears that the overall quality of planning may deteriorate. A paper from the University of Birmingham, however, views the situation with less alarm, noting that there are now 4500 "chartered" planners and that the planning schools are producing planning graduates at the rate of 800 per year. The article views any shortage as short-lived. But it also observes that over half the chartered planners now are under 35 years of age. So one thing is fairly certain - planners in England will be a youthful group. Some fears are expressed, however, that counties and districts may seek senior staff from other professions - architecture (or even engineering) rather than rely too heavily on relatively inexperienced planners. (Note: the investigator shares the view of at least two prominent English planners that qualities of leadership are more important than the discipline from which the leader comes.)

Political Change in the Greater London Council

While Greater London was relatively unaffected by the reorganization of local government, a political change in the composition of the Greater London Council in a recent election has brought transportation development into serious question.

The Greater London Development Plan (in effect the structure plan) for Greater London was adopted by the Greater London Council and submitted to the Department of the Environment for approval in 1969. The general philosophy and various features of the plan were described earlier in this chapter.

Because of the extraordinary economic, political, and social significance of the London area the Department of the Environment took extraordinary measures to review the proposed plan. Instead of receiving objections and holding an inquiry under a Department officer in the usual manner, the Government appointed a special Panel of Inquiry called the Layfield Commission. Between 1969 and the time its report was presented in December 1972 the Commission in sitting on 237 days reviewed 28,000 objections (of which 21,000 related in some way to transportation).

In general the Commission supported the plan. It agreed that "improvement in housing is the most vital step in improving the whole environment of London," and recommended that the rate of provision of new housing be stepped up. It strengthened a recommendation of the plan by recommending no more high-density housing, yet cautioned against the wasteful use of land in too low-density developments. It accepted generally the Council's position on desirable population density and mix, although questioning the forecast of decline in population expressed in the plan.

The most specific recommendations of the Commission related to transportation. It urged a higher degree of coordination of public transportation and a stronger authority to control parking and motor vehicle use in the critical center city areas. It urged even greater attention to the impact of transportation on the environment and recommended a number of detailed changes in the location and design of the three "ringway" system described earlier in this chapter.

In the area of better coordination of public transportation a cooperative study is already underway, since in April 1974 the Greater London Council will assume responsibility for planning and implementation of programs for the London Underground, although day-by-day operation of the system will remain with the London Transport Executive. Likewise the Greater London Council under a committee of the Council will assume responsibility for operating the bus lines now the responsibility of the Passenger Transport Authority. Both the Department of the Environment and British Rails are concerned with suburban rail service, although the Passenger Transport Authority can contract for specific service with British Rails. Hence the study to recommend how the many elements of the system can be coordinated most effectively. How the total system will be funded (fares, local rates, and DOE grants will all contribute) and what its operating policies will be and what physical programs will be required are being handled under the program called Transport Policy and Programs of the Greater London Council. The planning relies heavily on the planning, programming, and budgeting approach to produce long-range plans and 5-year programs, and to keep all needed data current.

In the highway area the Commission made detailed recommendations. The plan, as noted earlier in this chapter, called for three "ringways." The Commission accepted Ringway 1, the innermost, about as proposed, and for which much right-of-way has been acquired and some sections built. It recommended a change in one section of Ringway 2 to permit use of an existing improvement thought by the Greater London Council to be inadequate. And it recommended reconsideration of some sections of Ringway 3, most of which is outside Greater London and thus the responsibility of the Department of the Environment. Specific recommendations were also made with respect to trunk roads and principal highways. The Department of the Environment, while not agreeing with all the recommendations of the Commission in the transportation area, felt that compromises could be worked out that would be acceptable from its viewpoint and within the intent of the GLC structure plan.

In the meantime, however, the Greater London Council has gone through an election, and the narrow Conservative majority has been replaced with a narrow Labor majority. And with it came a drastic change in policy with respect to transportation. The present Council would drop Ringway 1 from the program, and discontinue measures to protect its proposed alignment from incompatible development. It would drop Ringway 2, even though some is already constructed, and speaks of substituting an orbital railway. It urges the Department of the Environment to get on with Ringway 3, however. As a general policy it would try to divert goods movement within the area to rail from trucks (even while British Rails is trying to reduce this uneconomic service). The present Council would also reduce drastically other programs on radial routes and other trunk and principal highways included in the structure plan. (Note: just how an orbital railway can be regarded as an alternative to a circumferential freeway, either for personal or goods movement, escapes the investigator, even he surmises, as it escapes the professionals in the Greater London Council.)

All this creates a dilemma, and as of now the highway program is in hiatus. While projects on which agreement can be reached can go forward, no long-range programs can be approved, nor can the local boroughs proceed with local development plans. The structure plan was submitted in 1969, was the subject of the intensive review by the Layfield Commission described, and now rests with the Department of the Environment. Not agreeing with the new policies of the Greater London Council, and with uncertainty as to the position of the Parliament, the Department of the Environment has taken no action to approve, disapprove, or require amendment of the structure plan. Instead it has released "opinions" on certain aspects, thus informally expressing its opposition to the current GLC policies, and the Minister for the Environment has discussed and debated the question in the Parliament but with no action resulting.

The ironic situation is that the Greater London Council cannot submit an amendment to the structure plan, because it has no approved plan to amend. The best it can do is to express its current views in the form of minutes of one of its meetings, which it forwarded to the Secretary of the Environment. He has accepted the transmittal as an item of information. Thus the dilemma. Under normal circumstances the Conservative Central Government has three more years in office, and the Greater London Council with a Labor majority, four. They appear to be playing a waiting game. (Note: It is an interesting situation in which a long-range program developed under the most formally organized, and perhaps the best, planning procedures observed in any country can be frustrated, if not negated, by a change in no more than 10 votes in a body of 100 members, with no assurance that the issue in question was a significant issue in the election. It could be argued that the 21,000 representations with respect to the transportation aspect of the structure plan more nearly reflect the public's views on that particular issue than do the current members of the Council. While this issue relates to transportation, it can in fact, exemplify nearly any issue in our democratic process.)

CHAPTER III

PLANNING IN SPAIN

April, 1972

Planning in Spain is accepted as an essential function of its expanding industrial development and improvement in its general economy. Planning at national and regional level is the responsibility of the Ministry of Housing. Local planning is the responsibility of the local municipalities, but technical and financial aid is available from the Ministry. Transportation planning for urban areas is the responsibility of the Ministry of Public Works, under which it prepares plans for the major arteries to meet the demand estimated under the approved city plans. While in theory the order of planning is to develop the city plan and then fit a transportation plan to it, the two ministries recognize the interdependence of the two areas of planning and have formal arrangements developed at ministerial level for a cooperative approach. Supplementing the often time consuming formal procedures, informal discussions and exchange of information at technical level is a regular practice, and exchange of two or three high-level professional personnel between the two ministries to assure coordination in planning and program was being considered.

Transportation planning at national scale by the Ministry of Public Works stems from a nationwide highway planning survey of a decade ago patterned after the State-wide highway planning surveys in the United States, and in fact guided by a highway planning engineer assigned in the then U.S. Bureau of Public Roads division office located in Madrid under the Bureau's foreign aid program. As a result of this survey a national highway system was laid out, within which the most important routes are being built to freeway standards in a network focusing on Madrid, the geographical as well as political center of the country. With the extremely rapid increase in recent years in motor vehicle ownership and use, the ministry is unable with public funds to meet the demand for rapid improvement of the currently quite inadequate rural roads. As a consequence policies now in effect call for the Ministry to build about half the freeway mileage and to allow private firms to build the remainder as toll roads. Under the procedures adopted, a firm may agree to build a section of a route on the location and to the standards prescribed by the Ministry, and may collect tolls for its use over a 20-year period, after which the ownership reverts to the Ministry and toll charges will be discontinued. Early experience shows good design and construction, and their use promises amortization within the 20-years with little problem.

As a general practice the freeways will bypass the smaller cities and penetrate the larger ones to a circumferential, within which travel will be by arterial streets. In Madrid, with a metropolitan area population of about 3 million five circumferentials are anticipated. The innermost is simply a system of marked city streets, within which, to protect the historic and aesthetic properties of the old city, no new street construction will be allowed nor will new buildings be permitted. The second circumferential, or belt, is a system of streets improved to expressway-at-grade standards, with grades at several major intersections separated, and operating under sophisticated traffic control. It has a diameter of perhaps four or five miles, and it is at this belt that the penetrating freeways end.

The third belt is a part of the freeway system, mostly completed and with the remaining sections included in the current four-year program. It is another two or so miles out, but still within the built-up area. Design standards are high and traffic volumes heavy. One section of 14 lanes is accommodating an average daily traffic of nearly 200,000 vehicles. The fourth belt is outside the built-up area, not yet planned in detail, but with its location generally pinned down. With the area growing rapidly outward, it is anticipated that the need for its development will not be far in the future. No work has yet been done on the fifth belt, except to establish tentatively its general location where construction is feasible. It is simply accepted, on the basis of estimates of future need, that it will eventually be required.

PLANNING IN MADRID

Planning, including zoning, in the metropolitan area of Madrid is the responsibility of the Commission of Planning and Coordination of the Metropolitan Area of Madrid referred to as the Area Commission, established under law in December 1963. It is an agency of expanding responsibility and competence as evidenced by subsequent amendments of the basic law and regulations issued as decrees of the Chief of State (Generalissimo Franco) or as orders of the Minister of Housing. The metropolitan area was initially defined by law to embrace the city of Madrid and 20 other municipalities, including in 1965 a population of 2.8 million and now estimated to exceed 3 million. The Area Commission has authority to add municipalities to the metropolitan area at the request of the municipality. While the metropolitan population increased by some 75 percent between 1950 and 1965, the population of the center city declined by about a quarter, and the trends are not only continuing but encouraged.

The Area Commission is a high level body. Its president is appointed by the State (meaning the National government). The Mayor of Madrid is the vice president. Other members include three representatives of the Ministry of Housing, two of the Ministry of Public Works, and one each of eight other ministries, the representatives required to be at the Director-General level. The Province of Madrid is also represented, and the membership includes one member representing all the municipalities other than Madrid, elected by the mayors of those municipalities. While it is an autonomous body, it is responsible to the State through the Minister of Housing. Its budget is included as an item of that Ministry's budget, under which its staff is organized as the Office of Coordination of Planning for Madrid. It is obvious that the planning of the Madrid area is dominated by State authority, justified to some degree no doubt by the fact that it is the national capital. But similar organization for planning is contemplated in other major cities, with the next likely to be in Barcelona (population some 2 million) encouraged by the experience to date in Madrid. Such centralization of authority is consistent with the philosophy of government generally.

The office of coordination of planning has a multi-disciplined staff headed by a planner. There are three principal sections, one administrative, one called Implementation, and the third called Planning. The principal function of the Planning Section is to prepare a plan for the metropolitan area. This plan when adopted by the Area Commission has legal authority and each municipality must prepare a local plan in conformity with it. Likewise the programs of the State ministries in their respective functional areas must also be brought into conformity. Currently the section is preparing a "sketch plan, working in close coordination with interested ministries and other agencies. Hopefully in two or three years most of the details can be filled in by the local planning and the plans of the State and provincial agencies.

Since this is a new and developing process, and since in the metropolitan area only Madrid city has had a planning organization and a city plan, the Section has an interim division to assist the other municipalities in preparing their local plans. Once competence is established in the localities this unit will be discontinued. In the Section also is a unit responsible for developing and maintaining a data bank for the area, and a unit responsible for research in planning methods, called the Center for Urban Studies. It gives advice and assistance to other units of the Section, and endeavors to look ahead into the changing philosophies and structures through its professionals in the social sciences and, if desired, through consulting services. The view is that planning for the future must anticipate changes in life styles and social attitudes as well as physical requirements.

Public Participation in Planning. The organization of the Area Commission of itself assures that the plan as developed is realistic with respect to the program agencies, although the representation of the separate municipalities, except for Madrid is very little. The law requires that the final plan (or a partial plan) be made available for public review before adoption for a period of one month. Any objections that result may be presented at a public hearing, where objections that are forthcoming usually are for self-interest groups that have a stake in the planned development. Individual citizens seldom raise objections, evidently feeling, as do the officials, that planning is a professional and technical matter and that the ordinary citizen is not sufficiently trained in the subject to have valid views. In this connection there is merit, it would appear, in the feeling among officials that citizens' views would generally be influenced by current conditions and the immediate effects of a plan, whereas in a plan the more important aspect is the future social and economic effects that can best be visualized by trained social scientists such as those on the Commission's staff. Once the objections are considered and the plan modified to the degree the Commission feels warranted, final action for adoption by the Commission is taken and as noted earlier, the plan has the effect of law and all agencies must conform. Departure from the plan, or from any local conforming plans, can be allowed only by the Area Commission. Modification and up-dating of the plan must follow the same procedure.

Implementation of the plan, as noted earlier, is the function not of the Area Commission, but of the local governments and the State program agencies. To insure that the actions and programs of the municipalities are consistent with the plan, annual programs of works must be submitted by the individual cities to the Area Commission for review and approval. One section, the Section of Implementation noted earlier, of the Office of Coordination of Planning for Madrid, acts for the Area Commission in monitoring the implementation programs, except for the city of Madrid. For Madrid the law authorizes the establishment of the Gerencia Municipal de Urbanismo de Madrid--roughly a management agency--governed by a management council. The President of the Council is the Mayor of Madrid, and the membership includes among others two members of the Municipal Commission, the Gerente (city manager) and a representative of the Area Commission appointed by the President of the Commission. Within the city of Madrid the Gerencia has authority to develop partial plans and programs; prepare ordinances covering land use and building codes; assess land values; acquire, own, manage, and dispose of any property; construct housing or other buildings; take land by eminent domain; and perform related functions. It is an independent body but acts under the guidance and authority of the Area Commission. The law apparently gives this same Gerencia the authority to act for any other city within the area, at its request and with approval of the Area Commission, but it appears that it does not currently do so.

Transportation Planning and Programming. Transportation planning is the responsibility of the Ministry of Public Works, not only for the routes within the area that are portions of the national network but for arterial streets within the area, both for planning and construction. Travel habit studies were carried out, based on the 1961 plan of the city of Madrid, under the guidance of American consultants, taking advantage of the simulation models developed in other cities, principally London, validated by a small number of home interviews and supplemented by cordon counts. Data to keep the plan current are collected on a continuing basis, initially by the Ministry but later by the municipalities. The initial highway plan was submitted to the Area Commission by the Minister in 1965, subsequent to which a variety of changes were made in consultation with the staff of the Ministry of Housing. Once agreement was reached the plan, as a partial plan, was displayed for public inspection for a month, a hearing held by the Area Commission, and the plan adopted in 1967. Implementation has gone rapidly forward under the current four-year program of the Ministry of Public Works.

Madrid is a high-rise city, with virtually all residents living in apartments, publicly or privately owned. Many are built as cooperatives, for example by employees of a government department. With little or no provision for parking in connection with apartment buildings in the center city, automobile ownership that was increasing rapidly between 1960 and 1970 is growing more slowly because of difficulty in parking, not so much during the day as overnight. The large amount of off-street parking now being provided is directed more toward commercial than residential zones.

One of the purposes expressed in the law establishing the Area Commission is to "decongest" the center city. Better transportation to the present and new suburbs is seen as one answer, together with restriction on construction in the "old" city and encouraging new retail commercial and residential building in areas to be redeveloped in locations removed from the old city. An impressive example of this policy is in a new center adjacent to the second belt (the expressway-at-grade belt). Built by a private corporation under public authority (the president is the President of the Area Commission) it covers some 20 blocks, with apartments, office buildings, and shopping facilities built or building. There are already 12,000 below-ground parking spaces. All pedestrian traffic is at ground level. The principal department store in Madrid has moved to this center, leaving its former center-city store as a branch. The whole development planning was coordinated with transportation planning, to insure consistency between access demand and street and parking capacity.

Industrial development is expanding rapidly, with new factories appearing outside the present built-up sections in the areas zoned for industry by the Area Commission. Most employees live in the city, however, and will probably continue to for some time to come, because new residential development in rural areas beyond is slow in coming and transportation over existing roads is not adequate. Many new industries run buses to pick up employees at convenient points within the city. While it is generally accepted that people prefer to live in apartments, there is a growing trend toward year-round living in rural homes owned as second homes for vacation and week end use, a trend that is thought to be retarded by inadequate transportation facilities and yet-insufficient parking in the center city. As these restraints are removed it could well be that a more general desire for single-house living would appear. While this trend is unrelated to the question of travel from in-town living to suburban-or-beyond employment, the "decongestion" policy could lead over the long run to a different life style for factory employees as well.

While these comments as to the future are purely speculative (and express thoughts of the investigator only) there is clear evidence not only of a desire but also of accomplishment of greater use of the automobile, despite the restraints noted. Madrid has ample public transportation operated by a municipal corporation, and good commuting service on the State-owned railroads. An old rapid transit line serving the old city is being supplemented by a new subway, and good connections between the railroad and the municipal transit system. On the surface the system relies principally on a fleet of modern buses, many 3-axle, double articulated, supplemented by mini buses in the areas of narrow streets. Yet despite this, the use of the public transportation system is well below its capacity.

While transit travel is increasing, the rate of increase is well below rate of increase in population. From 1950 to 1965 travel by rail rapid transit (metro) and bus combined increased by 50 percent while population was increasing by 75 percent. In absolute terms, trips ending at the metro stations in the central area increased from 1950 to 1960 by about 13 percent, but from 1960 to 1965 they declined by about 8 percent, and the trend is continuing. Meantime automobile ownership in the area increased from 70,000 to 180,000 from 1960 to 1965, and to 400,000 in 1970, still a motor vehicle ownership of only about one vehicle per seven inhabitants.

Strenuous efforts have been made, and are continuing, to provide for the increasing demand for travel by private vehicle. While the old city has narrow and twisting streets, in the area outside there are a good many broad avenues, some developed as parkways, with many complex intersections developed often as circles or plazas. A major program of improvement in geometric design of intersections supplemented by sophisticated and ingenious traffic signal control has produced high capacities. Traffic on several avenues exceeds 100,000 vehicles per day, one averaging 187,000 on one section in 1970 with one intersection at grade accommodating an average daily volume of 221,000 vehicles, with many buses and trucks.

A computerized traffic control network, very modern, is already in operation in the most congested area and is being extended ultimately to include the entire city of Madrid. The system is traffic actuated, with provision for print-outs of the situation at every controlled intersection, so that its operation can be constantly monitored. Master controllers and strategically located submasters keep the system in coordination.

Along with improvement in street capacity a program of off-street parking facilities is underway. The program calls for 8500 spaces off-street, mostly underground, in the central area, to supplement 5000 spaces on secondary streets. No parking is permitted on the arterial streets. This number amounts to about 110 spaces per acre for the 120 acres of that area. They are expected to accommodate resident, employee, and short-term parking, with use adjusted to demand by the rate structure. In the areas outside the central district planning calls for 30,000 to 35,000 off-street spaces, 80 to 90 per acre.

Plans and programs prepared by the city for street improvement and parking are coordinated with general development planning through the process of approval by the Area Commission. Traffic movement presently is good, with still-inadequate parking space more of a restraint on motor vehicle use than street capacity. Under these conditions it is interesting that trips into the downtown area on an average daily basis are made 66 percent by transit (half of those by metro) and the remainder by private vehicle or taxi. (Note: It is not clear whether duplication of trips involving more than one mode (i.e., bus and metro, or private vehicle and transit) has been eliminated.)

Looking toward the future the Ministry of Housing, through its office of Coordination of Planning of Madrid, is planning a new town to be called El Hancin about 20 miles east of Madrid on the road and rail line to Barcelona. The site is an existing small town. Good access to Madrid by bus and private vehicle will be available, when the freeway that is a link in the national system is completed, and by train with double tracking of the rail line to that point. The town will be connected by lateral connecting roads to the freeway, which will be a mile or more removed from the present main road passing through the town. Plans will provide adequate space for transportation, with open green space along the main arterials. Looking toward a population of perhaps 100,000, there will be space for privately financed industrial and commercial development, for privately and publicly financed housing (high rise) and the usual public services such as schools and hospitals. High access traffic generators, such as a university, might be located with direct access to the freeway.

Summary. While general planning and transportation planning are the responsibility of different ministries they are well coordinated through formal requirements such as membership on the Commission for Planning and Coordination of the Metropolitan Area of Madrid, and less formally through regular exchange of information and discussions at staff level and through exchange of technical personnel. While the Area Commission has full responsibility for metropolitan planning and for assurance that local plans are brought into conformity with the metropolitan plan, it has no responsibility for implementation. Implementation of the public aspects of the plan is the function of the State ministries and the local municipalities, but by law the programs of the ministries in their functional areas must be brought into conformity with the plans, and the programs of the local municipalities must be approved by the Area Council, so implementation of the public phases of the plan is pretty well assured. Assurance of the conformity of private development depends on the requirement or willingness of local and area officials to require adherence, and evidence now is encouraging that they will. A major high-rise office and apartment building close to the center city, some 40 stories in height, has been at a standstill, partially completed, for over two years while the owner is attempting to overturn in court an order to stop construction because it exceeded the height limitation. The decision will have a crucial bearing on control over private development. The membership of the Area Commission is by high level representatives of national agencies, with very little representation from local government. Also, consistent with general governmental philosophy, there is little room for citizen input into the planning process, reflecting also acceptance of the thinking that planning is a professional function that should be carried out by a multi-disciplined organization of trained professionals.

CHAPTER IV

PLANNING IN SWITZERLAND

April, 1972

The experience of Switzerland is interesting in that in many ways it parallels that of the United States, but especially in the manner in which the Swiss democratic processes involve the citizens more deeply and more directly in the affairs of government than in any other country visited during the investigations.

Control over public functions is in general administered at the lowest level -- nearest the citizen---that is feasible. In the small country, however, in which there are but four "major" cities even matters of national importance are very close to the citizen. This is reflected in the manner in which the Federal government operates. It is governed by an Executive Council and a Parliament. The Executive Council of seven members is elected on a national basis by direct vote of the citizens. One of the members of the Council serves as President of the Confederation, the office rotating among the seven Council members, on an annual basis. While one serves as President, the other six ministers have responsibility for the various Federal departments such as Agriculture, Industry or Defense.

Federal legislation that is passed by the Parliament must be approved by the Executive Council, and matters of particular significance are then submitted to a vote of the people by referendum. Imposing of a Federal motor fuel tax and its subsequent increase to expedite construction of the national freeway network had to be accepted by a vote of the people in a national election for the purpose, and also be approved by a majority of the Cantons. The citizen may also call for action by the government by initiative petition, and in fact it was the result of such an action in 1958 that the Federal government through amendment of the Constitution, later approved by popular vote, established the National System in 1960.

National Land Use Planning

Planning is a local responsibility to be carried out by all cities, following Cantonal and Federal guidelines, and with technical and financial assistance at cantonal level and generally with Federal reimbursement to the Cantons. Currently there is being developed a National land use plan, this too requiring a Constitutional Amendment, enactment of authorizing legislation at Federal level, approval of a majority of the Cantons and approval of the electorate through an election. Development of this plan is being carried on under the direction of Professor Rotach, formerly at the Technical University of Zurich, who has been appointed under leave of absence as a "Delegate" to the Executive Council and housed within the Department of Police and Laws. It is expected that the land use plan will be conceptual rather than specific, but developed in sufficient detail so the Council, the Parliament, and the electorate, all of whom must ultimately approve it, understand its implications. As an initial step it is proposed that 25 percent of the area of Switzerland be off limits for any further development. It would include scenic, historic and recreational areas, lake shores and river banks, and parks and open space, within which no construction would be allowed except for features related to the specific use. Since another 25 percent of the area has been retained as national forests since 1902, there will remain only half the total area available for economic and residential development, so planning to allow for anticipated growth must be carefully done. Within the areas in which development is allowable, called development areas, the Cantons and local communities must develop more detailed land use or governing plans, followed by development plans, and finally detailed zoning plans, all following the national guidelines. The cities generally have staff to carry on land use and transportation planning, which they do in close cooperation with the cantons and they in turn with the Federal agencies. In the smaller towns the required planning is carried on by consultants, but they too must follow the guidelines and work closely with the Cantonal officials. By long experience in this cooperative approach the consultants find no problem in adhering to the higher-level guides, especially since financial assistance to the local communities for whom they are consultants is contingent on such adherence. The franc, it is believed, is more persuasive than regulations.

A principal reason why Professor Rotach was requested for this assignment was that for some six years he had been carrying on a project at the University to explore on a hypothetical basis the future land and public service requirements for the country under different assumptions of growth and dispersal of population and economic activity.

As a first step he examined the great number of criteria various governmental agencies were using in planning and implementing programs in their functional areas. Using hospitals as an example a criterion might call for one hospital for every X inhabitants, or provide that some hospital should be no more than Y miles or Z minutes from any inhabitant. Another area of course was transportation in which all the

various possibilities were placed under scrutiny. On the basis largely of judgment and logic the areas in which the different criteria need be applied were reduced to 16, within which transportation was accepted as the most significant since it not only serves but encourages the land use plan finally to be recommended.

The criteria in these 16 functional areas then were tested against the probable economic development, looking toward the anticipated population growth, increase of industry, business and recreational attractions, and needed educational, social and cultural functions. Each of the 16 areas was then viewed against 10 different assumptions of population distribution beginning with the 'do-nothing' approach, letting the present trends continue, and ranging from the extreme of wide dispersion throughout the country to a tight concentration of all new activity in the Geneva, Berne, Zurich-Basel corridor. Again transportation was regarded as the most important of the 16 functional areas, because of its expense and the degree to which it would influence and be influenced by the population distribution. Recent trends show here, as in other countries, the growth of the larger metropolitan areas, both by immigration and by the movement of people down from the mountains. Transportation of course would be heavily-oriented with wide dispersal of population, and more rail oriented if the new growth were strictly confined. The decision was to steer a middle course, calling for the development in the functional areas to be organized so as to encourage the location of new activities and population growth in the medium-sized cities rather than in the metropolitan areas, and to make the choices of location appealing rather than based on legal requirement (Note: To obtain popular acceptance through the referendum procedure, it presumably would just about have to be that anyway.). No effort would be made, as in some countries, to relocate existing activities, but to control new growth patterns through persuasion, recognizing that the metropolitan areas will probably see continuing growth, but hopefully at a slower pace.

In the area of transportation, multi-modal system best suited to the particular needs of each of the 10 assumed distributions of people and activity, involving rail, highway, conventional air, and possibly VTOL or STOL, with a small amount of water and of pipeline was tested. Planning was not detailed, but was carried to corridor stage to insure feasibility. With respect to highway transportation the routes that would be needed would be added as a new program to the present National system that was, as noted earlier, approved by vote of the people, and subsequently authorized by another referendum to be completed through a 10-year program. That system was laid out on the basis of demand as anticipated by the continuation of current trends; the proposed added routes would be located on the basis of a development policy to influence the location of population and economic and other activity. It is believed that the people, by approving the preparation of the total land use plan, are ready to accept design for the future, in line with national policy rather than to try to keep abreast of uncontrolled demands. Planning the new network will make no distinction between rural and urban sections, accepting transportation as a single problem, but recognizing that what is done on rural routes will have a significant impact on urban needs.

Thus an academic exercise emerges from the university to the real world of economics and politics. But in Switzerland that is not such a drastic step as it might be in the United States, for there the Federal government relies on the universities for technical advice and assistance, and the academic staffs are accustomed to working with public officials and professionals. Highway design standards, for example, are developed at the Institute de Techniques des Transports at the Ecole Polytechnique Federale in Lausanne as a part of a broad research and advisory function somewhat as an arm of the Federal government. The Institute is currently charged with developing recommendations to the Federal government on a national transportation policy. Its director, Professor Genton has been a consultant to USDOT. So it would seem likely that the product of this effort to protect from further development one half the land in the country, and to dispose in the remainder the increase in economic activity in such a way that the first half can be preserved, will succeed and will be accepted by the people. Once the plan is adopted as a Federal requirement it must be implemented by programs of the Cantons and their cities, based on detailed plans that they must develop in harmony with the Federal guidelines.

Highway Planning and Financing

Highway use in Switzerland has been growing very rapidly, at a much faster rate than officially anticipated, despite the excellent rail system for intercity travel and good public transportation in urban areas. The electrified rail lines provide overnight freight movement between any cities in Switzerland and to many outside its borders, and provide for very heavy movement between Italy and the rest of Europe. At one point near Lausanne the maximum interval between trains, during which maintenance can be accomplished, is 22 minutes in any day. Passenger service is excellent--fast, clean, and frequent. Yet demand for motor vehicle travel became so heavy as to cause the people themselves to request and authorize the Federal government to plan and build a National system mostly to freeway standards. An official estimate made in 1951 foresaw 500,000 vehicles in 1976. That level was reached in 1954. Another forecast of 1957 anticipated 1,000,000

vehicles in 1980, the figure reached in 1963. These estimates are reminiscent of some of those of the earlier state highway needs studies in the United States. Current forecasting, relating motor vehicle use to economic development, has become more realistic, even as it has in the United States.

The National System amounts to about 3 percent of the total road mileage, 1900 out of some 60,000 kilometers. Established in 1960, the program is now moving rapidly toward completion. The basic motor fuel tax of about 25 cents per U. S. gallon, of which three fifths went to roads and two fifths to general funds was increased by an amount of about 7 cents per U.S. gallon for construction of the National system. Since then, in each case with the approval by popular vote, the additional tax for the National road program has been increased more than once to reach a level in 1972 of about 20 cents per gallon. Reasons for the increased cost of completing the system are much like those for the Interstate System in the United States-- higher prices, addition of routes, and greater attention to environmental factors. The Swiss are extremely sensitive to the amenity of their country, and are requiring, as evidenced by approval of increased fuel taxes, not stopping or delaying the program but taking the steps necessary to protect and enhance the environment. For example no drainage may enter a stream without passing through a settling basin to remove all solids. No drainage is allowed on fill slopes. And special effort must be made to protect ground water supplies, to the extent of providing ditches to carry off spills that might result from an overturned tank truck. In urban areas the National routes skirt some developed areas, as in Geneva, and penetrate to the heart of others, such as Zurich. The locations were carefully worked out with the Cantons and cities to serve in the best manner their development as it proceeds under their local plans. With the attention that is paid in location and design to preserving the environment and the difficult terrain, on which some sections are nearly all tunnel or structure, the system is very costly, some rural sections running up to \$15 million per mile. Even the added special tax of 20 cents per gallon will not fund the construction within the program period, so the added rate will be continued for three years after the completion of the presently approved system to repay the borrowing necessary to keep the program on schedule. The constitution does not permit imposing tolls for the use of the system, and even the route added to give access to Italy by a tunnel under the St. Gothard pass will be toll free, in contrast to the toll of eleven dollars for passage of a passenger car through the Mont Blanc tunnel connecting Italy and France.

Financing the highway program is about as complex as Federal aid for highways in the United States. The basic fuel tax of about 25 cents per gallon (in U.S. units) produced in 1971 about 200 million dollars, of which three fifths went to roads and two fifths to the general funds. Deducting a small amount for research and special aid to roads in mountainous Cantons, there remained about \$125 million divided as follows: 8 percent for aid to underdeveloped cantons; 19 percent to the Cantons for principal roads; 33 percent to the Cantons for any highway purpose, except that 10 percent of that must go for grade crossing elimination; and 40 percent (about \$50 million) to the National System. At this point about \$20 million of the amount originally diverted to the general funds finds its way back to the National system program. These two amounts, added to the special National system tax of about 20 cents per gallon that produced about \$130 million gave that program a total of about \$200 million in Federal funds for 1971, equivalent to the product of a fuel tax of about 24 cents per gallon (in U.S. units) for that system alone.

All roads, including the National system are owned by the Cantons, which have responsibility for construction and maintenance, with the Federal government coordinating and exercising general supervision over National roads. Funds are apportioned to the Cantons and must be matched with Canton funds. For the National roads the Federal funds may range from 66 percent as a minimum to as much as 97 percent depending on the resources of the Cantons, with the amount determined by negotiation between the Federal and Canton governments. For principal roads in the Cantons the Federal share may range from 30 to 60 percent in the "flat" Cantons and from 30 to 75 in the "mountainous" areas. On all other roads the Cantons may use the Federal allocations for any highway purpose. Design standards are uniformly high, recognizing of course the difficult terrain in many areas, and surfaces likewise are good and well maintained.

PLANNING IN BERNE

Planning in the Canton of Berne exemplifies the general practice in Switzerland

The Canton. Following the general land use guidelines of the Confederation the Canton prepares a governing plan, showing the areas that are reserved for various purposes, such as agriculture, construction, and circulation, for ultimate approval by the Federal government. This plan must be prepared in cooperation with any commune (local community) that is affected by any aspect of the plan. With respect to highways the plan of the cantonal routes within any commune is placed on public display for a period of thirty days in the commune, and notice published that written objections may be submitted to the communal government. If objections are made a hearing is held in the commune by the Cantonal Director of Public

Works and an official report prepared describing the actions taken and sent to each participant for his signature. The report will be sent within another 30 days by the communal council to the Director of Public Works for action, in the case of new routes by the Grand Council of the Canton and in the case of projects on existing routes by the Executive Council. The appropriate Council must consider each objection and its recommended disposition, and on approval must advise every participant in the proceedings of the action taken and of their right to appeal. The plans as approved are thereafter available for inspection in the commune. Modifications of routes must go through a similar process except that a public hearing is not required so long as all land owners directly affected by the change are given opportunity to present any objections they may have.

In developing the plan it is specifically required that provision be made for future traffic, and all intersections at grade, points where access is restricted, and similar features be shown. Once the plan is approved no further construction may be undertaken within the limits of the land needed for the improvement, although the land must be acquired within a period of ten years or the reservation lapses. Acquisition of land is the responsibility of the communes for Cantonal roads as well as for its own roads or streets, and it may be acquired by negotiation or expropriation. The commune is also responsible for the added cost of construction of roadways wider than the requirement of cantonal traffic, if local traffic requires greater width. If a property owner benefits from the improvement he may be assessed the amount of the benefit, up to the amount of the commune's share of the project cost. While the cost of construction of sidewalks on cantonal routes, not including land, is borne by the Canton, the cost of pedestrian overpasses or underpasses is divided equally between the Canton and the commune. While in general the communes are responsible for all costs in connection with their own roads and streets, the Canton will provide subsidies, on a negotiated basis, in the poorer communes or for special routes such as those used for transit or for postal service, those giving access to important traffic generators or other communities, important tourist routes and routes regularly used by military vehicles. The subsidy is calculated on the proportion of traffic involved in each case, and cannot exceed 75 percent, nor include the cost of right of way. The communes may assess benefits to particular land owners resulting from construction of their own routes, such as a route providing access to a new enterprise, up to 80 percent of the cost.

The City. The city of Berne, the Cantonal and National capital, with a metropolitan population of about a quarter of a million, dates from about 1200, and buildings built in its early history are still preserved and in use. The old city covered an area of about a mile by a quarter of a mile, along the nearly vertical edge of a deep ravine, presumably so located for reasons of defense as in the case of many other European towns. The original street pattern remains virtually unchanged and as the city has developed in the last century, retail and office buildings have spread around the early core on the sides away from the ravine. Residential and industrial development has spread beyond that as suburban areas developed, and is now being planned outside the city limits more or less in the form of new towns with industrial, commercial and residential areas in reasonable balance. As of now most employment is in the area immediately around the old city.

Public Involvement. Planning is carried on on a very "popular" basis for not only must the plans be approved by vote of the people, but so also programs and even major projects. In the city any project estimated to cost more than 2,000,000 francs (about \$500,000) must be submitted to the electorate, and any project costing between 600,000 and 2,000,000 francs may be brought before the electorate by initiative petition bearing 1500 signatures. While this review of planning and programming by the people might seem to complicate action and destroy orderly programming, and can be delaying, it cannot be done frivolously for only a few days are allowed for circulation of a petition and the necessary signatures are not likely to be obtained unless opposition is strongly or widely felt. On the plus side, once a favorable vote is obtained there are unlikely to be further delaying actions as the program progresses. An example of how this process may be felt is seen in a proposal of two years earlier to widen from two to four lanes the street surface on a four-block-long street connecting two parallel arterial streets running lengthwise through the old city. Even though no land taking was involved the people by petition called the project up for ballot, and defeated it in the election. Clearly their action demonstrated the desire of the people to preserve the old city even at the expense of motor vehicle travel, and since that time the city council has blocked off the street altogether and is developing a pleasant area for walking and sitting, with kiosks and flower beds to give a parklike atmosphere.

Development Pattern. As a general pattern of growth the old city will be protected against new development, to retain the most delightful atmosphere of any city visited by the investigator. Just outside space must be provided for Cantonal and Federal government activity, and for retail and general office space. To accomplish this, residential development is being discouraged within the downtown area generally, and development along arterial streets restricted to office and commercial activities. The old city

will become virtually traffic free (people do not appear to object to the walk of a mile or more to cross it from one office to another). Two circumferentials will be provided. The inner one will be an arterial street system, in part one-way couplets, close in to the downtown commercial and government office area. The outer one will be a freeway on the "flat land" outside the city, part at least a portion of the national system. The outer belt will provide connections between the outlying quarters of the city and serve the planned "new town" type of balanced development through which new growth is to be accommodated.

Public transportation is good, including commuting on the radial rail lines, and city owned tram and bus lines. Public transportation by law is required to pay its own way, but it is reported that it does not. With the accepted policy of protecting the old city and with little opportunity to expand the present street system in the remaining downtown area, reliance will be placed heavily on the use of transit and strict control of private transportation. The traffic control system is designed to limit the number of vehicles that can reach the center of the city by increasing the red interval in the cycle of the first signals to be reached on the radial routes approaching the city, as the traffic in the downtown area approaches the holding capacity of the area. At the same time vehicle parking in the area is being reduced, with the hope of increasing transit use by provision of park and ride facilities along the outer freeways. There is no thought that rapid transit can be justified, but the signal system allows buses to "call" a special signal at key intersections. The signal system is highly sophisticated and effective in accomplishing its purpose--of not allowing more vehicles in the downtown area than can move and park with reasonable freedom. High volumes are handled through some complex intersections by attractive young female traffic officers, in bright red uniforms, and the street system generally seems to be effectively used.

Planning Procedures. With the pattern of urban development well established by Federal, Cantonal and city official actions and with the approach visibly supported by the electorate, transportation is being planned to serve that pattern. As noted earlier the governing plan of the Canton delimits the areas that may be used for various purposes, and the city must prepare development plans for each of the delimited areas, for approval of the Canton.

Within the general development plan detailed zoning plans and building codes, also for approval of the Canton, must be prepared. In relating transportation to other development, specific provision for access must be made, but more with relation to the physical aspect of the facilities such as gradient and width of driveways, than to the traffic capacity of the street or new road. Specific provisions for parking are included--for example one space for each dwelling unit, with an additional 10 percent for visitors; for industrial plants one space for each two employees; for banks and doctors' and lawyers' offices three spaces for each two employees; and for stores and shopping centers space as required in each circumstance.

Transportation planning is an integral part of the city planning process, carried on within a city department but with close and informal cooperation with Cantonal officials. It is an interdisciplinary process, as evidenced by the professions of one group of five city and Cantonal officials with whom the investigator met: one architect, one engineer, one lawyer, one traffic planner, and one "administrator." They all appeared to have a sociological attitude however, perhaps not surprising in view of the close scrutiny by the voters that their work receives. The view was expressed that in common with other European cities Berne is the victim of an anti-automobile attitude, and that the pendulum has swung too far on the side of the environmentalists. The principal concerns appear to be visual and aural intrusion of the motor vehicle into a city that cannot be redesigned to accommodate it, and in fact is desired to be preserved simply for its architectural and aesthetic qualities, as well as for historic and traditional reasons. Transportation will be kept in balance with development within those policies and goals, at least for now (Note: As traffic piles up at the first signals on the radials approaching the city, however, something may have to give. With the intensity of the desire to preserve and protect an asset that cannot be replaced --the old city--the answer could well be dispersal rather than further downtown development even outside the old city.).

PLANNING IN GENEVA

Geneva in many respects is similar to Berne, although it has about twice the population, 400,000 now and estimated to reach 550,000 in 1985 and to double in fifty years. Largely because of its international activities it has a changing population, as much as 10 percent annually. Beyond that, because it is virtually surrounded by France, there is a good deal of commuting from the adjacent French provinces to employment in Geneva (estimated at 12,000 trips per day each way). The old fortified city built on high ground is of course world famous, and within it are city and Cantonal government offices and some activity such as antique shops associated with the city's early periods. Below the old city, particularly toward the Lake of Geneva is the principal retail, shopping and entertainment area. The newer city center extends primarily to the north.

Planning Philosophy. The plan for the city and the surrounding region calls for preserving the old city within the fortifications virtually as it is, and limiting the height of buildings in the remainder of the old city and the older parts of the new city near the lake front to five or six stories. There is a definite program to reduce motor vehicle travel within the old city, to practically a zero level within the fortified area. On-street parking spaces and those that can be reached from the street system are being eliminated, although a new 1500-car garage built under the lake has just opened. This garage was financed by owners of retail stores and office buildings in the old city, but its access is only from an inner belt that encircles that area. This belt is simply a marked street system, in some portions one-way couplets, and delimits the area that is becoming traffic free. Other garages may be built with access from this inner belt, but their rates and other regulations will be controlled to encourage short-time parking and prohibit all-day parking commuters. Egress will also be controlled by traffic signals synchronized with the traffic control system to prevent overloading the street system as vehicles leave the garages.

New development of urban character is coming in the zone encircling the old city, in which high-rise apartments and office buildings are not only permitted but encouraged, and appropriate industry also permitted. It is in this zone that a public housing development including 14,000 apartments in high-rise buildings has recently been completed. Under the housing program some residents receive rent subsidies, as distinction is not made between low- and moderate- or high-income units. The development includes good shopping and restaurant facilities and playgrounds, and its commanding view makes it an appealing and sought-after development.

Relating Transportation to Development. While there is a nearby industrial area, few residents of the apartment development work there. Most work in the city center and commute by express bus. This development is served by a second beltway, this one built to expressway-at-grade standards, but it of course does not give access to the city center. Automobile ownership is high in Geneva, one vehicle for 2.48 residents and rising, and in recognition about one and a quarter parking spaces are provided for each apartment. But the automobile is not the principal means of going to work.

To confine the urban type of development to an economically viable area, a third belt is being constructed. This belt, a freeway, is a part of the National system running generally at a radius of three or four miles from the city center. Within it will be allowed high- and lower-rise apartments and associated commercial and industrial activity. The area will be developed as "quarters" of the city, containing 15,000 to 25,000 inhabitants each subdivided into "neighborhoods" of 4,000 to 6,000 inhabitants and residential groups of 1,000 to 2,000, enough to support a primary school and essential shopping services. These areas will have access to the city center by radial routes, and with one another by one of the two belts. Outside the freeway belt will be allowed single housing, farms and industry, but as of now, no apartments. Industry will be allowed to locate only where the traffic it will generate can be accommodated on the road network. It can locate only on land leased from the public "foundation" set up in each case to acquire land and prepare the infrastructure, and to determine the conditions of the lease. It is recognized that the outer belt, as a part of the National system, will permit through traffic to avoid Geneva, but that it also will serve travel between the suburbs within it.

Thus there is, in effect, somewhat of an incongruity in that traffic capacity in the city center is controlled by development that by choice will remain about as is, and that in the outlying area development will be controlled by traffic capacity.

To permit the control not only of the movement but the amount of traffic in the city center, a highly sophisticated computer controlled system actuated in response to but not by traffic has been installed. As in Berne traffic on approaching radials is metered, as it reaches the first signals of the control system, in relation to the accumulation of vehicles in the downtown area. Presumably once the "holding capacity" is reached no more vehicles could enter the city until others leave. But to avoid keeping people, as distinguished from vehicles, from the city center, express bus service is available, with buses having exclusive lanes on arteries and on the second belt, and able to "call" the signal at key intersections. Park and ride facilities are expected to be built to serve appropriate bus lines and rail lines on which commuting is to be encouraged. It is interesting that to keep pace with the rapid increase in traffic over recent years the number of signalized intersections increased from 9 in 1951 to 129 in 1971. As noted the system is computer controlled, with read-outs from all signalized intersections, and produces extremely effective street use. The philosophy, in contrast to most others, seems to be that the system should control the traffic, not the traffic control the system.

In general it may be said that a balance is being struck between transportation and other development, and that controls will be applied to maintain the balance. Improved rail commuter service and good public transportation by publicly-owned bus and tram systems will accommodate most home-to-work trips to

city center, with traffic and parking controls limiting automobile trips largely for mid-day shopping and business purposes. As the area develops in the outlying city and suburban areas, greater reliance on the automobile will be expected and work is being pushed on the middle and outer belts to accommodate the type of travel the new developments will generate. Transportation should stay in reasonable balance with development. While the place of a rapid transit system has been explored it has been concluded that it could not be feasible for at least another 50 years.

Organization for Planning. Planning and implementation to keep things in balance is carried on an easy cooperative basis by the many agencies and groups involved, aided by the fact that for many functional areas the city and Cantonal governments are one and the same. While the planning and implementation in each functional area are the responsibility of the individual departments, they join in their planning efforts, and in addition have the benefit of an Urban Planning Commission.

The Urban Planning Commission has no actual authority but it has large influence in that it was established by an Act of the Cantonal legislature and reports to it by way of triennial reports recommending general plans for the region and treating specific problems it sees as of emerging importance. It can call on any department for assistance and information and can employ its own consultants or experts if it chooses. The President is the Minister of the Canton in charge of the Department of Public Works. The Vice President is a university professor, an architect and city planner. Members are drawn from the professions of engineering, economics, architecture, planning, medicine, sociology, and the law. Also included are representatives of the two French Provinces that border on Geneva. Constant liaison is maintained with the Federal government. Its function is to prepare general plans for the region and its various quarters, indicating land use and the requirements for housing, industry, business and other functions and services. These plans do not go to the detail of design, but would lay out transportation corridors, for example, in relation to the travel anticipated from the planned nature and density of land use.

Once the plan was prepared, during its first three-year reporting period, it was made available to all local government officials and to all Cantonal and city departments concerned for their review and comment. Interested groups from the private sector were also invited to comment, such groups for example as chambers of commerce, industrial associations and specifically the Swiss Road Federation. With the benefit of these comments the proposed plan was modified as considered appropriate and submitted to all governments in the area for approval, and finally to the people for vote in an election.

Currently in filling in the functional details of the plan and developing programs for implementation a General Plan of Transportation is being prepared. It is being carried out by an Interdepartmental Working Group established by a Cantonal law of November 1970. It is directed by a Commission comprising officials of the Government agencies concerned, such as Public Works, Police, and Laws and Finance. Under this working group, or commission, are three sub-groups, one in the area of transportation, one in city planning, and one in economics. The sub-group in transportation, through consultants, assembles data and conducts analyses in its area leading to a determination of the transportation facilities needed to implement the adopted general plan. The sub-group in city planning does a similar job in its area, laying out the land uses in more detail and planning the "equipment" (water, electricity, telephone and sewerage services). The two separate operations are coordinated by a coordinating committee from the two work groups, through which continuous feedback is accomplished, to insure that in each planning area, land use and transportation, for example, are in balance. At the same time the economic sub-group is keeping tabs on the other two to insure financial and fiscal feasibility of their proposals. The economic sub-group is expected to watch over the social as well as the economic aspects of the other groups' work as well. And in all its studies close liaison is maintained with the Urban Planning Commission. The plans for the study calling for constant coordination and feedback, and iterative steps where the feedback shows them to be needed, give good reason to expect that a workable transportation plan and program will be forthcoming. Since the general plan has been approved by vote of the people, it can be further assumed that the plan will not only be possible of implementation, but will be implemented. And if so, transportation will be in balance with development.

PLANNING IN ZURICH

The cooperative approach to planning in Zurich is much like that in Berne and Geneva, with Federal, Cantonal, city and small community officials joining in a region-wide planning process, the results of which must meet Cantonal and Federal approval and be voted on by the public to become the official plan. The policy with respect to urban growth and consequently the demands for transportation are quite different, however.

Zurich is the center of an industrial region extending into Germany and Austria. It is the center of the Swiss banking and financial activity with its world-wide connotations. And located on the beautiful Lake Zurich close to the high Alps it has long been a tourist and recreation center. All these activities call for good transportation, a fact which is reflected in its radiating rail network, by the intersection of several routes of the National highway system, an active airport, and excellent public transportation operating over a street system with generally reasonably wide arterials. As in other Swiss cities, its traffic control system is modern and effective.

In contrast to Geneva and Berne, Zurich is and will continue to be center city oriented. The city itself has a present population of about a half million, in the Canton (Kanton) of about a million, with the figures expected to increase by as much as 50 percent in 30 years. As commercial activity increases the character of the downtown area is changing, apartments giving way to office buildings through replacement or reconstruction, and the major department store, for example, relocating its store in a new high-rise building in which the upper stories will be for rental office space. At one edge of the central business district is the main railroad station, the focal point for commuting from suburban and rural areas. Travel to the center from the other areas of the city and the close-in suburbs is by city-owned bus and tram lines. Trams operate at high speed on the street network, running as triple-headers in rush hours. Fare collection is automated using tickets that can be purchased widely throughout the city in automated kiosks, some permitting riding all day at a cost of about 60 cents, and others which cover a short trip for about 10 cents. No conductors are needed on the cars. To encourage public transportation an increasing number of park-ride facilities (the Swiss having adopted the American term in English) are related to railroad stations and bus line terminals.

Automobile use has also increased, of course, and is being accommodated as best it can by parking lots in the downtown area and improvement in highway access. Looking toward the need for substantial improvement in access to the central area, planning at Federal, Cantonal and city levels has been directed toward radial freeways and a subway system for rail rapid transit. This planning has been carefully coordinated with planning and redevelopment of the city center.

Transportation Planning and Programming. In locating the National highway system the Federal government, responding to the desires of the city and the Canton, routed its main-stem route (N1 east and west, the Geneva, Berne, Basel-Zurich corridor) directly alongside the center, passing underground almost at the main railroad station. Because of the importance of this corridor, the first route of the subway now being built (this with city funds) lies in the same corridor. East of the city center the freeway and rapid transit line would use the same right of way, in some places both in tunnel. The principal subway station is at the main rail station, and the highway plans call for a 6,000-car parking garage, above ground adjacent to the rail station. Two other parking garages of 4,000-car capacity each with access from N1 as well as the street network will also be built at the edges of the central district. The freeway will also give access to the street system at appropriate points.

Associated with the planned transportation improvements are significant changes in the center city. As noted, office building construction, privately funded, is going forward rapidly, and traffic is being reduced by closing some streets in the area to most vehicles. At the same time the massive underground construction gave opportunity to provide for an extensive shopping arcade below ground, with access from the ground level above and by direct connection from the rail station, the subway under construction, and the large garage to be built. The whole complex is reminiscent of the underground layout in Montreal, although it will be somewhat more compact and have better highway access.

With financing arranged by negotiation among the several government levels, the program of both subway and highway development has been going rapidly forward. The freeway (N1) approaching from the west is opened well into the downtown area, and work in the center is going forward. But a problem has arisen on its eastern section where it joins with the rapid line in use of the same right of way. Opposition has arisen among anti-highway groups, evidenced by a petition bearing over 50,000 signatures, protesting the construction of the freeway through the residential area to the east. As a result the Federal Parliament requested the Canton to delay the program until the whole matter can be reviewed and brought again before the citizens for a vote. This delay is expected to be at least a year, and seriously disrupts the highway program, for bids had already been requested and funds cannot readily be shifted to other projects. Not only that, but its ramifications extend to the subway construction program as well. The plan widely discussed and explained in detail to the public, had been approved by the voters in an earlier election. What is now required, apparently, is a further effort to develop public discussion and understanding, and arrange for another election. A possible favorable aspect, from the viewpoint of transportation and center-city viability, is that while the protest came largely from the citizens in one sector, the election, when held,

will call for votes from all citizens, who may take a broader view of the facility of regional and national importance. (The situation is not unlike that of I-95 in Boston, in that a key link in the principal National route could be eliminated by local objection. On the other hand, as in Boston the National network includes a circumferential outside the built-up area as well as the penetrating route desired by the City and Canton, so the integrity of the freeway system is not necessarily destroyed.) But the careful balance between transportation and other development, that the planning process produced, cannot be regained if the local opposition prevails.

Better access to downtown does not overlook air travelers. The subway network as well as the freeway network will extend to the airport, which ranks well up on the list of the world's airports in numbers of passengers accommodated. Beyond that the National railroad system will be extended to serve the airport, not so much to provide access to Zurich as to permit international air travelers to transfer directly to trains to continue their journeys into the mountains or to other destinations in Switzerland. While reasonably good public transportation to the airport already exists, the ample parking lots are now being supplemented by a multi-story garage. With both good highway connections and the railroad link, it would appear that the subway connection would serve primarily airport and airline employees, and perhaps, as in Cleveland, some airline commuters.

All in all Zurich exhibits the same flexibility of approach to transportation and ability to respond to citizen's desires as found in the other Swiss cities, by plans and financially sound programs that, once approved by the electorate go forward capably and effectively. The reversal of public desire, or of the desire of a portion of the public, as seen here however, could seriously disrupt the orderly completion of long-range carefully scheduled and financed programs if local protest over small elements can be allowed to take precedence over a broad program of region-wide importance. The result of the upcoming election will be of interest, not only in Switzerland, for the situation exemplifies others that trouble officials in widely scattered countries. But perhaps the Swiss, by experience and nature, will be better able to deal with it.

CHAPTER V

PLANNING IN FRANCE

May, 1972

As in other countries population in France is increasing, and its distribution likewise is changing. As people increasingly concentrate in metropolitan areas the population in Paris, as it is now constituted, has passed the point of diminishing returns, and while the increase there continues, the smaller metropolitan areas show growth rates even higher than Paris. The characteristic effect, exaggerated in the Paris area, is for the urbanization to spread beyond the area planned for it into the area reserved for agriculture, usually along the lines of communication. The newly developing areas and the existing suburbs as well found themselves underequipped to provide the services the expanded population required. To stem this generally unplanned or underplanned growth, the Federal government (the State) in 1967 enacted a law on land planning generally applicable throughout the country, spelling out in considerable detail the steps that must be taken by local officials and State agencies in the planning and programming of public works of all kinds, and in controlling private development. The scope of the planning required varies with the size of the urban areas. Relatively simple procedures are required in the smaller cities and more formal ones in the 16 largest cities outside Paris. In the Paris area the same provisions of law apply, but beyond that a special delegation was authorized to develop a "Comprehensive Town and County Scheme of the Paris District," looking toward expansion of the area all the way to the coast to the west, and shorter distances to the northeast and southeast.

Transportation and Land Use Planning

The programs of public works in France are carried out under a series of five-year plans, now in Plan VI, including the period 1971-75. The purpose of the 1967 law, as it will be achieved by the program now in progress, hopefully will produce during the current five-year period the plans and programs needed for implementation of Plan VII, 1976-1980.

Responsibility at State level for implementing the law rests largely in the Ministry of Equipment and Housing, but other Ministries, such as Finance, Interior, Economics, and Transport also become involved. Included in the Ministry of Equipment and Housing, among other offices, are those concerned with Land Management and Town Planning, Roads and Traffic, and Construction. While the Federal responsibility for planning of public transportation systems in urban areas is in this Ministry, responsibility for operation is in the Ministry of Transport.

Under the law plans are to be developed jointly between the State and local officials at two "levels." The first level looks ahead 20 to 40 years, and portrays the anticipated land uses and routes of travel, to about corridor scale, coordinated with national or regional development plans. Plans at this level (designated SDAU, Schema Directeur d'Amenagement et d'Urbanisme) correspond closely to the so-called Structure Plan of Great Britain. In effect they portray the general intentions of long-range development as a guide to local and State officials. The local officials may be the elected officials of a single city, or where several have joined together in a regional agglomeration the local officials act through the chairman of a regional council, who is elected from among the mayors of the cities included. Once the plan is completed it must be approved at State level, in Paris in the case of the 16 largest cities and in the Department office of the Ministry of Equipment and Housing for the remaining cities. After the plan is filed with the appropriate State office the local officials have a period of three months to raise objections, which if raised, must be resolved between them and the State. If resolution is not worked out in the Department, the local officials may appeal to the Ministry in Paris. In the case of regional agglomerations, State approval may not be given if the officials of cities totalling one quarter or more of the population of the area object to any of the provisions.

With the SDAU approved, the second level plan may be launched, a land use plan looking 15 to 20 years ahead, known as POS (Plan d'Occupation du Sol). This plan, likewise developed by joint action of the State and local officials, must be carried out in considerable detail, for it will determine, for example, the specific land that must be reserved for transportation facilities. The 1967 law states specifically that the land use plan must first delimit the land that should not be urbanized because it produces unusually high quality foodstuffs or includes "equipment" (works representing some features of the infrastructure) that are particularly important. It must determine the zones in which the dominant activities of the area may be carried out. For each zone or each significant part of a zone it must determine the density of use that may be permitted based on capacity of the equipment (water, sewerage, utilities and transport, for example) that exists or is planned for development. It must describe the streets, monuments, quarters or other features that must be protected because of their historic or aesthetic value. It must fix the reservations needed for

streets and public works and features such as open space. And it must develop regulations covering the location, dimensions and exterior appearance of buildings to be constructed and the portion of the land that may be occupied based on the capacity of the "equipment" to serve it.

Once the land use plan is completed, its approval follows the same course as that of the SDAU. If the local officials accept the plan or raise no objection within a three-month period, the plan is placed on public display in the local area and notice to that effect published. If there are objections within another three-month period, a public inquiry is held, and after giving such consideration as may be thought advisable to each, the plan may be approved at State level. For most cities this approval comes from the Ministries of Equipment and Housing and Interior acting jointly. For the larger cities, the approval is by all Ministers in Council. The plan is then published and becomes binding upon all parties although the local officials may delay its application for as long as a year if it is thought that its earlier adoption would be onerous. The law provides that any land reserved for public purposes, as for streets or other public works or green space must be acquired within a 3-year period, subject to extension for one year, or the reservation lapses.

Implementation of Plans. Once the land use plan is approved at State level, the local officials have responsibility for carrying it out through provision of the "equipment" and control of private development through building permits. As noted, the density of use may not exceed the capacity of the equipment to serve it, although a density greater than the average limit in a particular zone may be allowed on a parcel if a correspondingly lower density is accepted for another, to maintain the total density in the zone at a level no greater than the established figure. A property owner has the right of appeal to the Ministry if he believes the decision of the local officials is in error, or if no action is taken on his request for a permit within a three-month period. In that case the permit is issued, if it is, in the name of the Ministry. The appeal may, in fact go all the way to the President. The law provides that local communities may impose special taxes, above the general tax levy, for the purposes of providing the equipment, or of matching State funds for the purpose, based on the value of the property in any zone under its permitted use.

Enactment of this legislation imposed on all the cities above 10,000 population, particularly the smaller ones inexperienced in planning, an obligation difficult for them to meet. It required a greatly stepped-up effort on the part of the Ministry of Equipment and Housing as well, not only to assist the local communities but to develop the cooperative procedures required to carry out the new legislation.

Responsibility for highway planning and construction within the Ministry is separated within the National office, planning and construction of national highways, of highways in the Paris region, and highways in all other regions being in three different divisions. While national highways are 100 percent nationally funded, aid in constructing other important routes may amount to as much as 85 percent from State funds. The highway program is administered through regional offices, which cooperate with the Departments (States in U.S. terms) and the cities.

Transportation Planning Procedures

To get on with the urban planning requirement the Ministry in 1971 launched a program to develop and test methodology by pilot studies in eight agglomerations ranging in population from about 80,000 to about 1,000,000, each in a different Department and a different field region of the Ministry. In oversimplified concept the procedure calls for the local officials to propose a land use plan, for the Ministry, on the basis of this plan, to plan the transportation system to serve the proposed land use to advise the local officials as to what their proposed plan means with respect to transportation, and then if the transportation plan seems undesirable or unacceptable, to work out a compromise solution. In that way the transportation phase of the urban plan, while developed initially to serve an independently developed land use plan, becomes an integral part of the SDAU and of the POS when they are submitted successively by the local communities for State approval. While it does not, apparently, propose at the beginning a series of alternatives, the iterative process that is followed amounts to somewhat the same thing in the end.

While in the "oversimplified" description of the approach the steps were listed separately, they are carried out more or less jointly in the pilot cities. The program, in its pilot stages financed wholly by Central government funds, is broken into six phases, with a group set up in each city to handle each phase. These groups are composed of professionals from the different disciplines that could contribute to the different phases. The product of the work in each group in each city flows to the Central Office of the Ministry for information to use as a basis for developing procedures and preparing manuals for general use in planning the transportation phases of SDAU and POS in all cities. The six groups thus far organized cover traffic generation and distribution; traffic assignment; public transportation (its possibilities of improvement); the city center; land use; and amenities and environmental factors. Other groups may be organized if situations develop to warrant them.

To establish the procedures to be followed in the pilot study (and the early results give promise of these procedures becoming the first draft of a planning process to be adopted for general use) the Division of Urban Streets and Improvement of Circulation of the Ministry issued a memorandum describing the steps to be followed and specific points to consider in the preparation of the plans and programs of public and private transportation in the urban areas.

The first level of studies are those needed in preparing the SDAU. It is here that the dialogue between local officials, urban planners, and the engineers, architects and economists begins. Looking forward to horizon years 1985 and 2000, estimates are made of the amount and distribution of economic activity and associated residential areas and other features such as public buildings, parks, recreational areas and open space to expect. Estimates are then made of peak hour traffic volumes and parking space needs based on a desired modal split. If these demands exceed the capacity of traffic movement and parking that can be provided in the center, which in itself has been a feature of study, or in other congested areas, choice must be made between decentralization of activity or accepting a greater reliance on public transportation. The memorandum points out that economic analyses must be carried out to aid the officials in reaching the policy decision that must be made, but recognizes that reasons such as aesthetics, preservation of the environment and protection of historic sites may be more influential in the decision than economics. It is emphasized, however, that the economic effect of any policy decision should be clearly understood. In this phase of the study transportation requirements are estimated under a range of alternatives from heavy transit orientation to reliance largely on the private vehicle. The alternatives would include only the technology that can be anticipated as being practicable within the planning period. Various alternatives of the street and highway network would also be examined.

The second level of studies leads to the preparation of the land use plan, or POS. Here the plan looks ahead 10 to 15 years, based on the SDAU as the guide, and results in the definition of land use by specific areas, with the density of use as well as the character specified. That it is precisely done is seen by the required scale of maps - 1 to 1000 or 1 to 2000. On the road and street network will be shown peak hour traffic volumes, and the geometrics portrayed. The visual aspect of the routes will be shown by perspectives at 150- to 200-meter spacing, prepared manually or by computer. Alternatives may be shown, and if so the one finally selected will become a part of the POS when it is submitted.

At level III the stage of programming is reached, in which projects to be included in the 5-year program (1976-1980) are specified. Prior to that time land reserved under the POS will be acquired and residents or businesses relocated. With approval of the 5-year program, the next level is reached, the annual budget submission. At this level, at which approval by the State is by all Ministers, no project may be included if it were not in the 5-year program, but it does not follow however that its inclusion in that program necessarily means its approval in the annual budget.

Technically the procedures in transportation planning generally follow the procedures largely developed in the United States, but with what is believed to be an important addition - aerial photography. With photographs taken at six-second intervals a complete picture is obtained of all vehicles, moving and stopped. From these pictures is being obtained such information as the volume, classification and speed of traffic, section by section on the network; the peak hour volumes; the number of cars parked at peak traffic and peak parking periods; and the time lost in traffic delays as well as a broad general picture of "encumbrances" in the network. The aerial views allow for precise measurements of conditions at specific times and locations, and also give a good visual display of current conditions easily understood by the layman. They are regarded as an important adjunct to the usual analytical processes that cannot reveal the detail that appears in the photograph.

The concluding paragraphs of this memorandum note that the procedure now being tested marks a departure from the practices obtaining up to and through the current 5-year plan, recognize the difficulty of fitting a new infrastructure in existing and expanding communities, recalls that in a city of 500,000 people development of the transportation network will require an annual investment of 150 francs (about \$30 U.S.) per inhabitant over a 25-year period, or about 0.25 francs (5 cents) per trip. It comments further on the difficulty in developing and carrying out a policy that gives equal consideration to transportation and the environment it serves. And it concludes that the "agreeableness of our everyday life" will depend on the effectiveness of this planning effort.

While it is too early to draw conclusions as to the effectiveness of this approach either in developing a plan or in its implementation, those developing and testing the process are optimistic and enthusiastic.

Planning in the Paris Region. While the legal requirements for planning in the Parisian region are the same as in the rest of France, the scale of the problems is so much greater than in any other area that the Ministry of Equipment and Housing has made the area a special division of the Ministry. While in general the national routes by-pass the smaller cities and connect with regional networks in the moderate sized agglomerations, because of the extent of the metropolitan area of Paris national routes must serve also as regional routes, and in some cases their separate purposes are not easily met by a single facility. So far as the network within the city itself is concerned, the national routes end at the Peripherique, a circumferential freeway never less than eight lanes in width encircling the city at the approximate city boundary, giving it a diameter of about 20 miles. Inside the city the street network includes many broad avenues but generally narrow streets throughout the entire city, with a relatively few grade separated intersections. Traffic is congested everywhere, even on the Peripherique in midday, despite the excellent rail rapid transit system and the now-building regional rapid transit line crossing the city from west to east. The rail network terminates at a series of stations well out from the city center, and one item in the plan for improvement in public transportation is a link connecting these stations. Paris is a low-rise, high-density city, but some new massive high-rise buildings appearing in the city, although not at its center, would appear only to worsen the congestion of both public and private transportation.

The development of the Paris region as noted earlier is now following the plan approved in 1965, with only minor changes. Called the Comprehensive Town and Country Scheme for the Paris District, it was prepared by an agency created by the State for the purpose - the General Delegation of the District of the Region of Paris. As also noted earlier the planning policies followed since World War II had resulted in expanding suburbs eating up agricultural land and open space not sufficiently provided with "equipment" for good living, resulting in increased congestion in the city itself and a general deterioration of the quality of urban life. Projecting the trends it could be estimated that by the end of the century the population of the district would increase by two-thirds, from 8.4 to 14 million; purchasing power by 5 times; private cars from 2 to 3 times (one car for 2.8 to 3.5 persons); travel by all modes by 3 or 4 times. With more space per capita required, the area needed for industry by the year 2000 was estimated to be twice, for business 3 times, and for housing 4 times that now used for these purposes.

The New Towns of Paris. The solution chosen was to plan for new urban centers, not suburbs of Paris but large enough to be self contained industrial and commercial areas, each accommodating from 100,000 to as many as 1,000,000 population. The centers would be along three axes, the first to the west extending to the coast and the cities of Rouen and Le Harve, already 550,000 in population and expected to reach 1,000,000 by the end of the century. Along this corridor, the Seine valley, would be freeways at either edge some 20 miles apart. The urban centers would be developed within the corridor, served by connections from the freeways and rail connections to Paris and one another. Public transportation within them would be primarily by bus, some on reserved lanes. The banks of the Seine would be reserved as parks and open space where appropriate and for industry that requires water transportation where it could properly be located. Good agricultural land and forests would be preserved, and open space guaranteed.

This major axis splits in the Paris area, in a generally east-west Y pattern, the south east stem of the Y following the Seine, and the other generally east or north following the Marne valley. Each stem will be served by a freeway along the edge of the corridor, with rail connection from the center to Paris following existing rail lines. On the south east stem a new city, Evry, is now being built destined ultimately to grow from its population of 7500 to 100,000 by 1985 and perhaps 500,000 by the end of the century. New high-rise buildings needed for central city activity are being built, some industry is appearing and a start on housing developments is visible. The national route already built to freeway standards toward the south gives access to Paris, as does the existing rail line. Presumably both will be expanded as the area develops, but if the new city serves its expected purpose it will be largely self contained and commuting to Paris will not be a substantial factor. Another of the new towns, Saint Quentin en Yvelines, is being built and occupied about 20 miles west of Paris. Planned ultimately for 400,000 residents it already houses 18,000 people and industrial development is providing 5000 jobs. More industry is ready to establish there, and requests for offices and commercial space are expanding beyond the rate desired to keep the different land uses in balance. Plans call for a mix of high and low density residential areas, with the higher density areas nearer the principal transportation routes. In the first three years (1969-71) the housing mix showed about half single and half multi-family dwellings. About a quarter of the apartments were publicly financed and about two-thirds cooperatively financed. While it is planned to encourage the use of public transportation, provision is being made for the greater use of the private vehicles that it is expected the people will want. Like Evry "SQ" has good access to Paris by rail and by the Autoroute to the west, and additional connecting rail lines and freeways within the area are planned. The development will comprise a number of small communes or quarters with the major stores, offices, and cultural activities in the center. Schools and appropriate retail, commercial and recreational activities will be located in the several communes. Sites for industrial development

will be available reasonably close to the residential developments to reduce the need for transportation. Included in the area delineated for the new town there are presently 11 local communities, which will be able to retain their political identity, but which will have to join a "syndicate" that will have responsibility for management and operation of the area.

Authority for the new town flows from the State through the regions. Decision as to the establishment of a new town is made jointly by the State and the region (as noted earlier the Paris region is large, embracing seven departments), with decision made in the first instance as to location, area, and projected population.

Administration of the new town is a two-level process. At the first level is the E.P.A. (Establishment Public d'Aménagement). The E.P.A. is governed by a board of 14 members, half representing the State, the Departments, and the region, and the other half, representing local authorities within the new town, appointed by local councils from their membership. The President must be from a local authority. The Executive-Director is appointed by the Minister of Equipment and Housing.

Below this level is the Syndicate or SCA (Syndicate Communautaire d'Aménagement). In Saint Quentin en Yvelines, for example, it is composed of three members from each of the 11 communes. Its President is elected from among its members, and there are 10 Vice Presidents, one from each commune.

Details of the division of authority and responsibility between the E.P.A. and the Syndicate are worked out jointly between the two, although certain functions are prescribed by law as pertaining to one or the other, and some involve both. E.P.A. has responsibility for planning the area and acquisition of all land, which in turn it can release by sale or lease under condition it sets to insure its development consistent with the plan (as the new town grows the local authorities are increasingly being brought into the planning). In general also all utilities, regional facilities such as freeways and arterial routes, and provision and maintenance of open space and forest areas rest with the E.P.A. Such functions are financed by State grants to the regions matched by regional funds raised through its taxing authority. State funds are authorized for specific programs or projects by their inclusion in the five-year plans and the annual program and budget processes. Acquisition of land for public purposes can be financed by loans from the State at no interest, and the loans for development land may be obtained at the going rate (7 1/2 percent but, with a State subsidy, reduced to 3 1/2 percent).

The Syndicate is responsible for construction and operation of schools, and other public buildings and ordinary costs of administering and operating the new town. A joint responsibility would be, for example, a bus rapid transit system, for which the E.P.A. could provide the bus lanes but the Syndicate would have to provide and operate the buses, and bear the inevitable subsidy of operating costs. The level of service would apparently be a negotiated item. To finance its share of operating the new town the Syndicate can levy taxes and set the rates, with the assessment made by the Syndicate. It also collects taxes to return to the communes to finance items of their responsibility.

It was observed that the local authorities were reluctant to be absorbed into a new town, fearing loss of authority and higher taxes (both likely prospects); on the other hand it should be accepted that such small towns as close as these to Paris would otherwise be engulfed in suburban development, without the assurance the new town can give of orderly growth and efficient land management. The goal of the new towns is to provide employment opportunity for all residents in an attractive and healthful community, not necessarily expecting, however, that all residents will wish to work there, and vice versa, (The Executive Director of Saint Quentin en Yvelines lives in Paris). Based on early evidence, the prognosis must be for success.

Under the adopted plans the total population and employment in the city of Paris will not change greatly, but the activity in the center will increasingly be directed toward government and its associated activities and major financial and commercial enterprises, and it will continue to be a prime tourist attraction because of its tradition and its entertainment and cultural attractions. The decentralized cities will provide for new industrial development and attract industry from within the present city and suburban area, and hopefully reduce the relative travel requirements as employment, residence, and recreational activities are brought closer together. It is recognized, however, that employment in the service industries already exceeds that in manufacturing, and that such activity depends heavily on highway transportation. As a general policy the effort will be to facilitate the use of the private vehicle but to provide public transportation, generally by bus and often on reserved lanes or right-of-way, that will be an attractive alternative. In general the adopted plan is a land use plan, but a plan possible of being served effectively by transportation. The job of the Ministry, through its Parisian division, is to provide the means of doing that.

In the Paris district as in other parts of France the responsibility for developing the detailed land use plans and controlling land use through building permits rests with the local officials. But here as elsewhere the POS will be developed cooperatively with the Ministry of Equipment and Housing. Implementation of the plan is also a joint responsibility, with the national highway system, as noted earlier, an important regional facility in this very large region that includes seven Departments. The transportation plan as developed in the Parisian division is discussed with officials of all local communities and of the seven Departments, and after considering their comments, sent to the Ministers of Equipment and Housing, Interior, and Environment for review and approval. Questions that cannot be resolved are settled by the President. Once the five-year plan is approved, implementation is carried out through programs financed through the annual budget approvals.

Summary of Planning Philosophy

As a general summary, transportation should be kept in balance with development from here on under recent legislation and the corresponding planning procedures still in the process of development. Government in France is highly centralized, administered through a complex bureaucracy extending deeply into local areas, but operating efficiently through long experience and tradition. While local officials are elected (and there are some 38,000 local government units) in many cases such as in the issuance of building permits their decisions can be appealed through a ministry all the way to the President. Yet once the local plans are approved by the State, adherence of the public aspects can be expected because of State participation in funding through budget approvals. Up to 85 percent of the cost of construction of highways and major arterials in urban areas comes from State funds, as well as State aid in subsidizing local transit. In the VI Plan an amount of 2 billion francs (\$400,000,000 or \$80,000,000 per year) was approved for aid to transit, confined to capital expenditures outside the Paris region, but available to subsidize operating costs as well within that area. While the great increases in economic level and automobile ownership that are anticipated indicate that great attention must be given to private transportation, on the other hand the planning and budgeting policies permit the development and maintenance of public transportation where the planning indicates that to be needed to serve the planned land uses. It does not appear that one mode will be favored over another, and it does appear that, under the traditional role of government in France, development will pretty closely follow the approved plans. The marked departure from the previous planning policies that resulted from (and no doubt inspired) the 1967 law show that the government intends to keep both planning and development in step with the times.

Research

An indication of keeping policy abreast of changing times is seen in the establishment of the Institute of Transportation Research (IRT-Institute de Recherche des Transports) in a suburb of Paris. This Institute is a public non-profit organization financed jointly by the Ministry of Equipment and Housing and the Ministry of Transport. It carries on or sponsors research for these two ministries which between them have responsibility for urban planning, urban transportation, interurban transportation, highway construction, and traffic control. It also does research for the Ministry of Economics and Regional Planning, a ministry that is primarily advisory to other ministries and has no program responsibility of its own.

With a staff of about 150 the IRT confines itself to long-range research in the technology and economics of transportation to aid in decisions with respect to investment in existing or possible new modes. Work is carried on in four general areas. First is New Technology which keeps abreast of all promising new developments and conditions under which they may be introduced into the transportation network. The second deals with improvement of existing modes and analysis of possible future modes from the viewpoint of their environmental effect, such as on noise, air pollution, speed, comfort and safety. The third concentrates on urban transportation, particularly on gaining a better understanding of the relation between transportation and other development, and the reasons on the part of users and officials for the choices made. And the fourth deals with inter-urban transportation - its modes, use, investment choices and tariffs.

It is expected that the research program be practical in its approach, and case studies of new or improved systems or vehicles are encouraged. The IRT is joining in a 1973 study of two experiments in long distance travel in Europe, the magnetically supported line in Germany between Hamburg and Munich and the high-speed rail test in France between Paris and Lyon. It also is following the development of a fully automated 4-mile rail link between Lille and an adjacent new town using small cars on short headways. In each case it has no prejudice with respect to mode or technology, but seeks to make a technical appraisal to serve as a means of testing the adaptability of each under conditions to be faced in France.

In the area of urban transportation the focus is on cities in the range of 100,000 to 500,000 in population, areas where it is accepted that the conventional metro cannot be justified economically. Here the problem is often protecting the center from the increasing use of the private vehicle, and providing in the planning and development of the area for a form of public transportation that is adaptable and economical. Use of buses on exclusive lanes is seen as a useful but not permanent method, and hopefully some "light," (in both mass and use) system may appear. In anticipation that one might, the reservation of land, more for stations than links, would be encouraged. Recognizing the need for private vehicle use even with good public transportation, the thinking is that automobiles should not be excluded from high density areas, but not led there by freeway. Rather than penetrating the downtown area, the freeway radials would terminate in a close-in ring, from which traffic could be fed on to the street network. Again thinking of the moderate-sized metropolitan area an experiment involving a small car that may be used for a certain time for a certain cost, controlled by the insertion of a card in a slot, is being watched with interest.

In summary this independent organization is concerning itself primarily with long-range practical research looking toward better means of fitting transportation into growing communities and examining critically all promising innovations, cognizant of social and environmental factors and fully objective as to mode. With a competent multi-disciplined staff, it gives promise of an effective product.

CHAPTER VI

PLANNING IN GERMANY

May, 1972

Government in Germany is organized much as in the United States, at least in the similarity in relations between the Federal, State, and city levels. In the transportation area, however, all Federal aids to transportation flow to or through the States and reach the cities through negotiations between the States and cities, in contrast to situation in the United States in which the Federal government deals directly with the local communities in aids to public transportation.

Planning and Financing the Highway Network

Responsibility for all modes of transportation at Federal level lies in the Ministry of Transportation and Communications. Among the divisions of the Ministry, which include railways, maritime, inland waterway and civil aviation are the Division of Transport Policy, Transport Economy and Planning; the Division of Road Traffic and Transport; and the Division of Road Construction. As in the United States actual construction is delegated to the States, although national route planning is done at Federal level. Design standards and specifications are developed by the Federal Institute of Road Research, financed jointly by the Division of Road Construction and the Division of Traffic and Transport.

Federal responsibility for road construction includes the development of Federal motorways (the Autobahn), financed 100 percent with Federal funds and the Federal highways (the Bundesstrassen) in which the Federal government participates to the extent of 50 percent of the construction cost. The Autobahn network of about 5000 kilometers (about 3000 miles) connects all sections of the country with one another (the density of the network--1 mile per 32 square miles--is about twice the density of the Interstate system in the United States--1 mile per 70 square miles). The Autobahn system avoids all cities, however, passing generally within 5 or 10 miles of the center with access provided as a link of the Federal highway system financed with 50 percent Federal funds. The access routes to the cities are laid out in cooperation with State and city officials, with the State and local communities having right of appeal to an administrative court in case of disagreement.

The routes of the Autobahn are laid out by the Ministry of Transport, in cooperation with other ministries, particularly the Ministry of the Interior, and the States so as not only to serve the existing development as it is expected to expand but also to encourage development in areas now less developed, by providing highways and developing other aspects of the infrastructure somewhat in advance of evident need. The Autobahn, all built to freeway standards, accommodate high volumes of both passenger cars and trucks, with allowable single axle loads of 22,000 pounds. Because of the large numbers of vehicles and the heavy axle loads a great deal of the system built prior to World War II is being reconstructed by widening and resurfacing (adding as much as 6 inches compacted thickness of bituminous material in a single lift). This travel demand is noteworthy in view of the remarkable capability of the rail system to move people and goods. High speed passenger trains with priority over all other rail movement connect all the major cities, and shorter runs between the larger and smaller cities give fast and frequent service. Over 1000 passenger trains per day pass through the station at Cologne.

The costs of Federal and Federal-aid construction are derived wholly from road user taxes. Breakdown of the cost of a gallon of motor fuel shows that the distributor gets 14.7 cents, the retailer 6.6 and the tax adds 52.4 cents for a total of nearly 75 cents per gallon. The tax is made up of a value added tax of 7.4 cents and a straight motor fuel tax of 45.0 cents (all figures in U. S. units at current rate of exchange). Half the motor fuel tax goes to the general funds, and the other half, amounting to about \$2 1/2 billion annually on the basis of current motor vehicle use, goes to the Division of Highway Construction for construction of the Autobahn and the Federal share of the construction cost of the Federal-aid highways. The Federal-aid highways as noted are those giving access to the cities from the Autobahn, and the major regional routes within the States, which may be included in the Bundesstrassen. The remaining tax (7.4 cents per gallon) is available specifically for urban transportation, half for urban roads and half for the capital cost, but not operating cost, of transit. These funds are not apportioned to the cities or States, but rather are available to assist in funding projects in any city, road or transit, that are approved for programming by State and Federal officials.

Planning at Local Level

General planning, including transportation planning, under Federal law is the responsibility of the local communities, although it must conform to the guidelines for national and regional development prescribed by the Federal government.

Federal requirements provide for a regional plan covering the region around each of the larger cities, supplemented by a plan for the city or plans for the cities included in the region, consistent with plans for improvements by Federal agencies and providing for the inclusion of any construction features, such as a section of the Autobahn or Bundesstrassen in the area. The manner in which this is carried out differs somewhat in specifics from one State to another but as a general thing the steps involve four levels or sequences of planning, somewhat as follows:

The Steps In Planning. The first level is the general plan for the region as a part of the national development policy, prepared by the Federal government in consultation with the States.

The second level is a land use plan looking ahead 15 to 20 years. It is regarded as a master plan, and shows land use in general categories, and all main roads, railroads, and rapid transit lines existing and proposed. Separate plans are prepared by the city or cities and the rural area included in the region, with the plans being coordinated by a "parliament" representing all the jurisdictions of the region. The regional parliament has a staff, and has the responsibility of developing plans for new towns, for industrial locations, residential areas and other development features, which obviously must be prepared in close coordination with the city or cities. Under Federal law the planning for each jurisdiction must be done in cooperation with State agencies concerned and in fact States can require that the cities make provision in their plans for anticipated State construction. This plan is by law available for public inspection and review for a period of four weeks. During this time any local official or land owner may propose any alternatives he desires, or simply object, stating his reasons, to any aspect. At the end of this period a public hearing is held, usually organized by the State, and following that the officials of each jurisdiction review each proposed change or objection, accept those that they regard as useful, and with explanation as to the disposition of each, forward the plan and their actions on each suggestions to the State for approval. Approval at State level gives the plan the effect of municipal law, and detailed planning and preparation of public works programs proceeds from there.

The next level of planning is the preparation of detailed land use plans, about to a parcel-by-parcel scale, indicating the character and density of use of all land included in the plan. This plan may include an entire city, or only a portion of it. There is no provision for further review or for additional approval at State level. Construction plans are prepared by the cities, and discussed with Federal and State agencies, such as the Federal Railways Division or the Waterways or Inland Waterways Transport Divisions where they are involved, and the State highway construction agencies. The Federal law requires that the cities prepare 5-year construction programs, not for approval at State level, but for information as to what the city proposes. Which of the specific projects may be eligible for Federal or State aid are then decided annually by negotiation between the particular cities and States involved and representatives of the Federal agencies concerned through committees that also include a representative of the Association of municipalities. This represents the fourth planning level.

Thus while the procedures vary to some degree from one State to another, planning stems from a Federal plan or policy with respect to regional development and the infrastructure, including rails and roads, to serve the desired or anticipated development. Surrounding each city (or sometimes including more than one city) are development regions, within which are elected "parliaments" staffed to carry on planning in the rural areas and coordinate plans prepared by the city officials for the city or cities within the regions. Plans are developed in cooperation with State and Federal agencies concerned, and when the general master plan of land use and transportation facilities is completed the public has opportunity to comment or enter objections. Local officials consider all suggestions, accept those appearing beneficial and pass the adopted plan along for State approval, which once obtained gives it the effect of law. Detailed zoning and land use plans, not requiring further public review or State approval may then proceed, and five year construction programs prepared by the local officials, to be implemented by annual programs negotiated on a project-by-project basis by local, State and Federal officials.

Financing Improvements. States may not levy motor fuel taxes but can impose license fees and ton-mile taxes on public carriers. Cities' revenues are largely confined to property tax, industrial tax and concession fees, although they receive some share of the Federal and State income taxes. Cities have depended heavily on the industrial tax, but recognize that industry must move to presently rural areas in newly developing industrial parks, and the character of city employment will shift from industrial to commercial, retail and service. In Germany, heavily industrialized as it is, employment in service industries passed that in manufacturing some years ago, even as in the United States. Consequently cities face a dilemma of sorts, having historically sought industrial development within their limits but now having to accept the loss of their most lucrative sources of revenue in the name of good planning. In common with other countries, population of the central cities holds steady or declines, suburbs and new towns appear, retailing and office type activity replaces industry, and congestion threatens the amenities of not only the old cities but some nearly completely rebuilt since World War II. Traffic-free areas, some very extensive, are appearing and in several at least, the day of neutrality in transportation has ended. Limits are being placed on automobile use in downtown areas, and further development must look to public transportation for access. Still efforts usually are being made to provide parking space near the downtown shopping areas and to limit its use to short time parking by the fee structure.

PLANNING IN DUSSELDORF

Dusseldorf is an example of the planning and development policies in the larger German metropolitan areas. It is the capital of a State, North-Rhine Westfalia, and is a major center in the highly industrialized district extending along the Rhine from Bonn to Hamm. Population in the city is about 700,000, now showing a slight decline from its high point in the mid sixties. The metropolitan area, not sharply defined as in the United States but resembling more our urbanized areas, is growing rapidly, however. This area includes the close-in city of Neuss, on the west bank of the Rhine (Dusseldorf is virtually all on the east bank) with a population of over 100,000, and four "rural" districts ranging in population from about 200,000 to nearly 400,000. Thus the total population of the region is nearly 2,000,000 in an area of around 400 square miles. Growth of the population in the area outside the city has come from industrial and residential growth related to changing center city activity and new industrial and commercial activities attracted to the metropolitan area from outside. The rural districts include 47 parishes, which are included in the regional development planning and programming through the regional "parliament" of elected officials provided with a planning staff responsible for all aspects of planning including transportation planning. As in other areas the regional planning is carried on in close cooperation with State and Federal agencies involved (rail commuting is largely dependent on Federal Railways for example) and with the city officials. Within the city the general planning is the responsibility of the City Planning Division, and transportation planning the responsibility of the Construction Division, both within the Department of Construction.

The Transportation System. Two routes of the Autobahn pass through the region from south to north, one on either side of the Rhine, in each case about five miles from the center of Dusseldorf, not touching the city limits. Connections to the city center from each route are by main State roads, mostly Federal-aid (Bundesstrassen), and some built to freeway standards close in to the city center where they terminate in an inner ring some one to three miles in diameter. Major residential, commercial or industrial developments are not clustered around the Autobahn interchanges but are served by radials from the city center and located generally well inside or outside the Autobahn. The intercity character of the Autobahn is strictly preserved by the regional planning process.

Travel to the city center from the residential areas developing in the formerly rural parishes is by private vehicle or by commuter rail where the areas lie along the lines of the Federal Railways. A new rail rapid transit line is now being built, on its own right of way in the rural areas but underground in the city center, along with a residential developments in the form of new towns planned cooperatively by the city and the regional authority to keep the new residential areas in balance with the commuting to be expected as the character of the city changes. Travel within the city is by private vehicle and public transportation involving both tram and bus lines, operated by a corporation in which all the stock is owned by the city. While the bus lines can extend into the rural areas, most of the travel is within the city limits. Currently transit receives about a \$9 million annual subsidy.

Dusseldorf was heavily damaged during World War II, some 85 percent of the buildings in the downtown area destroyed or badly damaged, and all the Rhine bridges destroyed. In rebuilding, the city took advantage of the opportunity to preserve the remaining historic buildings and provide a street system to accommodate well the high rise buildings now built or building. (Note: It was said facetiously that there were two major impacts on city planning in Dusseldorf--Napoleon and the RAF). Two Rhine bridges have been built, and a third is under construction (all stayed girder for appearances and economy) and to accommodate the heavy Rhine waterway traffic. They are encouraging growth west of the river and, as a consequences, sharply increasing river crossing traffic.

Neutrality Between Modes. Up until the present time it has been the policy, and a policy that was possible of implementation, to provide for public and private transportation in the amount desired by the people. As noted, tram and bus service provided good transportation within the city and the Federal Railways, under agreement with the city, provided excellent commuting service to the main station reasonably close to the center of the city. Demand for private vehicle use was met effectively by ample parking provisions, both public and private, and traffic control on the ample street network was and is highly sophisticated. Not only are intersection signals computer controlled and traffic actuated, but speed to be observed to maintain a continuous "green band" on arterial streets is indicated by mid-block signals showing kilometer per hour figures on circular lenses. Under light traffic conditions the system can accommodate speeds as high as 45 miles per hour, while in heavier volumes it might be reduced to as low as 20. Allowable speed can change minute by minute to accommodate even minor surges in traffic volumes.

But even with this outstanding traffic control system the limit seems to have been reached. Decision has been made not to increase the total amount of downtown parking space, for to do so would encourage traffic in an amount beyond the street capacity, and in the rebuilding process increasing street capacity could be accomplished only at expense of amenities that are desired to be retained. (Note: It would seem that the limit may already have been passed when, as it was reported, traffic on one freeway approaching the city backs up as much as four miles during morning peak hours). Up until now transportation has been kept in balance with development, and has been neutral. It will still be kept in balance, but it can no longer be neutral. Future increases in travel to the center will have to be accommodated by public transportation.

Several approaches will be used to meet these new conditions. Relocation of industry from the city to the surrounding area will continue. Although outlying shopping centers are appearing, effort will be made to retain the major shopping area in the center city, and to aid in this approach the parking fee structure will be adjusted to encourage short-time parking for shopping or business purposes. The officials are under no illusions as to the desire of the German people to continue the use of their cars, however. Motor vehicle ownership in Dusseldorf increased in the last decade from one vehicle per 7 residents to one for 3, and the trend continues sharply upward. Moreover, the rising economic level is reflected in the declining proportion of Volkswagens in favor of higher priced, larger, more powerful cars in the traffic stream. So to accommodate this desire, the plans will call for dispersal to sites still within the city but remote from the center for activities that require large numbers of employees but relatively few visitors. There ample parking space can be provided, as is the case in the industrial parks and residential estates outside the city. A new building housing IBM activities is an example. In the case of buildings that need to be easily accessible to visitors and thus to be in the center city, such as a new State office building the number of parking spaces required to be provided will be less than the current standard, in contrast to the previous efforts to encourage more than the required number.

New Town Developments. To reduce the pressure on the city, new towns are being planned and developed by cooperative effort of the city and the region, towns that will be reasonably self contained. One example, begun in 1961 and nearly complete will house 28,000 people in 8,000 dwelling units. It is served by highway, and rapid rail transit provided by the Federal Railways on two special tracks along one of its lines. Time of travel to the city by road is about 35 minutes in peak hour as against 15 by rail, with rail service operated at 15-minute headway in peak periods and 30 minutes during the rest of the day. Housing is in multi-family and single units, with the higher rise buildings close to the station and the single units more remote. Because of mounting construction costs condominiums are popular. Housing may be either publicly or privately financed, but there is usually some subsidy involved in either type.

The planning processes follow closely those described earlier. The plan for the city prepared by city officials and that for the region outside the city prepared by the regional parliament are done in cooperation with one another and the appropriate State and Federal agencies. Once the plan has been presented to the public for review and comment, their suggestions considered, the plan adopted by the Parliament and the city and approved by the State it has the effect of law. Public and private development must adhere to the plan, and departure from it by private developers brings penalties. Variances for individual parcels cannot be allowed, although requirements for an entire zone may be changed by repeating the original planning process.

PLANNING IN HAMBURG

Hamburg is unique in that it is a City-State, and as such has responsibility for all functions that are peculiar to each. It is the center of a metropolitan region, however, and while its population reached a peak of about 1,850,000 in 1965 it is now declining slowly as the population in the outlying areas increases rapidly, now totalling another 650,000. As a result, while the Federal laws with respect to planning at State and city levels apply completely, an additional factor appears in the necessity of developing cooperation between Hamburg and the two neighboring States. Working cooperatively the three States have developed the first level general development plan to satisfy the Federal requirements and to serve as a guide for the second level, more specific land use or master plan. This plan, having received Federal approval, indicates land uses in a very general way, and the transportation corridors showing rail, highway, and existing and proposed rapid transit systems.

The Transportation System. The city is served by the Federal Railways system which operates, under agreement with the City-State, rail rapid transit service on two exclusive tracks along certain of its lines. The main rail station gives direct access to an extensive traffic-free shopping area, anchored at one end by a major department store and opening out at the other in the government center. It is an attractive busy mall, with restaurants and entertainment features, and opportunity to relax in "sitting" parks.

The city is also well served by highway access, with Autobahn routes lying nearer the center than in most German cities, and main State highways giving almost direct access to the center. An inner ring of arterial streets, about a mile and a half in diameter encircles the downtown area on three sides (the other is the Elbe River), and a second ring built to freeway or expressway at grade standards lies a half-mile to a mile outside that. Hamburg, like Dusseldorf, was badly damaged in World War II, being one of Germany's principal ports as well as an industrial center, and like Dusseldorf, Hamburg in rebuilding preserved what historic old buildings survived and rebuilt a street system capable of accommodating heavy traffic flows. Parking space in the downtown area has been adequate to meet the needs, provided close to the shopping and business areas by publicly and privately financed facilities. The situation is tightening up, however, and the major department store which operated a large facility with almost direct access from a freeway at no charge for parking now charges a fee, the amount of which is refunded to its customers. Transit operation on the street system now includes both trams and buses, but once the rapid transit subway system is completed the trams will no longer run. No point in the downtown area will be a more than a quarter mile from a subway station.

Despite this evident good access by rail and highway, transportation in Hamburg is heavily rapid transit oriented. Two lines that intersect near the center of the business district are being supplemented by still a third line. The three-level interchange point is not only a major engineering project in itself; it is complicated in that the third line reaches the interchange by passing under a lake. Thus there is a third underground-underwater tunnel being constructed by open cut methods, together with a transfer point between the three lines all while the other two continue to run. It is small wonder that transit officials the world over have come to experience the engineering feat.

While access to the downtown area is good from the point of view of reaching parking areas, travel by private car within the center itself meets with some handicaps. On one major street, for example, with tram lines and loading zones at the intersections occupying the center of the street and with the curb lane reserved for buses, only one lane in each direction remains for cars and trucks. Once the third subway is opened the tram line will be removed and vehicular movement relieved, but encouragement of transit travel not only in the future but now is clearly evident.

While emphasis on transit, in the views of the planners, has to be accepted to keep transportation in balance with development, the policy meets with the desires of the public. Under the planning process the land-use or master plan was made available for public review and comment, and during the four-week period over 30,000 comments were received. The preponderant attitude as expressed by these voluntary offerings favored emphasis on transit in preference to further freeway construction in built-up areas. That the public interest in planning and transportation is heightening is seen by the fact that 10 years ago when a similar opportunity was given for public comment only 2,000 comments were received (Note: While it was no doubt gratifying to receive such a volume of public reaction and support, everyone of the 30,000 offerings had to be considered by the official agencies concerned--economics, engineering, and planning, for example--and all those not accepted explained by the city to the State).

As noted earlier the city can draw from a small portion of the motor fuel tax for construction of main roads and the capital costs of transit improvement. These Federal funds, allocated on a project-by-project basis through negotiations among the officials at the various government levels, must be matched by local funds, and if the Federal-State program in a city gives high priority to a particular program, other programs may suffer. This is the case in Hamburg where the subway construction is not progressing as rapidly as the city would like because of the Federal-State interest in completing a north-south bypass to the west of the city center. Here the city is called upon to participate to the extent of 40 percent of the cost on the basis of a calculation that shows that the street system will be relieved of approximately that proportion of its north-south through traffic. While the city will be relieved of some construction projects within the city, that construction would have come later in the program under the city's priorities.

Balanced Transportation. While there are many similarities between Hamburg and Dusseldorf there are differences in their approaches to the solution of the same problem that confronts both cities. While Dusseldorf looks to dispersal of commercial and service activities and removal of industry from the city, Hamburg will retain industry and rely heavily on emphasis on rapid rail transit. One reason may be that much of Hamburg's industry is related to its port and ship building and repair facilities, which cannot well be moved, around which the city has developed. But in each case the planning process was the same. The officials have planned and are developing a transportation system in balance with development as they encourage or anticipate it, and the public, with opportunity to comment freely, has supported their decisions.

The Elbe River Tunnel. Another major engineering project underway is a tunnel under the Elbe River just below the city center to carry a six-lane freeway. This tunnel, because of industrial development on one side and residential development on the other crosses the river on a skew of about 45 degrees, to give it a length of over two miles in gaining sufficient depth under the 40-foot depth of water. The underwater segment consists of eight precast sections each about 400 feet in length and including three 2-lane roadway sections to make a width of about 130 feet. These sections were cast on shore, floated into place and sunk in a trench. Each section rests on foundations prepared to support it at each end and are jacked into exact elevation, after which a sand cushion is pumped beneath it to serve as its final foundation. The grade through the 8-section length changed from minus 3.5 to plus 2.6 from south to north. While the underwater section is on tangent alignment, the approach tunnels on either end are on a curved alignment. They are being constructed partly by tunneling and partly by cut and cover methods.

This project rivals the new subway construction in engineering complexity and construction difficulty, and like the subway construction has attracted wide attention. Excellent means of viewing the operations have been provided, and illustrations and models depict the engineering and construction procedures. Not only are technically trained visitors given opportunity to view and discuss the work; the project engineers welcome school children and other groups in a well planned public relations effort.

Summary

In summary, urban planning in Germany is the responsibility of the local officials, planners of the city coordinating their work with those of the "parliaments" representing the parishes in the areas outside the city or cities in any region. Transportation planning and general planning are performed in the same departments. The planning procedures must follow general guidelines laid down at Federal level, and more specific requirements established at State level. City plans must allow for proposed Federal or State construction. A broad general plan must be approved at State and Federal level, after which the city prepares a master plan, or general land use and transportation plan, looking ahead 15 to 20 years. This plan is available for public review and comments for four weeks, after which the official agencies must consider each comment and explain to the State the reasons for not accepting any that were not. Upon State approval the plan becomes municipal law and all further development, public or private, must conform. Specific zoning regulations and construction plans (proposed programs) looking 5 years ahead are then prepared and forwarded to the State for information (not approval) to serve as a basis for annual "negotiations" with State and Federal officials to agree upon a program for the coming year for funding projects that qualify for State or Federal aid. Thus the full responsibility rests with the city officials. Citizens may comment on the master plan, and the State in approving it must see that the comments are given appropriate consideration. Thereafter the detailed zoning and programs of implementation are not subject to public review, but their execution is in effect subject to State approval in that works eligible for State aid are financed on a project-by-project basis by annual negotiations. With competent officials and good cooperation at all levels, the procedures appear to work well.

CHAPTER VII

PLANNING IN DENMARK

May, 1972

Denmark is essentially two peninsulas, extending northward, the larger, Jutland, on the west and Zealand to the east, although Zealand actually is an island. Copenhagen, the capital is on Zealand facing the southern tip of Sweden, and with a metropolitan area population of about 1.7 million includes just over one-third of the population of the country--a little under 5 million.

Land use is controlled by the State (National Government) through plans that designate specific areas for development, further designated by general type such as industrial, residential or commercial. All other land may be used only for agricultural purposes. Within each development zone the local officials prepare more detailed land use plans to meet their own desires for the detailed character and density of development. The general national land use plans are developed by national committees under the responsibility of the Department of the Interior, for ultimate Parliamentary approval. The detailed local plans are prepared by the local elected officials, with help from the Department of Housing or consultants if desired, for review at State level by committees on which all departments are represented, and after such reconsideration as may be required at local level, approved by the Minister of Housing. Parliamentary approval of local plans is not required.

The Transportation System

Transportation at State (National) level is a State responsibility, all main roads being financed with 100 percent State funds with State aid for county roads and main city streets. Railways are operated by the State. All routes of the State system are approved by the Parliament, as are section-by-section programs, and finally the annual construction and maintenance program is given approval through the annual budget review process. Location and geometric design of State routes are carried out by the State, but structural design, construction and maintenance is delegated to the counties or cities. Motor vehicle taxes are heavy, but despite this, motor vehicle ownership is high--currently one vehicle for four persons and expected to increase to as much as one to two and a half by 1985. Gasoline tax amounts to nearly 60 cents per U. S. gallon out of a total price of 80 cents, at current rate of exchange. A new vehicle costing \$1500 is assessed a sales tax of \$2250, and an annual registration fee of \$75. Low initial cost and good fuel economy are important factors in purchasing a new vehicle. There is no tax on diesel fuel, but a ton-mile tax on public carriers. All road user taxes go to the general funds, from which funds for the highway program are appropriated, but not in an amount equal to highway user revenues.

A major program of freeway construction is underway, programmed for completion in 1975. Copenhagen is the hub of the freeway network; one route leads north parallel to the coast, closely by-passing a series of towns and small cities, and a heavily used summer cottage and vacation area. A second leads to the northwest serving the interior of the island, mostly agricultural in use. The third leads west and the fourth follows the coast to the south, and leads to the ferry to Germany. Another freeway, a good deal of which is already completed on the Jutland peninsula will connect that area with Copenhagen by the way of a new bridge under construction. The freeways approaching Copenhagen intersect a freeway ring of radius generally of 7 or 8 miles, and are planned to penetrate the city to feed on to the street system a mile or two from the center.

Along with the freeway system rail rapid transit service is provided by the State railway system in two of the freeway corridors, running on the surface in the outlying area but underground for about a mile in the city center. These routes give access close to the business district, in contrast to the freeway network. While plans are being considered to continue the freeway radials to serve the city center more closely, opposition by the environmentalists may stop the freeway from the north, now under construction well into the city, a mile or so short of its intended terminus. A city-owned tram line with supplementary bus lines gives good service within the city, but in the smaller suburban cities and towns the bus lines (or occasionally tram lines) are uncoordinated with the city system or one another. Some are privately owned and some publicly owned, but in each case they are independently authorized by the officials of the local community. The rail rapid transit (5 lines) are subsidized by the State from general funds, and the city-owned tram line system is subsidized by the city.

All of the freeway and rail rapid transit programs are being carried out under a general plan for suburban development adopted in 1947, called the "finger" plan, of radials and circumferentials, later revised somewhat, hopefully to encourage suburban development toward the west and south to protect the more attractive recreational attributes of the area to the north. While this basic transportation network has not been brought into serious question, a number of factors developing over time have caused both the State and the city to take another look at the future of the region.

PLANNING IN COPENHAGEN

Copenhagen is an old city, and serves as the center of the most important region of the country, as noted including one third of the total population. It serves also as the national capital and is renowned as an international recreational center. Its historic center is a magnificent plaza flanked by Tivoli Gardens on one side, the "Town Hall" on another, and major hotels and office buildings on the other two sides. A mile away are the Royal Palace and the Parliament and other government buildings. A long stretch of docks accommodate shipping and the heavy ferry traffic mostly by hydrofoil and aerofoil "boats" to Sweden. There are extensive park areas especially along the harbor shore and a series of lakes. But most of the buildings are old and many ill adapted to needs for modern office space, and much of the housing is also old and deteriorating in the area near the center. The older streets are narrow and parking space generally inadequate. With all the inadequacies, however, there is strong public and official desire to preserve the center city from despoilation by high-rise construction in that area. Difficulty of access by motor vehicle has damaged the retail economy. Two department stores have failed, while a third, the major store, has survived by providing parking in its downtown building and opening suburban branches. What has been the principal shopping street is now traffic free for many blocks, and supplies retail trade from staples to luxuries. While the "social" planners advocate a rail rapid transit subway they are in the van of those who will not accept the concentration of high-rise buildings in the center needed to justify it. Only partly related to Copenhagen's problem is the desire to strengthen the economy of the Jutland peninsula, now almost wholly rural, and lagging behind Zealand.

Decision has been reached to remove to other parts of the region much of the activity of the city that is regional in its character, and to move some of those of national scope, such as government offices, to Jutland. These moves would permit renewal of the run-down areas of the city by building new housing (proposals for 25,000 new housing units are now being discussed) and to provide more nearly adequate space for those activities associated with the national capital and the features worthy of international attention. Of course, a great deal of this is happening anyway, in that new industrial, commercial and residential centers are locating in the suburbs and similar center city activities are moving out of their own accord. But the result is extending the suburbs along the fingers of the 1947 plan an undue distance from the center, and the unplanned incursion into the areas between the fingers of residential and other development because of growth pressures that administrative controls cannot well prevent. While no access to main roads is allowed in agricultural areas without a permit granted by a State-level committee, access in areas zoned for development is controlled by the local officials. Likewise, as noted earlier, not only the type of land use within a development area but its density are matters of local control, and officials in approving specific developments give little attention to transportation (except that it seems to be good form to provide traffic-free shopping areas) and too often permit access where it is detrimental to traffic flow. Housing developments are constructed by "social housing companies" to which low-interest guaranteed loans are available. They may build either high rise or single family tract housing under this authority, with the housing available to the people on the basis of family size and need, with lower income families subsidized by State funds. Sociological studies have shown a preference for single housing, and the cost differential between single and high rise is very little. Space limitations in the suburbs and presumably the desire of the developers to place more units on a parcel result in a good deal of high-rise housing in the suburbs, however.

The result of all these factors coming into conjunction has led to a decision to review the conditions as they now exist in the region and as they presumably will be in the year 1975 under committed programs, and to explore various alternatives to produce more orderly and more effective patterns for the growth that is anticipated thereafter. This decision was arrived at by discussions at State, city, and local community level and led to a thorough-going review of the current situation and the preparation of several alternative proposals for growth patterns. The work is under the direction of a Regional Planning Council, of 17 members, established by the voluntary action of the cities of Copenhagen and Fredericksburg and the three counties included in the region.

The Planning Organization. The 17 members include 3 from the City of Copenhagen, one from the city of Fredericksburg, and 13 from the three counties comprising the region, representing the counties themselves and the local communities (originally 91 but later reduced through consolidation to 55). The members were appointed by the local officials and quite generally are themselves elected officials. The chairman is the Lord Mayor of Copenhagen. While the Council is a voluntary organization and has no authority to implement programs, the fact that the plan to be adopted will have been drawn by elected officials, or their delegates, of the communities that do have program responsibility gives some assurance of implementation. Moreover it is anticipated that this plan will extend to recommended density of development in the local communities, and it is expected, although it is not a legal requirement, that the local officials will adopt the Council's recommendations. One phase of the study is the exploration of the desirability of creating a regional body, similar to the Greater London Council, with authority to plan and construct features of regional importance such as sewerage, water supply systems, or recreational facilities. Currently the State has authority to plan and construct railroads and highways, the counties have responsibility for some facilities of regional scale such as hospitals, and each local community for all other works within its own area.

The Council operates through a 5-member executive committee and a multi-disciplined technical staff. In its studies it has the benefit of technical assistance from State, county and city agencies and can employ consultants as needed. It is financed by local governments. Preparation of a plan for adoption is now in progress, as noted earlier using anticipated 1975 conditions as a "given" or starting point because of several major program commitments that will be completed or under construction by that year. It does not anticipate a long-range plan directed to any specific horizon year, but rather to show what must be done in all program areas to keep facilities in balance with growth as population increases. The plan will look toward a shorter range estimate of needs as of 1985, however, as a guide to specific programming in the various areas. At that time a population of over 2 million is expected.

Alternatives Being Explored. By 1975 the highway construction program will have produced or have under construction about 100 miles of freeway and the 5 rail lines will have been extended to about 70 miles. The capacity of the airport, the fourth busiest in Europe will have been reached and work may have been started on a new airport on an island in the strait between Denmark and Sweden, to be reached by a tunnel from Copenhagen. If current discussions between the two countries are fruitful, a bridge will be built from the island to Sweden, to give a vehicular connection across the strait. In accomplishing this a true international metropolitan area would emerge, as Malmo with a population of about 700,000 and its surrounding communities in many respects are a part of metropolitan Copenhagen now. A northern crossing at Helsingford is also in prospect to complete the linkage of the two parts of a metropolitan area that would be serving perhaps 4 million people by the year 2000.

These major transportation links are of course a very powerful factor in shaping regional growth, and the planners' problem will be to take full advantage of them in developing new growth patterns and to develop a finer-grained transportation network designed to encourage decentralization of activities that can better be removed from the center and direct the new development to the south and west. While housing and government office building programs, among others, will aid in meeting these objectives, transportation is obviously the most important single element. The Council has set two general study goals, underlining the importance of transportation: (1) Where are new urban areas to be placed, and how should both new and old urban areas be formed? and (2) How should the transport system be designed to render the optimum service to the region?

The importance of the transportation aspect is recognized by the fact that the study of transport needs and its relation to other development is financed separately with half the cost from State funds, but fully integrated with the more general planning study. Based on a "conventional" comprehensive study of travel habits conducted in 1967 a British consulting firm has developed models to permit examination of the transportation implications of any proposed development scheme. Four principal alternatives are being evaluated with respect to their ability to meet the general development goals, and the cost and impact of the transportation network needed to serve each one. The four are: (1) continue the present radial pattern; (2) emphasize growth to the south and west on lines connecting to the continent; (3) introduce a north-south activity belt to the west of Copenhagen; and (4) widespread decentralization. Within each primary alternative variations are possible, demonstrated by the evaluation process as it proceeds. The planning process is therefore an iterative procedure, with successive steps taken following discussion within the Council and with State agencies as the evaluation of the earlier steps reveal their strengths and weaknesses. The options are still open and the continuing study flexible as to intermediate objectives to meet the ultimate goal. Decisions with respect to desirably density of

development in new or existing areas have yet to be made, and transportation not only will be in balance, but apparently can and will be viewed as a neutral factor. There is no current official view that one mode must or should be favored over another.

There is no legal requirement that the public be involved in the planning decision or in the planning process. The adoption of the plan ultimately to be adopted by the jurisdictions concerned will require a formal hearing held by the State and attended by the local officials. The local officials, who are elected by the citizens, are presumed to represent them. The Council accepts, however, that the public must be informed as to what the planners are doing as the work progresses and effective public relations programs are being conducted, largely through wide dissemination of information through the press. Public response is good, usually through "letters to the editor" or letters addressed to the Council. The Council is gratified with the generally favorable response and the degree to which the comments express concern with respect to the broad aspects of the plan rather than reflecting local or subjective reactions. It is clear that the Danes value their open space and the preservation of their recreational areas highly.

The approach promises a plan for development after 1975 under which the regional and national goals can be met, with transportation in balance and with the individuals free to use the mode of their choice, and which can be implemented within the resources expected to be available from public and private sources.

CHAPTER VIII

PLANNING IN SWEDEN

May, 1972

Planning in Sweden is effective, probably more effective than in any other country included in this investigation. The reasons are several--statutory requirements and authority, close working arrangements between technical staffs and political bodies, inclusion of the public sector in decision making, good cooperation between State and local agencies, and acceptance by the public of the desirability of planning and control of land use. All these together have produced a "tradition" of planning and a degree of control over daily living that appears to be held with considerable pride by the Swedish people.

State Organization for Transportation Planning and Programming

Road planning at National level (in Sweden the National Government is generally referred to as the State) is the responsibility of the National Swedish Road Administration. It is concerned with the development of the national road plan and the execution of the program of State and local rural road construction and maintenance, and with assistance to the cities in transportation planning and in their execution of the road and street phases of their road programs.

Organization for Planning. The "central organization" of the Road Administration is the National Road Board, the chairman of which serves as full time Director General and Chief of the National Road Administration. He presides over a Board of Directors including, in addition to himself, two Members of Parliament, the Chairman of the Transport Worker's Union, a Municipal Director and a representative of the public at large. He also supervises the six divisions into which the Road Administration is organized. The directors of the National Road Board are appointed by the King, and are thus responsible to the Crown. The Board advises on general policy but the Director General, through his line and staff organization, has full responsibility for all administrative and technical aspects of the program.

The Parliament enters the area of transportation under the legislative process through the Ministry of Communications by defining the overall objectives in the transportation area and by controlling the programs of the Road Administration through the process of annual budget review and appropriation of funds.

Thus there is a unique combination of appointed and elected officials, representatives of public and private interests, and political concern and professional expertise brought to bear in a manner that seems to be producing effective programs in line with the desires of the people.

The principal activities of the Road Administration fall in two general categories, the "line" functions and the "civil service" functions. The line functions involve the design, construction and maintenance of rural roads, and include long range planning and intermediate range planning (in effect, programming). It involves close liaison with the 24 county administrations to insure that the highway program is coordinated with the counties' plans for overall development. In carrying out these responsibilities the Administration operates through Regional Offices and local organizations or construction districts. Construction is carried on by the administration's own forces, or by contract, whichever appears to be in the best interest of the public, primarily from the point of view of cost, but always maintaining a sufficient capability for force-account work in each region to insure reasonable contract prices. Maintenance, with a heavy share involving winter maintenance of course, is performed with State forces. With the objective of reaching the best balance between force account and contract construction, cost accounting is careful and detailed.

The "civil service" function (civil service not being used as in the U. S. A. sense of the nature of appointment of personnel) is the responsibility of the Technical Division. This division is concerned with the area of urban transportation, cooperating with the cities in conducting their comprehensive planning studies and in developing their long- and intermediate-range transportation plans. The division also has responsibility for design and supervision of construction of bridges and for research in materials and geometric design. It also represents the Road Administration in overall nationwide comprehensive planning.

The Transportation Planning Process. The planning process embraces three steps, or "levels," by which was produced in 1970 the report that serves as the current guideline. The first step in the process was an inventory of needs, without regard to resources to meet them, looking 15 years ahead, similar in concept to the U. S. highway needs studies. As in the other steps the inventory included rural road needs as determined by the Road Administration, and the urban road and street needs as determined by the cities with the help as required of the Road Administration's Technical Division.

The second step was the development of a long range plan. This plan involved the listing of specific projects in order of priority with cost estimates, with no constraints as to the total cost, but expected to be consistent with the policies of the Road Administration and with the resources that might reasonably be expected. In the first effort under this planning approach the estimated cost for urban streets for the 10-year period totaled 7 billion kroner (about \$1 1/2 billion), or 700 million per year as against an amount expected to be available of about 300 million annually.

At this point the Road Administration reviewed the plans proposed by the various cities, and on the basis of its judgment as to the respective needs, determined an annual amount each city might program against, based on the 300 million kroner (about \$63 million) total figure. The 10-year proposed plans were sent back to the several cities with the request that they move to the next planning level by developing a 5-year plan within the amount of funds allocated, showing the projects in priority order on an annual program basis. This plan was reviewed in the Technical Division, in consultation with the other divisions and the Director General, as a basis for the request to the Parliament for the annual budget allocation.

These last two steps comply with the legislative requirement for the development of a 5-year plan, to be revised and extended at 3-year intervals. Any city that objects to the allocation by the Road Administration has the right of appeal to the Government, but because the programs are worked out cooperatively between the State and the individual communities, there seldom has been an appeal.

Financing Transportation Programs. Thus the State is heavily involved in the transportation systems in urban areas through the program of the National Road Administration, and participates in the planning process in the development of the three levels of plans in each city. The Road Administration divides the amount it receives in its budget into two classes of funds. The first class includes "100 percent" funds for rural highway construction and maintenance, but which can also be used at the Administration's discretion for radial arteries connecting the suburbs with the city centers, and for by-pass or circumferential routes to permit through traffic to avoid the city centers. The second class is urban funds that are allocated to the cities but which must be matched by the cities on a scale of 5 to 15 percent with their funds. The matching rate is subject to negotiation, but usually is 95-5. In Stockholm and Gothenberg, under recent legislation, State funds allocated by the Road Administration may be used either for streets or for capital cost of transit improvements. While these funds on a 95-5 matching basis are significant and attractive, the State funds cannot participate in any costs "above the rail" so the cost of all stations and appurtenances and rolling stock must come from the city. When these costs are added in, the matching for the total project cost becomes more nearly 50-50, and the amount of 95-5 money that can be taken up is limited by the city's ability to raise its share including as it must the operating deficit that will inevitably follow.

Thus State Road user taxes that at one time were earmarked for highway purposes are now available in significant amounts to aid in urban street improvements, and in two cities, for rapid transit improvements as well. The amounts available are not apportioned by law, but are decided by the National Road Administration on the basis of need, as determined by the inventories of conditions and programs developed by the local communities, in close cooperation with the State, through the planning process.

National Transportation Policy

Development of a national road network as such began with the nationalization of roads in 1944. In 1955 a Parliamentary Commission comprising public and private interests began the development of a plan for the construction of the national network. The resulting plan, completed in 1957 was accepted by the Parliament, but was not funded, so progress was slow. In 1965 another group was assembled, again including public and private interests, and representatives of State agencies and the communities. This group's charge was not to produce a specific program but rather to develop principles and determine standards to serve as a basis for planning, programming, and design and construction. The result of this effort was the 1970 Road Plan, which was not formally adopted by Parliament because of uncertainty as to the availability of funds, but which was expected to and does serve as a guideline in intermediate-range planning and annual programming.

At this time still another series of studies is underway with the objective of developing a more specific highway policy. On the one hand it is important to have a full understanding of what highway transportation means to Sweden in order to insure that the highway plans and programs will fit properly into the national land use plan that is now being developed under recent legislation. The Road Administration has a heavy responsibility in working with the Ministry of Housing and Planning on the transportation phases of this comprehensive planning effort. On the other hand there is a desire to review the procedures used in developing programs to permit a proper balance to be struck between the different modes, as between rail and highway for example, and to establish policies of taxation in the highway area to provide that the various classes of users, passenger cars and trucks of different sizes, pay their fair shares toward the construction and operation of the system. The studies will include a functional classification of the routes of the network and will attempt to find a means of striking a balance between construction and maintenance and settle upon a reasonable limit for axle loads. At present about 90 percent of the primary roads are adequate for axle loads of 10 metric tons (22,000 pounds) although the general limit is now 8 tons, with corresponding tandem-axle weights of 16 to 12 tons respectively. While it is expected that movement of goods by rail will increase slightly in the future, truck transportation has about taken over the short haul movement and is expected nearly to double in the five year period 1970-75. (Note: there isn't much but short haul in Sweden). Obviously this increase will be a factor not only in rural road administration but in urban planning as well, as industry becomes more centralized or more dispersed, whichever the national land use plan will eventually recommend.

Conscious of the interrelation of transportation and the national economy it is understood that the new transportation policy should "lead to competition on equal terms between the various forms of transportation" as an incentive for "traffic to seek the most suitable means of transport, measured by the criteria of both quality and cost." At the same time it is accepted that "in principle each form of transport must meet the costs caused to the public purse." And moreover, within a program projects to the extent feasible should be rated in priority on the basis of their "profitability." It is recognized that in the highway area this principle gives preference to improvements on the more heavily traveled sections of the network.

The elements of the profitably calculation include the construction and maintenance costs on one side of the equation and savings in operating, time, and accident costs to the users on the other. Besides these elements that can be quantified in monetary terms the factor of route continuity and stages of construction are considered, and also to be considered is the broad factor "areal economic development and environmental and social effects."

Just how this last element of economic, environmental and social factors, is introduced into the decision making is not clear, but perhaps may be clarified in the current search for a national land use and transportation policy. As to its present policy, the National Road Administration in a general way gives preference to projects that will aid public transportation. This is seen in the allocation of funds to Stockholm and Gothenburg for rail rapid transit construction, and to these and other cities for facilitating bus movements. With transit operating at a heavy deficit, the "profitability" calculations must include large allowances for areal economic, social and environmental factors to qualify. The simple answer, however, seems to be that the Swedish people now feel, as their feelings are interpreted by their elected officials, that transit should be favored over highways. Whether this view is consistent with the anticipated increase in motor vehicle ownership, projected to reach 600 vehicles per 1000 persons as early as the end of the 80's, remains to be seen.

Transportation Planning in Urban Areas

Transportation planning in urban areas involves complex relationships between community, county, and State agencies, and between the technical staffs and the elected and appointed officials. Each community (Stockholm is a community in this sense) should prepare a land use plan for ultimate review and approval of the Ministry of Housing and Planning. Transportation is an essential feature of the plan, and the transportation elements must be reviewed by the National Road Administration, as other technical aspects are reviewed by other appropriate State agencies, as the plan follows its course through the various steps of approval.

The community in preparing its plan must be guided by general land use and development policies enunciated by the Ministry of Housing and Planning. One guideline, for example, is the present policy of the Parliament to encourage growth in the smaller cities in preference to the two major metropolitan areas, and to allocate resources accordingly. In the transportation area the community must know the plans of the Road Administration for construction of State roads within or near the area, and whether it can expect 100 percent construction of arteries or by-passes within its limits. Thus in the earliest stages of a new or revised plan the planners of the community must work with the technical staffs of all State agencies concerned. Through this process opportunity is available for consideration of revisions in the plans of the State agencies as well,

in the interest of better serving the community if possible within the national and regional plans and policies of the State agencies. At this stage, the planning is at about the first "level," or requirements or inventory stage, of the Road Administration's planning process. Consultations are between the community planners and the regional staffs of the State agencies where the agencies have such organization. At the same time the technical staffs of the community keep in close touch with their elected officials, for the plan once developed must be formally adopted by the city council.

Once the plan is approved by the City Council it is forwarded to the county for review, and in so doing the city must show that the technical aspects have been considered with the appropriate State agencies. The county's staff reviews the plan as received, presumably having been consulted by the city in the course of its preparation anyway, with its own technicians where the capability exists (in Stockholm, for example, capability exists in the land use area, but not in the area of transportation) and where it does not, seeks the advice of the State technical experts, usually at regional level. Here, too, the State technicians presumably have been consulted by the city during the course of plan preparation. Once these comments have been received, and any differences worked out, the Governor of the county (an official appointed by the Government) may approve the plan and forward it to the Minister of Housing and Planning for review and approval at that level.

When the plan arrives at the Ministry of Housing and Planning it is sent to the Housing Board (a counterpart of the Road Board) for technical review, or to the Road Board for review of the items with which it is concerned. Questionable items are discussed with the community, and hopefully resolved, but if necessary, the plan can be returned for a new start. Ultimately the plan, perhaps subject to conditions on minor elements of disagreement, is approved (Note: or confirmed?--there was question as to the word in English to denote exactly the finality or authority of the action) by the Minister. This is an important action, for once the plan is approved land in the community is reserved for the purposes shown on the plan, and can be acquired by the city at any time thereafter. Under Swedish law the city may acquire the land through expropriation, and also has first priority in case of any sale thereafter. In consequence of this "right of option" the city if it does not acquire any property offered for sale at the time it is offered, is entitled to take over the land from another purchaser at any time thereafter at the price he paid plus the current value of his improvements.

Once the plan is approved at State level, execution is the responsibility of the community, with its own or participating funds for public improvements and through building permits, conditions of leases, or other devices for control of private development. City officials must be guided by the plan and there is no evidence of desire on their parts to depart from the plans, speaking again for the acceptance by the Swedish people of a high degree of control over their living in the interest of the community good.

Citizen Participation. While generally the technical staffs in the cities keep the elected officials advised as to their planning activities, and while presumably interested citizens through their officials can be aware of what is being proposed, formal action for citizen review is a requirement of law. When a plan is being considered for adoption by the city council, the council must advise each citizen directly interested (mostly owners of land that would be affected by the plan), that a plan is being considered. The citizen is informed by letter of the time and place where the plan may be reviewed, and is sent a return receipt that he must complete as evidence that he has been advised of his opportunity to comment. The city must allow a minimum of three weeks for this review. Following his review the citizen may complain in writing.

The technical staff must review each complaint, and recommend action on each to the city council, explaining in the case of each rejection the reason for that recommendation. The council then reviews all complaints, along with the technical staffs' recommendation with respect to each, and decides whether to accept the staffs' recommendations. Having reached decision on each complaint, the city council forwards the plan to the county as described earlier, and along with the plan the entire group of complaints and explanation of the city's action on each. In its review of the plan, the county must also consider each complaint, and having done so informs each complainant that it has. Any complainant dissatisfied with the treatment of his comment then has four weeks to appeal to the Ministry of Housing and Planning where final approval is given the plan.

In addition to this specified formal process for advising citizens directly concerned, the city may and usually does announce the consideration of a plan for adoption in the press, and is willing to accept comments from other citizens or groups even though not directly concerned.

At both national level and local level it is believed that the formal process of inviting citizen participation is not sufficient, and that a much more intensive approach must be taken toward advising and consulting with citizen groups. The concern over environmental impact, particular noise and visual intrusion of traffic, is increasing in Sweden as elsewhere, often the result, it is felt, of inadequate knowledge on the part of the public of what is proposed and what conditions would be like if the proposal is not carried through. One example was organized citizen opposition to a freeway project that had long been programmed and for which land had been reserved for many years. With full knowledge of the impending construction, a school had been built alongside the highway right-of-way, but now that the construction was imminent, opposition was raised on the grounds that traffic noise would impair the educational process. It was the Director General's view (he had participated in a meeting only the evening before the investigator's visit to Stockholm) that adequate provision could be made to ameliorate the problem, and that without this important link in a freeway access to the main part of the city, conditions would be worse than with it. But it appeared that the maps and other material available for citizen review had not given an adequate picture to those not technically trained, and that had there been models, renderings, or similar means of displaying how the finished product would appear and how it could be made to blend into the environment, the opposition might not have developed. While there is authority to go ahead as planned, it was thought that a better strategy would be to try to provide a better understanding of the proposal to dampen, if not remove the objections, before proceeding.

The Technical Division of the Road Administration has a highly sophisticated photogrammetric laboratory, with computerized design capability in the central office, and is expanding the system on a real time basis to its regional offices. It has a high capability in modelling, which it uses extensively in design and location studies. Thus far it has employed these advanced techniques in engineering. It has the capability, and will no doubt have the Director General's strong support, to use its capability in the field of public information.

In short, citizens are given a tightly structured formalized opportunity to complain and to have their complaints heeded. But there is question as to whether they are well enough informed as to what they are complaining about. It appears that that will be corrected.

Execution of the Plan. A city plan once approved by the Ministry of Housing and Planning is at about the same stage as the "requirements level" of the National Transportation plan. Thereafter in execution of the plan by the city steps are followed that correspond roughly to the steps of the transportation plan, and in fact must be followed if transportation improvements are included in any development action under the plan. The proposals for transportation facilities must be prepared for inclusion in the long range (10-year) plan, at the next stage, the five year plan, and in the annual budget request. At each step there is consultation between the State and local agencies, and desirable adjustments made in either or both plans at the different stages through this negotiation process. The result is that by the time of request for specific projects or for participating funds by any city, the approval of the request is generally almost a formality.

PLANNING IN STOCKHOLM

Stockholm's tradition of planning has made that city a Mecca for planners from the United States, and from other countries as well. Their pilgrimages are being made so frequently that the City Administration has set up an office, complete with people competent in several languages, to receive visitors and inform them as to how this tradition is translated not only into other languages but into practice.

Organization for Planning. Stockholm with a present population of about 750,000 is the largest of the 28 communes that make up the Greater Stockholm area, having a total population of about 1,350,000. With the current trends in growth it is anticipated that by 1980 the distribution between the suburban and city areas will favor the suburbs, with Stockholm's population declining to 700,000 or less and that of the other 27 communes increasing to around 900,000. This anticipated increase in the total metropolitan population is despite the policy of the national government to encourage growth of the smaller cities rather than of the two major metropolitan areas.

Each commune is fully responsible for its own development, subject to the general guidelines of national land use and economic policies, and must raise the revenues needed for its public functions through its own tax levies, primarily a proportional personal income tax. Of course State aids in various fields are available, as in the transportation area.

Stockholm is governed by a city council of 101 members elected at large, the number from each of the political parties being proportional to the number of votes each party's candidates receives. The city administration is divided into nine divisions, each headed by someone elected by the council, usually a member of the council, with the number of divisions assigned to each party again being based on the share of the votes the party polls. In the latest election the Social Democratic party polled 42.5 percent of the vote and has 46 councilmen. (Note: The 1973 election changed this line-up considerably). Planning is within the responsibility of the Town Building Division, where the Town Building Director has a staff of about 450, including over 100 professionals. Execution of the transportation phases of the plan are the responsibility of the Streets and Traffic Division.

That planning must be at regional scale has been recognized for many years. In the past Stockholm was in the unique position of having county as well as city functions and status. As the population spread outward, Stockholm found itself cooperating in various ways with each of the increasing number of surrounding communes, until ultimately all 27 of the smaller communes were included in what was called the Greater Stockholm area and were joining with Stockholm and one another in various cooperative activities under a wide variety of mutual agreements. To simplify the cooperative relationships, an agreement was worked out between the City of Stockholm and Stockholm County (Stockholm County excluded Stockholm City, but included an area larger than that occupied by the 27 other communes composing Greater Stockholm. It comprised in total some 50 communes.) This agreement provided that Stockholm would lose its unique city-county status as of July 1, 1971, and would join with the other communes of the County in creating the Greater Stockholm County Council of 149 members elected by popular vote, including now the City of Stockholm and also the more sparsely settled areas outside the Greater Stockholm area but within the old county boundaries. While this new creation was being formally built up, and the required legislation at national level enacted, a committee comprising an equal number of members from the city and the old county (abbreviated in Swedish: SLL), provided with an experienced staff, was undertaking functions of regional importance, as a precursor to the final organization officially named the Local Federation for Matters Concerning the Region of Stockholm City and County (abbreviated in Swedish: KSL). Matters of health, education, housing policies, water and sewerage systems, and regional planning were undertaken, and special emphasis was given to developing a means of supporting and operating transportation on a regional basis. While the regional plan has no legal status it has become an effective and accepted guideline for planning by the individual communes.

The interim committee has not been superseded under the new legislation. The functions of regional nature, including regional planning, are now the responsibility of the new body.

Planning Goals. As a matter of national policy transportation is expected to be a neutral factor in development. As a national policy, also, as was noted earlier, each mode of transport is expected to pay its own way, although calculations of "profitability" are confounded by the necessity to include non-quantifiable items such as social and environmental factors. In Stockholm, also, transportation is expected to be neutral, in that no mode is to be favored for its own quality, desirability or profitability. Rather the amount and type of transportation facilities to be provided in the plan are those necessary to serve the planned land use. There is no expectation, however, that public transportation will be self supporting. If the transportation needed to serve the desired land use operates at a loss, then the deficit is met through budget appropriations.

There are several quite visible planning goals, with which the public are familiar, and which have been receiving strong public support. One is to provide for and encourage the development of employment opportunities outside the center city, to reduce the need for employee travel as the population in the suburban areas increases. Another is to preserve the character of the older part of the city and to restore the "human" values that existed prior to the overwhelming of downtown streets with traffic. It is planned to make additional streets available for pedestrians only, and to separate pedestrian from motor vehicle traffic to the maximum degree possible. A related goal is to make public transportation attractive and to discourage automobile use in the downtown area through parking control and by not increasing street capacity. Another goal is to encourage offices rather than industry in the downtown area, and to confine commercial buildings to a specific area, rather than letting them encroach on residential areas. And still another goal is to develop regional subcenters, including in them the usual downtown commercial, cultural, and recreational features. And of course the longest standing and most visible goal of all is to provide high quality housing for all citizens. These general goals are not unlike the goals of cities in other countries, even in the United States. But the difference is that in Stockholm there is authority to plan development programs specifically to meet these goals and public support to carry out the plan aggressively. The city and its suburbs, in all their aspects, are being developed according to plan.

Transportation Planning and Programming

Transportation planning is one element, albeit one of the most important, in the planning process, and is carried out as an aspect of the preparation of the comprehensive plan, both at regional and community levels. In preparing the transportation phases of the overall plan, close liaison is maintained with those responsible for execution of the plans at local and State levels and with the technical planning staff of the National Road Administration through its regional office. Close liaison is also maintained with the elected officials through the council members who have been given responsibility for planning and for the execution of the plans.

Transportation planning is carried out very much as in the United States, with an overall survey kept up to date by the municipal agencies concerned. As to the technical process, an official observed that it was hardly worth taking time to discuss it, because the procedures used are the same as in the United States, Stockholm having "adopted all your methods, even to the Highway Capacity Manual."

The survey results showed travel patterns not unlike those in American cities. Travel to and within the downtown area on a full-day basis splits about 50-50 between public and private transportation, and in the peak hours about 75 percent is by transit. Travel to and from work in the CBD shows a greater concentration on transit, 87 percent of the employees using that mode. At the present time about half the commuter trips in the suburban areas also are by transit, but as the suburbs expand and the rapidly increasing automobile ownership gives more flexibility of choice, it is expected that this figure will drop substantially. Thus the desires for travel are not greatly different from those elsewhere. The difference is in Stockholm's determination to keep the downtown area as free of automobile traffic as possible, and still provide for the legitimate needs of private travel.

Presently travel in the Stockholm areas is heavily radially oriented, but as the area expands an increasing proportion will become circumferential or tangential. A freeway network planned by the city and State agencies calls for terminating most of the radial freeways approaching the city at a beltway or ring road roughly 4 miles in diameter. The need for one or more circumferentials farther out in the future is foreseen. One motorway would penetrate this ring and pass tangentially by the CBD to give access to that area. Other radials would be continued as arterial streets toward the CBD. Here too the radials would be terminated in a ring around the CBD from which there would be access to parking garages and underground passages for distribution of goods. This approach is in contrast to the earlier proposal of allowing traffic to use all the CBD streets to reach garages within the area.

Plans call for 20,000 to 25,000 parking spaces, either in garages or underground in new commercial buildings. That number is based not on the desire for parking, which is acknowledged greatly to exceed that amount, but on the street capacity. Street capacity is and will be limited by the determination to preserve the downtown area's "human values," and if for no other reason simply by the time and cost involved in doing much about it. The ring road and penetrating motorway were not expected to be completed before 1985, and the schedule to accomplish that is not being maintained due to rising prices. And no doubt still another reason is the desire to make transit relatively more attractive and thus to reduce the need for highway construction. At present two subway lines cross the CBD, and a third is under construction, to provide access from the suburbs from six directions to stations located in such a way that no point in the CBD will be more than 2 1/2 minutes from one. In the interest of neutrality, it was proposed that parking garages be similarly located--no point to be more than 2 1/2 minutes from one. But in recent programs, by popular demand, parking garage construction is being deferred in favor of more rapid completion of the transit network, also delayed because of rising costs.

Relating Transportation and Development. Trips have two ends, of course, and while the decisions with respect to the CBD are important, it seems likely that decisions related to the area of trip origins may be more significant. Here the planning philosophy is to concentrate new residential construction in high rise buildings with 85 to 90 percent of the total dwellings in multi-family buildings and only 10 to 15 percent in "small houses"--row or "terrace" houses, and single houses or "villas." Several factors appear to be involved. First is what is called the "tradition" of high rise living in Stockholm. Second is the desire to improve the quality of housing and reduce the number of families in overcrowded quarters; and high rise buildings are accepted as the economical way to do it. Third is family composition, a factor that must enter. The number of inhabitants per dwelling unit in Stockholm is only 2.3, compared to 3.5 generally in the United States. The reason for this escapes the investigator, but obviously accommodation of children in living space is a smaller factor than in other countries, and perhaps contributes to the acceptance of high-rise living. Finally a complex interrelation of housing and transportation financing must be a significant determinant.

As noted, improving the quality of housing is a national goal. Housing is either publicly built and maintained, or built privately on leaseholds under strictly imposed conditions. There is no segregation of low, medium, and high income residential areas. Families are entitled to housing on the basis of the family size and composition, and present situation with respect to living conditions. New housing is offered as it is produced to those highest on the list, without regard to its location with respect to place of employment or other factors as to neighborhood preference. However if a location offered is unsuitable to the prospective occupant, he can decline without losing his place on the list, so eventually he may find housing at or near a location of his choice. But because of the likelihood he may be located at some distance from his place of employment or business, it is a matter of policy that he should not be penalized by having to pay disproportionate amounts for transportation. (Based on the family income, rent supplements are provided as necessary. For example, if a retiree has no income other than his social security the rent supplement is 100 percent.) Thus to remove transportation cost as a discriminating factor, monthly passes (not transferrable) can be purchased for about \$10 that permit unlimited travel throughout the Greater Stockholm area. This is one reason for the deficit (\$75 million in 1969) that must be met from local taxes, and one reason to encourage as much use as possible of the system, and thus an advantage of concentrating residences around the rapid transit stations, if not an acknowledged reason.

Transportation and development are not only planned together, they are executed together. As noted earlier, the city may acquire land for future development, and has been doing so since early in the century. One area acquired in 1912 was not developed until the 50's, for example. While it generally acquires undeveloped or raw land anticipated to be needed for urban development in the future, it can acquire through expropriation or open market purchase developed land needed for public purposes including acquisition for a changed land use if in the public interest. It can offer the land it acquires for private development if desired, on the basis of 100-year leaseholds, with the right to terminate the lease, if in the public interest, after 60 years. Rents are based on the value of privately held property in the area, and are subject to renegotiation at 10-year intervals. Land in areas planned for future development in the public interest, such as for housing, transportation or industrial estates may be purchased as it is offered for sale, with the city having first priority in any sale. If it elects not to purchase, it can, as noted earlier, acquire the land at a later date at the price of the original sale, and paying for the improvements existing at the time of taking. Thus the factor of land speculation as a cost of projects in the public interest is removed, and any increase in the value of city-owned land leased to private development results in profit to the city through the increased rents that are so justified.

An example of this joint development is seen in an area in the northwestern section of Stockholm, now undeveloped because of its past use as a military training site. Here new centers, each to accommodate 10,000 to 12,000 inhabitants are being developed along the third rapid transit line now under construction. The planning policy calls for locating the transit stations at about one-mile intervals, and to concentrate high-rise housing within a radius of about 1500 feet of each station. This assumes that most residents should be within about five minutes walking distance of the station, and to do so requires high residential density. If a family wishes a low-rise apartment or a single house, there will be 10 to 15 percent of such dwellings, but the residents would have to "pay" for them by the longer walking distances. Within the centers, there would be employment opportunities not only in the service activities associated with the center, but possibly in other commercial activities that might establish offices there. There would be provision nearby for industrial development, to provide employment locally for residents of the new center. Presumably bus lines would connect the industrial area with the center, although general ownership of automobiles is anticipated as shown by the requirement of 1.2 parking spaces for each dwelling unit (recalling again that a dwelling unit accommodates only 2.3 people).

This development can go forward jointly because the city owns the land and prescribes how it is to be developed, and the Greater Stockholm County Council owns the transit system. Earlier the city of Stockholm owned the transit system within the city and some extensions of its lines into the surrounding communes. One of the purposes of setting up the Local Federation was to consolidate this system with the numerous private bus and tram lines operating in the region. This was accomplished by establishing under the County Council the Greater Stockholm Public Transport Company. The Company is directed by a nine-member Board appointed by the general meeting of KSL, from its membership, and includes prominent political leaders, so there is ample assurance that the Company will operate in a manner consistent with the policies of its parent organization. It acquired its property by purchase of the stock of the former City system, and the private properties in the area. In practice, the County Council provides the land for the right-of-way and the structure of the subways, with State aid to the extent it is available, and the Company provides the stations, rolling stock and operates and maintains the system. Since the fares do not cover the Company's cost, the County Council assumes the deficit, which is covered by a special county tax and county budgets in the amount determined by the Federation to be required. At any rate the area gets good public transportation, even if at a considerable cost to the taxpayers.

The Problem of Timing. Some concern was expressed that this joint development was not proceeding with exactly the timing that was anticipated. One problem is that the rising costs have delayed the opening of the subway line to the new centers, while the housing developments, under private capital, have been going ahead about as planned in anticipation of the rapid transit service. The Transport Company can substitute temporary bus service until the transit line is opened, but it is feared that many residents will begin using their cars rather than the bus, and will be difficult to wean them away from their cars once rapid transit service does start. Another concern is the fact that industry has not yet moved in to the area reserved for it, with the result that residents of the new center now find their employment elsewhere and may not be candidates for the nearby employment, when it is offered, in the proportion that had been expected, thus confusing the transportation requirements to some degree. Another concern expressed related to the effect that industrial and commercial development in the new centers might have on employment in the city center and correspondingly on rapid transit patronage. And another matter of longer range concern was the combined effect of the spreading suburbs to house the increase in population expected, the desire for more living space per family unit (the average number of rooms per unit is at present 3.0), the planned increase in the proportion of small houses in future construction, and the increasing availability of the automobile. All these factors point in the same direction--decrease in residential density and less dependence on the fixed rapid transit lines. Comment was made to the effect that public desires can change pretty rapidly, whereas facilities such as freeways and subways take many years in planning, more in construction, and have an extremely long life. There appeared to be an underlying, but not expressed, concern that transit, now operating at a heavy deficit, may face more severe conditions in the future.

These "misgivings," however, seem more to reflect the naturally cautious attitude of the professionals in not wanting to oversell their product, and fade into insignificance when viewed in the light of the overall effectiveness of what is literally joint development in Greater Stockholm. Nowhere else except in Canberra in the countries visited in this investigation is it equalled.

SKARHOLMEN

In one of the suburban centers the city has recently completed a major regional shopping and cultural center, Skarholmen. This center is a multi-purpose area. It serves as the usual center for convenience goods for the immediate suburban development, but in addition it provides stores and services for a region of other centers and the rural area beyond, estimated to include 300,000 people. They are expected to make as much as 30 percent of their shopping goods purchases there, and to provide for that volume there are two department stores, 86 other shops and many service establishments.

It is located about four miles southwest of the center of Stockholm on European Route 4, and on the rapid transit line serving the southwest suburban centers. There is a 4000 car garage on four levels, the lowest for all-day parking for those wishing to go on by subway to Stockholm, and the other three floors for short-time parking for shopping and other services. There are two churches, a theatre, some 200 apartments for retired people and a variety of recreational facilities. There is a school serving the suburban center which will have a sports and swimming hall that will be available in non-school hours for public use associated with the regional center. The center is self contained in that it has its own incinerator that not only handles waste from the operation of the center but provides heat for the buildings as well. Utility tunnels are provided for all such services, and the underground delivery of goods and merchandise is also provided for. It is generously and attractively designed, and the stores on a week-day afternoon were busy but not crowded, as might be expected in a comparable shopping center in the United States. Parking fees range from a minimum of one krona to a maximum of 4 kroner per day (from about 30 cents to about a dollar and a quarter). The parking garage has never been filled. In late afternoon subway trains from downtown discharged good numbers of passengers who walked to nearby apartments or toward the parking garage, and some disappeared into stores.

This is an interesting development in that it poses some problems of philosophy and is provoking some controversy. The question is, if it reaches its potential as a major shopping area, and provides for a significant amount of cultural and recreational activity, and if other similar regional centers are built in other quadrants, whether the center city's position as the focus of the reputed vibrant life style and even its economic base will be threatened or damaged. The outcome remains to be seen.

Summary

Transportation planning in Sweden and in Greater Stockholm is sound and effective. It is carried on at a high level of technical competence and through a complex but quite evidently workable cooperative approach involving political, administrative, and technical people working in concert.

Stockholm has a reputation as a center-city oriented community, a transit oriented city, and a high-rise city. It is all those. Its transportation system is being planned and constructed to preserve those features.

Nowhere else, again with the exception of Canberra, in the countries included in this investigation are transportation and other development so fully planned to serve one another, or carried out in a manner as effectively, as in Stockholm. This is possible because virtually all urban development, public or private, is on land already owned, or acquired in anticipation of need or as needed, by the city. On its land its publicly owned transit system is constructed as programmed and private and other public development proceed under strict controls as to amount and character, and in reasonable degree as to timing.

As a matter of planning philosophy the city center is to be preserved much as is, or developed in such a way as to restore some of its lost "human values." To do so it is and will be heavily dependent on rail rapid transit. Rail rapid transit service is good. Service is frequent and trains not crowded to the degree seen in other systems even in rush hour. Stations are well designed, clean, and decorated by recognized artists, not by vandals.

Sweden accepts as a primary national goal the improvement in the quality of housing. To reach that goal economically most new housing is in high-rise buildings. And to make access to rapid transit easy, the high-rise buildings are grouped around the subway stations as the transit lines extend their fingers into the suburbs. The transit system is viable, but only at the expense of a deficit in operating cost (not including any capital cost of right-of-way or subway structure) in the range of \$75 million annually, made up by the taxpayers. In part the deficit is accepted as necessary cost of the housing policy, under which the cost of commuting to work is not to be dependent on the length of the trip, to avoid penalizing occupants assigned to housing in the outskirts.

Question might be raised as to whether disillusionment with high-rise living may not set in in Sweden even as it has in other countries which embarked on similar programs. There are evidences that some people, at least, would welcome an opportunity to live in single houses. And the very common practice, among those who can afford to do so, of having second homes in the country to which they regularly repair on week ends to get away from city living, can raise question as to whether the desire for high-rise life is as strong as it is assumed to be.

Of course any such questions can only be lurking in the background, for the official policies are clearly enunciated, and the elected officials are responsive to the expressions of the public, so there is no reason to doubt that as of now the life style and degree of control over living are what are desired by the majority of the electorate. Yet the transportation system being so expensively constructed and operated is wholly dependent on the continuation of this life style even to keep within its present heavy deficit operation. Any appreciable shift toward lower density living or decentralization of economic and social activity in the Greater Stockholm area can only produce severe economic problems for transportation. It has perhaps already reached the point where development will have to be planned to serve transportation, rather than vice-versa. And that leads to a philosophical question: Can transportation be neutral?

CHAPTER IX

PLANNING IN AUSTRALIA

August, 1972

Australia is a country of sharp contrasts. With an area about equal to that of the continental United States it has a population of only about 12 million people. The interior is mostly semi-arid or arid, suitable primarily for grazing or dry farming, with scattered rich mineral deposits. The areas suitable for general living lie along the coast, principally along the lower two-thirds of the east coast from Brisbane to Sydney and Melbourne and around to Adelaide, and on the island of Tasmania. Population on the west coast is centered in Perth. The population is 80 percent urbanized, with two-thirds within the strip along the coast, confined by the mountain range extending for most of its length. This range, varying from perhaps 50 miles back from the coast in some areas to points where the mountains meet the sea, is actually the continental divide, dividing the few-mile-wide strip on the coast with heavy rainfall from the rest of the continent so dry that only one stream originating in the mountains west of the divide, the Murray River, ever reaches the ocean. The mountain range, while generally not high, rises abruptly and with few passes offers severe obstacles to travel from the coastal cities into the interior. The northern third of the country is tropical and in the south snow or freezing temperatures are generally experienced only in the mountains. Climatic conditions favorable for road building are offset in many areas by scarcity of suitable materials.

In the populous area along the east coast are encountered all the problems of urban transportation found in any cities of comparable size. Sydney with 3 million people and Melbourne with 2 1/2 million present problems of week-day commuting and week-end recreational travel virtually identical with those found in cities in other countries. Access to the coastal cities from the interior involves difficult engineering and costly construction. And serving the vast interior, from which a large portion of the production is for export, requires an extensive network of roads generally with low traffic volumes but often having to provide for the heavy axle loads associated with transportation of minerals and ore.

Highway Administration and Financing

Australia is divided into six states, Tasmania and five on the mainland, and two territories, the Northern Territory and the Australian Capital Territory (Canberra), that are administered by the commonwealth. In each State the capital is the principal city, and is a large city, both in relative and absolute measure. Western Australia illustrates the general pattern of population distribution, although the most extreme in this respect. In about one third of the area of the country (about that of the United States east of the Mississippi River) the largest city is Perth, its capital, with about 600,000 population. The next largest includes only about 25,000. In each of the States are found congested city traffic, difficult mountainous terrain, and vast lightly populated areas that must have transportation to provide for moving its products--iron, manganese, and copper ore, bauxite, coal, beef, wool and mutton--to the cities for consumption and the ports for export. For the nation as a whole the transportation needs and problems are not unlike those in the United States. But the striking difference is that each of its five mainland States must face the entire gamut of problems--from urban congestion to desert roads and mountainous terrain--whereas none of the 50 States of the United States except Alaska need face up to the entire range of conditions.

In this situation the heaviest share of responsibility falls on the States, for the governmental system, as in Canada, features weak central and strong state authority, perhaps a hold-over from British colonial administration. However, the newly-elected Labor Government intends to increase central government control by attaching more stringent conditions to its grants of financial assistance to the States. In the transportation field the Commonwealth operates a national railway system which provides a link between the eastern and western States and between the south and center of Australia. It operates an international airline, and a national airline, that competes with privately owned airlines. It administers the road system in the Northern Territory, and assists in financing highway construction in the States.

In general, the primary routes in each State comprise the main road system, comparable to the State systems in the United States. The more important of these are designated as State roads, generally those of inter-regional character. Of the total road mileage of about 550,000 miles in Australia, about 70,000 are classified as main roads, and are the responsibility of the several States. Most roads not so classified are local responsibility. Roads are funded from Commonwealth, State and Local Government sources. Most flexibility exists in the amounts and distribution of Commonwealth funds and therefore the future development of the Australian roads system is dependent on Commonwealth Government decisions on roads policy. In the 1969 Commonwealth Aid Roads Act, which covers the five-year period 1969-74, Commonwealth grants for roads were

distributed to the States roughly in proportion to the total economically warranted expenditure on roads in each State. Supplementary grants are made to some States as a transition from the pre-1969 situation, when grants were distributed on the basis of area/population/motor vehicle registration formula.

Grants are divided into four categories: Construction of urban arterials; construction of rural arterials; construction and maintenance of other rural roads; and planning and research. Control over use of the grants is minimal. The main requirement is that States submit each year to the Commonwealth an audited statement to certify that an amount at least equal to the allocation for that category has in part been spent on works in that category. States determine priorities of implementation and there is no project control. States are not required to provide matching amounts within each category, but must increase road expenditure from their own sources within their own State at the same rate as the rate of increase of motor vehicle registrations. The amounts of Commonwealth grants expended on construction equal about 50 percent of total road construction expenditure in Australia. For about 20 years before 1969, the conditions on Commonwealth grants were even less. States were required to spend 40 percent of their grants on minor rural roads, while the remaining 60 percent was expended on rural arterials. The effect of this policy has been that minor rural roads have been greatly improved, at the expense of urban roads. Commonwealth funds for assisting in highway financing are derived from consolidated revenue. The Commonwealth collects a tax on gasoline and diesel fuel, averaging about 17 cents per imperial gallon (about 21 cents American per U. S. gallon), but does not earmark the tax for roads. Currently, the amount of Commonwealth road grants is equivalent to about two-thirds of the amount collected in gas tax. However, a change in gas tax does not automatically alter Commonwealth allocations for roads.

States are prohibited from taxing motor fuel and derive most of their revenues from vehicle registration fees and weight and ton-mile taxes on commercial vehicles. States are authorized to issue bonds for highway construction, but only to the extent that the amount of any issue can be included within the total bonding authority of the State, even though amortization may be from highway revenues. Under this authority one State, New South Wales, has built and is easily amortizing a toll road north from Sydney involving very heavy grading and extensive bridge construction through difficult coastal terrain. States exhibit flexibility in dealing with local communities, sometimes contracting with them to construct or maintain main roads within their jurisdictions, and in other cases building and maintaining some of the more important local roads in their behalf on a reimburseable basis. A wide variety of cost sharing agreements have been worked out. The principal source of funds for local roads is the local property tax.

Under the legal constraints and administrative practices, the total cost of streets and highways is divided roughly equally between Commonwealth, State, and local governments. Since the amount of Commonwealth road user funds that are not apportioned to the States is less than the amount of local funds derived from property taxes, as an overall result roads and streets receive somewhat more financial support than the amount derived from highway users. In general the States undertake to relieve the local communities of the burden of through or long range travel, by freeway and major arterial construction in the major cities and by by-pass routes around the smaller towns, leaving to the local officials the responsibility for accommodating local movement and distribution of traffic from the entering main roads.

Highway Design and Construction. Much highway construction is performed by force account and virtually all design is done by the States, including major bridges in some States. There are not a significant number of highway contractors, presumably because of this general policy. Work that is done under contract is generally confined to grading and minor drainage structures. Some States regard surfacing as an item that requires particular skill, care, and experience and prefer to do it with their own forces. Heavy or specialized equipment is generally rented or leased, however. (Note: Perhaps as a result the riding quality of roads in Australia seems generally superior to that in the United States or in any of the other nine countries visited, in which the investigator was enabled to do a considerable amount of driving or riding.)

Apart from the requirement to expend funds within certain categories, the Commonwealth imposes no restrictions on the use of grants, and neither approves nor reviews programs, projects or design standards. However, in the 1972 budget speech, the Commonwealth government announced the adoption in principle of a National Highways policy and the intention to prepare a suitable program for improving National Highways in consultation with the States. In respect to design standards the States try to adhere to standards developed by their association, the National Association of Australian State Road Authorities (NAASRA), organized in 1934 and composed of the road authorities of the States and the Commonwealth Department of Works, the road authority for the Northern Territory. The headquarters are located in the Department of Main Roads of New South Wales in Sydney, with staff and other costs distributed among the member States on the basis of their Commonwealth fund apportionment. The association has developed standards of design and construction, traffic control, materials testing, and vehicle size and weight limits and specifications for plant and equipment, organized studies of road needs and issued many publications to aid not only the States but the local officials.

National Planning and Research. While a fair amount of research was regularly conducted by the States, in order to organize and increase the total research effort NAASRA in 1959 organized the Australian Road Research Board. The Research Board, wholly supported by NAASRA is directed by a Board of Directors composed of the Commissioners of the six State road authorities and the Director-General of the Department of Works of the Commonwealth. The Board has the dual function of conducting research with its own staff or under contract or university agreement in behalf of NAASRA, and of holding the biennial Road Research Conference for the presentation of papers and holding of discussions. The staff of the Board, at first housed in the offices of the Country Roads Board in Victoria, is now housed and carries on its \$2 million annual program in its own laboratory outside Melbourne. Its staff is multi-disciplined as its program increasingly includes economic, environmental, and social considerations of highway transportation, as well as research in the physical sciences and traffic control.

The States recognize the national import of transportation and direct their programs toward national objectives as they see them, as well as to meet their own responsibilities. One evidence of this is the designation of a network of national numbered routes including the most important interstate routes and some others regarded as primarily of national and not simply statewide importance. National Route 1 as designated extends from Cairns near the northern tip of Queensland south, west, and north along the coast to Darwin in the Northern Territory on the north, a distance of some 6200 miles. It has not yet been completed to ultimately desired standards, nor even marked throughout its length, partly because some sections are of relatively little importance to the States in which they lie.

Prior to 1966, the Commonwealth had little or no expertise to assess the level of road grants to the States and the conditions which might attach to those grants. In 1966, the Commonwealth Bureau of Roads was established to investigate and report on all matters concerned with the grants of financial assistance to the States for roads or road transport. The new-look 1969 CAR Act was a result of this Bureau's investigations with the States. For the first time, the Commonwealth based its grants on a total engineering and economic assessment of the Australian roads systems. The Bureau has a small multi-disciplined staff, and keeps in touch with the State road authorities through participation in their annual meetings and in various informal ways. Its principal function is to advise the Commonwealth government as to road needs of the country and to keep the States advised as to national priorities and objectives such as in the areas of defense and economic development for example. At the present time the Bureau is carrying on a study of the proper role of the Commonwealth in the field of highway transportation, exploring whether the Commonwealth should take a more decisive part in highway administration and how highway transportation can best assist in the desired economic and social aspects of the nation's development. The report of this study will be particularly timely inasmuch as the conservative Liberal-Country party was replaced in the recent election by the Labor Party, more nationally oriented than its predecessor.

As of the present, however, transportation planning is the responsibility of the States and their local communities, although national policies in the areas of air and rail transportation must enter as a planning consideration. All States recognize the urban problem as of crucial importance and cooperate in a variety of ways with their urban areas in planning and implementing urban transportation programs. While the manner of cooperation between States and local agencies differs somewhat from one State to another depending on legal requirements and administrative practices, the procedures in planning and the authority in implementation is generally similar in the six States, and the practices in each will be described briefly. In Canberra, however, in the Australian Capital Territory (ACT) which is under the control of the Commonwealth rather than a State, authorities and procedures depart so drastically from those elsewhere in Australia that they will be described in greater detail.

PLANNING IN MELBOURNE

(Updated to March, 1973)

About 2 1/2 million people live in the metropolitan area of Melbourne, nearly two-thirds of the population of the State of Victoria of which it is the capital. It is reputed to be the fastest growing metropolitan area in Australia, estimated to have a population of 3.7 million by 1985. It includes the city of Melbourne and some 40 smaller jurisdictions in an area of some 500 square miles.

Traffic within the center city even in peak hours moves quite easily because of a network of broad streets and arterials. As the area developed, however, the city of Melbourne became surrounded by a ring of small cities developed just outside its boundaries generally along the radial roads or tram lines leading out from the city center. In contrast to Melbourne the streets in these small jurisdictions, even the main arteries along which the cities grew, are narrow and tightly constricted by retail businesses and commercial activity and residences. Outside this ring where the State has had responsibility for road construction through the Country Roads Board there is generally a "reserve" of at least 200 feet in width along the present routes to permit widening or even freeway construction as need develops. Thus there is a general situation of reasonably free traffic movement in the center city and in the outer portions of the metropolitan area, and a ring-shaped bottleneck between. Improvement of arterials on their present alignment within this ring would require substantial and costly displacement of business and residences.

Transportation Planning and Programming

Since the 1890's there has been a Metropolitan Board of Works, now comprising 54 members appointed by the local authorities. It did not have authority for road building in its early years and the Country Roads Board was constrained politically from expending funds in urban areas. In 1947 the Board was authorized to prepare a plan for the area. This plan, completed in 1954, showed a detailed land use plan, covering industrial, residential, and commercial areas, parks and the other usual items, including a road system. In Melbourne, as in all other cities in Australia, single family housing predominates almost to the exclusion of high-rise or other multi-unit living. No other country visited in connection with this investigation approaches the desire for single houses found throughout Australia; and this desired life style has, of course, a significant effect on transportation needs of the area. Under the '54 plan a ring outside the built-up area was designated as a "rural" zone, subject to rezoning by the Metropolitan Board of Works as urbanization extended outward. This plan provided desired flexibility to meet needs that could not be anticipated in detail, but at the same time offered critics the position that rezoning when requested was influenced more by pressure than by plan.

By the mid-fifties the growth of motor vehicle travel induced the local jurisdictions to authorize the Metropolitan Board to levy taxes for road building, though quite insufficient in amount, and shortly after that the Country Roads Board declared several hundred miles of urban roads as State Highways or Main Roads. Later on an increase in State motor vehicle taxes was directed to special projects to be built by CRB or MMBW. By 1963 the lag in developing transportation facilities to keep up with metropolitan growth caused the State to appoint the Metropolitan Transportation Committee to "assist in obtaining a balanced approach to the problem of transportation." This Committee is chaired by the Minister of Transport of the State, with the Minister for Local Government serving as deputy chairman. The committee includes the Chairman of the Country Roads Board, the Chairman and the Chief Planner of the Metropolitan Board of Works, the Chairman of the Victorian Railways Commission and the Melbourne Tramways Board, the Chairman of the Traffic Commission, the Chairman of the Transport Regulation Board, the Coordinator of Transport, the Director of Finance, and a representative of the City of Melbourne. There are no "citizen" representatives nor representation specifically from the smaller municipalities within the area. It is expected that the elected officials will speak for the citizens, and the authority of the small cities is small in relation to that of the Metropolitan Board of Works. Obviously it is a committee of the highest level, including two members of Parliament, able not only to plan but to see that programs are carried out to implement the plan.

The Transportation Planning Process. As the first step in its continuing responsibility the Committee organized a study to estimate the transportation needs of the area by 1985. The study was financed jointly by the Country Roads Board, the Metropolitan Board of Works, the Victorian Railways Commission, the Metropolitan Tramways Board, and the Melbourne City Council. The study in 1963 and '64 was conducted by an American consultant, with local professional participation to provide for its continuance after the initial survey and analyses were completed.

In order to provide land use input the Melbourne and Metropolitan Board of Works made a forecast of 1985 land use attempting to view its development and implementation on a quantitative basis to relate the character and density of land use and the services, including transportation, needed to supply it. In developing this plan the Board relied on simulation models based on experience in other cities, principally in the United States. Insofar as the road and street network is concerned, the Board of Works is not required to gain approval of the Country Roads Board, even for roads that will be the CRB's responsibility, but by the participation of both agencies in the continuing transportation planning process the relation between highway and general planning is easily maintained. Beyond that the two Boards have since set up a working party not only to designate routes but to assist in coordinating the development programs of the two agencies as well.

Under State law the land required for public services, including highways and other transportation facilities may be "reserved" subject to just compensation, by including those elements in the metropolitan planning "scheme." To accomplish this the revisions in an existing plan must be placed on public exhibition to give any citizen the right to file objections. After the planning agency considers and acts as thought desirable on the objections, the proposed revisions, together with a listing of remaining objections, is submitted to the Minister of Local Government (who in Melbourne is represented on the Planning Committee). He then refers the provision to the Town and Country Planning Board for report, and finally forwards it to the Governor for approval. The Governor's approval reserves permanently the land indicated as needed for transportation and other public purposes.

The Recommended Plan. Recalling that the Metropolitan Transportation Committee was formed to "assist in obtaining a balanced approach to the problem of transportation," it is interesting to review the expenditures estimated to be needed by 1985 to bring about the desired balance. Of the total estimated cost of \$2,616 million Australian (\$3.3 billion American at current exchange) \$242 million will go for commuter rail, \$113 million for public street transportation (mostly tram line improvements and a small amount for bus depots), \$1,675 million for freeways and \$586 million for improvement of arterial streets and parking. Freeways are seen as absorbing nearly 65 percent of the total expenditures, and other arterial street improvements another 20 percent, or a total of 85 percent to benefit motor vehicle transportation in the metropolitan area.

The heavy emphasis on freeways is no doubt attributable to the recognized need for interconnection of the expanding suburban areas, the problem of relieving the congested ring of small cities surrounding the city of Melbourne from the heavy traffic that overflows onto residential streets as it penetrates into Melbourne from the suburbs, and the excellent commuter rail system already existing that requires relatively small improvement to meet future needs. Congestion in the ring surrounding the City of Melbourne noted earlier, is caused by local traffic, traffic bound to or from the city, and traffic bound across the city because of lack of circumferential routes. The freeway plan proposed radial routes, and also a ring road within the city as well as outer belts as the suburbs expand. The freeway network would total 307 miles and accommodate just over half the vehicle miles of motor vehicle travel.

Melbourne is extremely well served by commuter rail lines operated by the Victorian Railways Commission. Service on some lines may be increased simply by increasing the number of trains and upgrading equipment, while others may require double tracking or new express tracks on existing rights of way. Good provision for interchange between rail and bus lines at suburban stations now existing will be improved, as will facilities for parking be increased. The 13,000 spaces, on- or off-street, at stations in 1964 are expected to be doubled by 1985. The major capital expenditure for rail service will be for the construction of an underground loop in the business district.

At present all rail lines terminate at two stations at the edges of the business district, from which commuters walk to their destinations (a maximum distance in the center of 8 to 10 fairly long blocks) or utilize the tram system. In either case the departing passengers emerging from the main door of the principal station are reputed to represent the heaviest pedestrian concentration found anywhere on earth. To relieve the congestion of both passengers and trains and improve the service to the rail commuters the underground loop is now under construction, absorbing \$80 million, about a third of the total for rail improvements under the transportation plan. The loop will be a four-track two-direction tunnel, with three new stations, providing better access to the downtown area and easy interchange of passengers between existing and proposed new radial lines.

The rail system is expected to accommodate 663,000 passengers in 1985 an increase of about 75 percent from 1964, slightly above the increase in metropolitan population. Two-thirds will be peak-hour travelers.

To supplement the rail system the present tram system will be somewhat extended and its rolling stock updated, and bus lines will be extended and new lines instituted, connecting with rail or tram lines, and also independently serving suburban areas. The tram lines are publicly owned, operated by the Melbourne and Metropolitan Tramways Board, and the bus lines generally privately owned, a situation expected to continue. The freeway and arterial street development will provide for express tram and bus operation in exclusive lanes where needed and possible. Total passengers are expected to increase by about 23 percent, with trips into the downtown area remaining at about the current level.

The greatest increase in travel will be by private vehicle, with total passenger car trips expected to triple in the '64-'85 period. This increase reflects the anticipated suburban growth, inasmuch as the trips by private car to the downtown area are expected to increase by only 53 percent, virtually identical with those by rail. For the entire metropolitan area the modal split, at 62-38 in favor of the private vehicle in 1964 is expected to reach a proportion of 78-22 by 1985. For trips to the center city, the modal split is expected to remain about constant--approximately 70-30 in favor of public transportation. To provide for the increase in private vehicle trips into the downtown area, it is expected that the 38,000 parking spaces in 1968 will be increased to 55,000 in 1985 through public and private programs.

It is of interest in connection with trips to the downtown area, that it is only in the aspect of employment in the city center that the 1964 estimates of travel and other factors, as measured in the continuing transportation planning process, are not being borne out. Employment in the city center is about maintaining its 1964 level of 160,000 jobs despite a building boom that is seeing many new high-rise office buildings, whereas the 1985 estimate envisioned some 215,000 jobs. The explanation is thought to be the greater space per employee that is required by the changing character of downtown activity and the introduction of modern business and office equipment, and perhaps somewhat more liberal allowance of space per employee simply for amenity. What long-range significance should be attached to this, if any, is not clear, but it would appear that if the downtown area is to share in the rapid growth the metropolitan area is experiencing, and with excellent access to the area by public transportation now existing the importance of improvement in access by private vehicle envisaged in the transportation plan is heavily underscored.

Balance Between Transportation and Development

Up until the mid-1960's public transportation by rail, tram, and bus was excellent and highway facilities at least adequate to permit reasonable freedom of choice as to mode, depending on the circumstances of the traveler. Transportation in relation to development could be regarded as neutral. With the rapid expansion of the outer suburbs and with per-capita car ownership also increasing rapidly, freedom of movement by highway began to deteriorate, while the reserve capacity of the rail and tram lines permitted continued good travel by public transportation. The transportation study resulted in a plan, recommended by the Metropolitan Transportation Committee and adopted by all levels of government concerned, to provide a balanced approach to solution of the transportation problem. The facts that the capacity of the excellent rail system could be increased and the quality of its service improved at relatively little cost, and that the upgrading and extending of the street and highway network to maintain the desired "balance" required heavy capital expenditures resulted in a recommended program in which, as noted earlier, 85 percent of the cost is directed to street and highway improvements. Upon completion of the program it could be expected that freedom of choice of mode, again depending on the individual's circumstances, will be either still available or restored. This is the balance sought. While not so stated specifically, it can be considered that as a matter of policy and the result of programs, transportation in relation to other development would be neutral. This is a situation cities in other countries have sought and sometimes achieved at a point in time, but have seldom been able to maintain.

To facilitate public review of the proposals in transportation plan, the Committee distributed widely a popular version of its plan showing the networks of roads and railway and tram lines, indicating the location of certain freeways in the developed area in some detail. It also showed estimates of the cost of providing the planned facilities calculated to be needed by 1985, when the population of the area was expected to reach 3.7 million, or when that figure is reached if not in 1985. Copies of full report were available for purchase by those who wished to review the basis of the plan in more detail. Initially, there was little public criticism of the plan, which was published in late 1969.

However, in 1971, the Melbourne and Metropolitan Board of Works sought Government approval to build about 1 mile of freeway through inner area parkland. The reaction of the public to this proposal was so strong that the Government refused to give its approval, even though it had approved the scheme in principle some years before. At the same time, the Government announced that it was ordering a revision of the 307 mile freeway plan to determine whether the mileage of freeways could be reduced so as to lessen the social and environmental impact on the community.

During the second half of 1972, heartened by this decision, many more anti-freeway groups were formed and exercised so much pressure that the Government announced in December 1972 that no new freeways will be commenced in inner areas where their construction would involve substantial loss of housing and community disruption, and set out a new policy of "balance" between public transport and the motor car. The policy statement may well have been influenced by the facts that there was a change of Premier (Governor) during the year, and by an impending election. Certainly, the scene has changed very rapidly in a short time.

Implementation of the Plan

Implementation of the plan is by means of programs of the different agencies concerned. As noted, work is well underway on the underground rail loop in Melbourne, and considerable mileage of freeway is open or under construction. Responsibility for freeways in the area is divided between the Country Roads Board and the Metropolitan Board of Works, and as also noted earlier, their programs are coordinated by a joint working party. The Roads Board is primarily concerned with the routes providing for the longer-distance travel that are included in the State road or main road systems. With the benefit of the broad "reserves" on the once rural but now suburban arterials good progress in upgrading these routes is evident. The approval of the plan made available the land for freeways on new location, and land acquisition and construction was moving ahead rapidly in this area. Design and construction, accomplished with State forces, is of very high quality, and improvements are carefully staged to give early relief where the need is great and at the same time permit future extension or expansion without inconvenience to travelers on sections opened in the earlier stages. While the new policy may not seriously affect the rural and suburban freeway program, a drastic revision of the freeway network within the city is to be expected.

While the public aspects of the plan can be carried out through programs of the agencies concerned, control of private development is less positive. While the plan must be approved at State level, zoning is the responsibility of the Metropolitan Board of Works, and to keep transportation in phase with development, and vice versa, requires control not only of character and density of land use but of timing of land development. Where major developments such as a manufacturing or assembly plant may be built in an area appropriately zoned even though highway access or other services are not currently adequate, suitable accommodation between the private development and the public programs must be made through negotiation. In other cases such as in an industrial park in which development is controlled by the provision of public services or by rezoning if that is involved, it can be expected that the timing of the several programs and actions that are required will be coordinated by agreement among the agencies concerned and prospective developers.

Summary

In summary the general plan for the metropolitan area of Melbourne is the responsibility of the Metropolitan Board of Works. A transportation plan has been developed and is being kept current as a part of the general plan by a capable staff under the direction of a committee of high level State and metropolitan area officials and the heads of the transportation agencies. The general plan, of which the transportation plan is one aspect, was approved at State level but programs of the public agencies, which were all represented in the planning process expected to be carried out in accordance with the plan, are now facing reconsideration under the new political policy. Private development, controlled as to nature and density to be in accord with public services including transportation, can only be controlled as to timing by negotiation with prospective developers and in some cases by timing of rezoning. Whether the balance between transportation and other development envisioned in the plan can be achieved under this new policy appears questionable, but that neutrality cannot be achieved seems certain.

TRANSPORTATION IN SYDNEY

Time did not permit the investigator to review the planning procedure at local level in the Sydney area. The rapid growth of the downtown area and the problems that growth is creating for transportation are so striking, however, that a few observations seem warranted. (Thus the heading "Transportation" rather than "Planning.")

Of the 4 1/2 million population of New South Wales, some 3 million live in the metropolitan area of Sydney, which lies largely on a 20-mile-wide coastal plain hemmed in by the Blue Mountains on the west and situated between the secondary cities of Newcastle 75 miles to the north and Wollongong 40 miles to the south. Sydney harbor with its many coves and inlets as well as other rivers and lakes to the north and south make the area beautifully scenic but transportation along the broken coastal sandstone country difficult. Access to the city from the most desirable residential areas to the north is provided principally by the 40-year-old Sydney Harbor Bridge, the design and construction of which was an engineering feat given world-wide recognition, and which now provides for eight lanes of traffic--operating as a 6-2 reversible lane facility morning and evening--a double track electric railway line, a cycle way, and a sidewalk, all on one deck.

Sydney, the capital of New South Wales, is also the most important banking, trade, and shipping center of the nation. Its prominence is evident by the concentration of high-rise buildings in the center city--banks, office buildings and hotels some of which reach 50 stories in height--many very new and many more under construction. Transportation between the city and the outlying areas in the State has been good, but the rapid growth of the city center has been accompanied by a still greater growth in travel, and present facilities are becoming inadequate. Like other Australian cities, Sydney is a city of single homes with gardens, generally owner occupied, and thus expands geographically.

The Transportation System

In the highway network four routes radiating from the city are classified as State highways and are improved to major arterial standards. One leads north, one west, one south west and one south. Railway lines follow these same corridors, and some additional ones, and it is mainly along these lines that suburban growth has occurred. The lines are part of the State-owned system, one is the Commonwealth railroad crossing the continent from Sydney to Perth (a 3-night, 2-day trip). Suburban electric lines converge to a principle station and a loop around the central business district with the lines partly elevated and partly in tunnel depending on the terrain serving some ten stations. While no individual trains travel the complete circle, it is possible for a traveler to do so simply by a platform change at an appropriate station. Thus while the main station is at one edge of the central district (as it has grown toward the harbor in recent years) a traveler whether he be a commuter from just across the Sydney Harbor Bridge or an arrival from Perth 3000 miles distant, can be delivered by rail close to any destination within the downtown area. Beyond that the loop permits travel between origins and destination both within the area. A new railway link is under construction between the present loop and the growing eastern suburbs.

Supplementing the rail systems are bus lines serving the suburban areas and the central city as well, with modern double decked buses in the downtown area. And there is a considerable movement into the downtown area from the northern suburbs by ferry.

While transportation into and within the downtown area has been good, it cannot long remain so with the present expansion of activity in that area. With the extensive rail network and good train service, commuters flood into the downtown area and overwhelm station platforms, passageways and even sidewalks during morning and evening peaks. Streets and sidewalks are both narrow, and with high-rise buildings lining both sides there is no way to expand but upward or downward, neither attractive, although there is talk of double decking sidewalks. Presently walking on a sidewalk near a subway station counter to the direction of peak flow is a near impossibility, as is entering a station immediately after a train arrival. How the rail rapid transit usage and perhaps even its capacity can be increased is not clear. At the present time the modal split of travel to and from the city center in peak hour is about 70-30 in favor of transit, a figure that would indicate reasonably free choice. Whether this can be maintained, if that is the desired policy remains to be seen.

Plans for Highway Improvement. How highway capacity can be increased is clear, but whether any substantial relief of congestion can be expected in the near future is very doubtful. All major arterial roads are included in the State main road system and are the responsibility of the State. The State's plan for highway improvement shows six radial freeways, one crossing the Sydney Harbor Bridge (with average daily volume now about 130,000 vehicles) and four coming in from the northwest, west, southwest and south and converging to run along the harbor front to the west of the center of the city. The other is to the east. Traffic entering from the north by way of the Sydney Harbor Bridge will have a choice of two distributors, one on the western fringe of the central business district and harbor front, and the other east of the central business district. Thus in plan highway access to the edge of the downtown area will be good, with three sides of a freeway loop enclosing an area about a mile square, although what traffic can do on reaching the grid of narrow streets within it again is not clear. The City Strategic plan provides for parking stations on the western fringe.

In the center city and the close-in suburbs the plan calls for about 100 miles of freeway, mostly in the corridors now served by the State roads. Very little mileage is completed, although three of the most expensive sections within the city are open to traffic or under construction. The problem is not what to do but how rapidly work can be programmed under current highway revenues and having regard to needs such as funds for rehousing displaced families. The plan does include one ring road of freeway standard but relies mostly on upgrading arterial streets for peripheral movement. It can be wondered whether, as the suburbs grow, this level of improvement will suffice, although the arterial street improvement that is carried out is of high design standard.

The highway program in New South Wales is administered by the Department of Main Roads. It handles all planning and design work with its own staff, and does most construction and all maintenance by force account. It contracts for grading, drainage, and bridge construction on occasion (as on the Newcastle Tollway) but does all surfacing with its own forces, and achieves extremely high riding quality on all types ranging from urban freeways to lightly traveled "spray sealed" rural roads. It has responsibility for 27,000 miles of a total of 130,000 miles of road within the 309,000 square mile area of the State. It administers the program through 16 division offices, of which one, the Metropolitan Division, is responsible for work solely in part of the Sydney area.

Financing Improvements. As in all States problems range from congested urban streets to rugged mountain terrain to desert roads, and these present equally difficult problems in allocating funds. Without authority to levy motor fuel taxes virtually the entire State highway revenue beyond the Commonwealth grant is derived from motor vehicle taxes and weight fees, now that the contribution to main road financing formerly required of local government has been discontinued. Under these circumstances about half the triennial construction program ('72-'74) of \$400 million is earmarked for the Sydney area, with the other half spread over the remaining 27,000 miles for which the Department of Main Roads has responsibility (Note: If construction represents 60 percent of the budget, the tax per vehicle per year for roads under the responsibility of the Department is about \$100 (\$127 American) not including the 12-cents-per-gallon Commonwealth motor fuel tax. This compares with a total U. S. tax per vehicle in the range of \$100.) Even so, the program will fall \$1,370 million short of meeting the needs, it is estimated. Thus completion of the freeway network in Sydney will be a long time in the future, while the need is immediate. From all outward appearances the downtown area of Sydney is expanding far faster than the ability of transportation to support it.

Plan Implementation

Planning, location, design and construction of main roads in Sydney and other urban areas are the responsibility of the Department of Main Roads. It has competent staff in both Division and central offices to handle all aspects of its work. In an area such as Sydney it works closely with the general planners of the metropolitan area and with the local jurisdictions where they are staffed to cooperate. Approval of the general plan includes approval of the highway and other transportation elements. Thus when a general plan or a major revision is approved at local and State level, the Department of Main Roads is free to go ahead with the highway element as rapidly as its program and budget permit but subject to resolution of local environmental questions. Flexibility is retained in the program, however, to enable construction to continue on some routes if delays are encountered on others. Approval of the general plan also reserves the land required, and the Department aims to acquire parcels as they come on the market. This practice avoids penalizing owners who have reason to sell in advance of the program of construction on a particular section, but results in the Department acquiring and holding, usually at no income, a good deal of land well in advance of need for it. Authority to acquire in advance without restriction has advantage, however, if a project is delayed because of some particularly difficult situation, for the more of the right of way that is acquired the more will be the incentive to come to terms on the "sticky" cases, and the less will be the public opposition to get on with the project. This situation is exemplified now in Sydney where acquisition of a particular building is held up by assertions of its historic value. Other parcels along the line are being acquired as rapidly as they become available.

Citizen opposition to highway programs is evident in Sydney and other urban areas in New South Wales. Concern over the impact of the highway program on the environment or on historic sites, and concern over neighborhood disruption surfaces, although apparently with far less vigor than in the United States. The Department of Main Roads has concluded that much of the opposition that does arise stems from a lack of understanding as to what is proposed and what its impact will be. To meet this situation and to gain public acceptance and support, the Department is now carrying on an extensive program of developing models of the area in which improvements are planned.

Extremely realistic models are being produced in the central office for use there and in the division offices in programs of public information. Topographic maps stretched over scale models of the ground surface permit viewers to visualize readily the area with which they are familiar, and to visualize also the appearance of the planned facility as it is fitted to scale on the model, even with characteristic vehicles also shown to scale. While this information program is intended to inform the public as to what is proposed rather than to solicit views with respect to possible alternatives, it seems to be accomplishing its purpose of gaining some public support.

In summary, based on observation rather than investigation, transportation and general planning are well coordinated, by voluntary effort more than by legal requirement, but private development proceeds with little or no regard to timing of public improvements to serve it, or perhaps even to the ultimate ability of improvements, in the transportation area at least, to do so adequately.

PLANNING IN BRISBANE

Brisbane, the capital of Queensland, is located in the extreme south east corner of the State, on the coast just north of the border with New South Wales. Over 800,000 of the State's population of under 2,000,000 live in the metropolitan area. Most of the rest of the population lives in the narrow strip between the coast and the mountains extending approximately 1000 miles to Cairns. The Bruce Highway, National Route 1, connects the two cities, passing through all of Queensland's other principal cities--Rockhampton, Mckay, and Townsville--and a number of smaller cities on the way. Thus this route, a part of the State road system, serves as the connecting link for most of the population and commercial activity of the State and also becomes the principal arterial street of many of the towns and cities it traverses. Three State routes cross the mountain range and ultimately join to cross into the Northern Territory 800 miles from the coast and 1200 miles from Brisbane. In the area of some 700,000 square miles the Main Roads Department has responsibility for over 6300 miles of State highways, another 5000 miles of main roads, nearly 9000 miles of secondary roads and nearly 5000 miles of development roads. The development roads include lightly traveled through roads and those intended to serve areas of agriculture and natural resources, principally minerals, essential to the economy of the State. As one factor in the economy of the nation as well as of the State, a considerable mileage is improved with financial aid from the Commonwealth as "beef roads," connecting breeding areas with fattening areas, and providing for fast transportation between fattening areas (grass, not corn feeding as in the United States) and packing plants where meat is prepared for export. It is on these roads that are seen the "beef trans," triple or quadruple bottom combinations, that are so widely known (Note: The Australians find no evidence of less safety in the operation of quadruple bottom combinations than in double bottoms or tractor-semi trailer combinations).

Thus as in other States the responsibility for highway transportation at State level ranges from low-volume "outback" roads to the urban arterials built to freeway standards and accommodating volumes comparable to those in cities of comparable size in other States and countries. Included in the State system are about 75 miles of urban through routes, and "sub-arterials" that distribute traffic between the main through routes and the local street network. Design, construction and maintenance are handled by State forces on a decentralized basis or, as in many cases, construction and maintenance are accomplished by the local jurisdictions under agreement with the Main Roads Department. Local contributions to the cost of construction averages about 10 percent of the total cost, and about 5 percent of the cost of maintenance. Recently the full cost of maintenance has been assumed by the State for State highways. As in other States, State highway revenues are derived primarily from registration fees and weight and ton-mile taxes. For the 1966-'71 period the Department's construction program amounted to \$158 million, of which \$30 million went to freeway and expressway construction in Brisbane to carry out the beginning of a freeway and expressway network recommended as a result of the Brisbane Transportation Study completed in 1965.

General Urban Planning Requirements

General planning, including transportation planning, in Brisbane is the responsibility of the city under State enabling legislation. State law has provided for many years that a local authority may prepare a plan, and that upon approval at State level, the plan has the effect of law in the local authority with respect to all development public and private. In practice the State itself generally conforms to provisions of the plan, but retains the right by law to depart from them. A difference in the case of Brisbane is that under the City of Brisbane Town Planning Acts the city is required to prepare a plan for review and approval by the State and to have it available for public exhibition by February 1974, and to prepare revisions at no more than 5-year intervals after that.

Under the general planning requirements of the Local Government Act a local authority by resolution of the Council can express its decision to prepare a planning "scheme" covering all or a part of its area. This resolution is forwarded to the Minister of Local Government, who by his approval, authorizes the authority to proceed with the process. The authority may prepare the plan with its own staff, or may employ a consultant to do so. It must begin the process within a year or reapply through another resolution of its council.

Once the plan is prepared, application for approval at State level (by the Governor on recommendation by the Minister of Local Government) may be made, but first the proposed scheme must be made available to the public by exhibition for at least 90 days. Notice of the intention to seek approval of the plan must be published at least once in a local newspaper and in the Gazette (a State publication of official actions), with a statement that the map or maps and other relevant information may be inspected, and that "particulars" may be obtained by purchase during the 90 days. There is no requirement as to the substance of the scheme, and while road and street layouts are shown, the principal focus is customarily on zoning provision.

During the 90-day period objections may be filed in writing with the local authority, citing the circumstances and reasons supporting them. The local authority must consider each objection within a subsequent 90-day period, and having done so, forward the proposed plan, all the objections submitted, and a statement of the action taken on each to the Minister of Local Government. The Governor, upon receiving from the Minister the proposed plan and all objections and actions thereon may approve the scheme in whole or in part, or reject it. He has the authority to amend it as a condition of approval. Approval is accomplished by an "Order in Council" published in the Gazette, and thereupon the scheme has the force of law, to be administered by the local authority through its administrative actions and the enactment of necessary by-laws (ordinances in Brisbane).

The scheme may be amended at any time by the local authority by following a somewhat similar procedure as required in the initial application, although prior resolution by the local authority is not required. It may also be amended by the Governor in Council on recommendation of the Minister of Local Government. In either case the amendments proposed must be on public exhibition in the local authority or in an office of the Department of Local Government, depending on where the amendment was initiated, for a period of at least 30 days following notice to that effect published in the Gazette and a local newspaper. Presumably any citizen or the local authority itself may file objections. The amendments, together with all objections filed and the Minister's action thereon are forwarded to the Governor, who by Order in Council stating the details of the amendments can make them effective. Since 1966 it has been mandatory that each local authority review the plan at 5-year intervals, following generally the same procedure.

Consistent with the organization of government in Australia that gives the State predominant authority, the State can play a dominant role in the planning of any local authority. It not only must approve local plans but may on its own initiative amend a local plan, and in either case its decision has the force of law. It must consider all objections that are filed, and provide ample time for such objections to be made, but has final authority to accept or reject any or all of them. It requires that a proposed plan or amendment be placed on public exhibition, but does not require that opportunity be given for public review of elements of the plan as the planning process progresses. This dominance in planning is more in authority than in practice, however, for the State agency that is concerned with such matters, the Department of Local Government, does not have the capability in staffing (even should it be a policy) to enter deeply into local planning, either as a reviewing agency or as a cooperator. That this situation may be changing, however, is evident from the Brisbane planning act, and the State Regional Planning and Development Act that went into effect only in 1972.

The Brisbane Planning Act. The Brisbane planning act lists a number of factors that must be considered in developing the plan. They include a statement of goals and policies to reach them; a listing of the data that were used and the standards employed; a program for implementation; a description of the physical and economic characteristics of the area and the effect of the plan on them; the distribution of population; and a description of the communications and transport system and the traffic, not only of the city but of neighboring areas insofar as they may be expected to affect the city. These new requirements spell out a solid planning procedure, and specifically require that consideration of transportation not be confined by the city limits, a departure from the prevailing authority of each local jurisdiction in a metropolitan area to act on its own. Another feature of the Brisbane act gives an objector whose objection was not given favorable consideration by the Council the right to appeal to the Minister of Local Government. And the Minister may appoint a "competent person" to inquire into any phase of the proposed scheme, and to hold a public inquiry to consider such phases. Both these steps are in the direction of more public participation, if not in the planning at least in plan approval. Two reservations have been noted in connection with this recent legislation. One is whether the State may be exempted from adherence to the plan, a subject that may require judicial interpretation. The other is that the Governor may extend any of the time periods prescribed in the legislation, thus perhaps prolonging the period for development or amendment of a planning scheme should controversial elements appear or the planning effort not progress at the specified pace.

Some, at least, of the amendments to the Brisbane act were the direct result of the work of the Town Planning Advisory Committee to the Minister of Local Government. This committee, appointed in response to representations of concerned citizens and planning professionals, is continuing its review of local planning and its efforts may result in substantial upgrading in planning requirements generally, perhaps along the lines already laid out for Brisbane.

The State and Regional Planning and Development Act bears no specific relationship to urban planning, but rather is directed toward preservation of the environment and providing for economic development in the State or any of its regions. The program is to be headed by a Coordinator-General appointed by the Governor, who is defined as a corporate body for purposes of carrying out works and developing cooperation between State agencies, local bodies and others. It has authority to establish a cooperative relationship among government departments to assure coordination in work programs, to evolve plans for increasing employment and for improving the general economic development and amenity of the State, and to avoid duplication and overlapping of government programs. In the environmental area there is established an Environmental Council composed of the heads of 19 State departments or agencies, one of which is the Main Roads Department, to coordinate works of State and local government and "all persons and associations in their respective fields of endeavor directed toward control of the environment" to insure consistency among their programs and to review continuously the state of the environment. It may make investigations and recommendations to the Minister (in this case the Premier) on any phase of the environment.

In carrying out this function the Governor may designate any part of the State a development area if he is satisfied that the public interest requires it. Once that is done, the Coordinator General is required to prepare a development scheme for approval by the Governor. Once the scheme is approved, the use of the land as indicated in the scheme takes precedence over other use that may have been indicated under the provisions of any town plan within the area.

While conceivably a metropolitan area might fall within the definition of a State development area, it must be assumed that the intent of this act is to aid in desirable development of areas of new economic activity such as new mining developments, to make their development orderly and economically sound and conscious of the environment, not to bring together discordant plans and programs of different local authorities in an urbanizing area. But requiring a development scheme on an area-wide basis, to take precedence over local development plans, is recognition of the philosophy of strategic planning. And the need for a broader authority in areas where conflicts and inconsistencies of plans and programs among local jurisdictions and even State agencies may be expected is also recognized. There should be nothing to prevent the extension of this philosophy into the treatment of metropolitan area problems. With the dominance of State authority, much as in Canada, achievement of metropolitan authority, as Ontario has done, would be a logical step and hardly premature in Queensland.

Plan Implementation

Administration of the provisions of the planning scheme is the responsibility of the local authority. It can acquire land needed for any public purpose included in the scheme and hold it until needed, paying fair market value at the time of acquisition. If the value of a property is decreased by an action called for under the scheme, the owner is entitled, upon selling the property to the local authority or another purchaser, to compensation representing the difference between the current value and what would have been the market value had the action under the plan not been taken. Should the owner of the property own an adjacent "allotment" the value of which is increased by the action under the plan, then the amount of the increase is offset against the decrease on the first property.

Implementation of the plan with respect to private development is by local authority by-law. Permission must be given by the local authority for any new use of any property after assuring itself that the proposed use is in line with the land use as shown in the approved plan. On request it can issue a certificate to assure the owner that the proposed use is acceptable. Before approving an application for the erection of a building more than three stories in height, where permitted, however, notice of the application must be published in a newspaper and posted on the property for seven days (14 days in Brisbane), to provide any objector with an opportunity to file his objection and the reasons for it. The Council of the local authority then decides upon the application and notifies the applicant and all objectors of the decision. The applicant, if the application is refused, or any objector if it is approved, may appeal to the court for relief. For this purpose the court is the Local Government Court, consisting of a judge or judges appointed for the purpose by the Governor from among the justices of the State district courts.

Maintaining Balanced Development. Authority to change the type or density of land use through rezoning rests with the council of the local authority. The Brisbane act, in this case applicable to all local authorities, spells out in detail what factors the council must consider in approving an application for rezoning. The applicant must show, among other things, the height and number of stories of any proposed buildings, the number of persons involved in the proposed use, and the "total connected load of any mechanical power" anticipated in the proposed use. In turn the council must consider whether the proposed use would create or increase an existing traffic problem, would detrimentally affect the amenity of the neighborhood, would create a need for new facilities such as schools, and would be consistent with the intent of the planning scheme.

Thus the requirement for approval of any change in land use through rezoning clearly gives the local authority not only the authority but by implication the responsibility to keep private development in balance with transportation and other public services. While a similar requirement is not spelled out in connection with the preparation of the original or amended planning scheme, it could hardly be expected that such factors as a balance between transportation and other development must be examined in the case of a proposed change in land use unless the balance were considered and presumably assured in the first place. There would appear to be, therefore, not only authority in law but also responsibility in practice to bring about and retain a desirable balance between development and transportation and other services. Many of the requirements to achieve this balance appear in recently enacted amendments to legislation that itself is of fairly recent enactment, and how the many provisions work out in practice has not yet been tested. Since they represent changes and stiffened requirements resulting from early experience and thoughtful deliberation of competent people, however, it would appear that there is reason for optimism.

Implementation of Transportation Elements. Transportation planning is clearly the responsibility of the local authorities. Yet since the State is responsible for the design, construction and maintenance of urban arterials and subarterials, as noted earlier, a great part of the traffic load in many communities is accommodated on State facilities. The Main Roads Department has taken the lead in planning for transportation in urban areas. It developed the Brisbane Transportation Plan in 1965 in cooperation with local officials, and since has carried on or is carrying on similar cooperative planning processes in other urban areas. Based on the early experience in Brisbane, the process relies heavily on simulation models, the opportunity model having been used in some, and hopefully improved upon in the more recent studies.

The Department has assembled a multi-disciplined staff in its Highway Planning Branch which develops the cooperative relationships with the local authorities and handles all the analytical work in connection with the studies. The transportation element of the planning schemes that must be submitted by the local authorities for approval to the Department of Local Government will have been cooperatively developed and has reasonable assurance of implementation at least of its major components through State programs. Moreover by the cooperative arrangements worked out by the Main Roads Department with the different local jurisdictions in a metropolitan area through voluntary agreement, general planning as well as transportation planning has to be viewed on regional scale.

In the case of Brisbane, the programs of the Main Roads Department are implementing the highway elements of the 1965 plan, as noted earlier some \$30 million (Australian) having already been expended on the freeway and expressway systems. In Queensland the Department has responsibility for traffic control within the urban areas, and is developing in Brisbane a highly sophisticated traffic control system, computer controlled and traffic-actuated, that embraces all traffic controlled intersections and can include control of all freeway ramps as well (Note: the investigator doubts that an equally sophisticated and practical control system exists anywhere else). The system now being installed has been tested over a considerable period in Surfers Paradise, a small town on the Gold Coast south of Brisbane that experiences extremely heavy week-end recreational traffic. It permits not only traffic actuation within overall program controls but provides for print-outs of the situation at any signalized intersection.

With Brisbane, as other Australian cities, a city of single homes, with center city orientation, and with relatively little dependence on rail commuting, the freeway-expressway program is moving ahead as it must, the radial freeways closely serving the downtown area. While there is some concern over the affect of the freeways the general acceptance is good. Rather strangely, the investigator thought, questions directed to him in press and TV interviews stressed the presumed hazard in the use of the freeways, and asked whether special driving techniques would have to be mastered to use them safely. The Department is attempting to allay such fears by press releases cautioning against careless lane changes, for example, and emphasizing the greater safety on freeways experienced in the United States and elsewhere.

Public Relations. The Department maintains a substantial public relations program to advise the people as to their plans, programs, and progress. An effective means of countering opposition to property acquisition is the publication well in advance of beginning work on a new section of freeway, of a strip map showing each parcel that will be required, and in which year of a five-year period ahead each parcel will be needed. On the map, a copy of which is sent to the owner of each parcel involved, the owner is invited to discuss any questions with the Department, and is specifically further invited, should he wish to dispose of the property in advance of the time when it will be required, to advise the Department and to state the value he places on it. The Department will have an appraisal made of the fair market value, and on the basis of the two figures, will try to reach agreement with the owner. To avoid hardship and encourage voluntary agreement the Department can agree to amounts above the fair market value to cover costs of moving and transfer costs and incidental expenses, for example. In some cases the owner's request is for less than the State's appraisal of fair market value, and in such cases it uses the higher figure. Under this approach land acquisition has not proved to be a difficult problem, and while the owner has the right to appeal to the Land Court if he is dissatisfied with the Department's offer, there has been little resort to that step.

Summary

In summary, urban planning, including transportation planning, is the responsibility of the local authorities but a planning scheme, once adopted by the local authority council must be approved at State level and with that approval has the force of law. Amendments to the plan initiated by the local authority must follow the same procedure as the original planning scheme, but the State Department of Local Government can on its own motion propose amendments to any local authority plan for approval by the Governor. Public participation is not required in plan preparation, but before a proposed plan is adopted by a local authority, opportunity is allowed for objections, and the objections and their disposition by the Council of the local authority must accompany the planning scheme when it is submitted to the State for approval by the Governor.

While transportation planning is a responsibility of the local authority, the Main Roads Department exerts strong leadership and high level technical assistance and financial support of the transportation elements of the general plan. It also organizes cooperation on a voluntary basis of the local jurisdictions in a metropolitan area to assure that the planning, at least specifically the transportation element, is at regional scale. By its program of freeway and expressway construction on State routes in urban areas, and by its sophisticated traffic control measures covering all city streets, the Department can and does largely implement the transportation element of the plan. Control of private development is the responsibility of the local authority, but in the case of Brisbane changes in zoning as laid out in the approved planning scheme must consider, among other things, the effect of any requested change on traffic movement. Thus authority in law and responsibility (at least by law) exist to achieve and maintain a balance between transportation and private development. Legislation in this field is recent, however, and experience is yet hardly sufficient to test its effectiveness.

PLANNING IN ADELAIDE

Adelaide, the capital of South Australia is located on the east shore of the Gulf St. Vincent, which opens into the Southern Ocean on the south of the continent. It is the only large city in the State, with a population of about 800,000, confined by a range of mountains to the east lying between the Gulf and the Murray River. Most of the remainder of the State's population is in the southeast corner of the State between the Spencer Gulf, to the west of Adelaide and the border of Victoria. While the mountains are not high--2000 to 2500 feet--they are rugged and not easily crossed by highway. Population growth is therefore mainly north and south along the gulf and is gradually encompassing the small suburban towns and the previously open areas between them.

As in other Australian States the strong governmental authority rests at State level. With the population growing rapidly in the 1950's, the State created a Town Planning Committee, in response to a proposal of the Australian Planning Institute. Under the guidance of this committee a team of planners by 1962 had prepared and made available for public inspection a Metropolitan Development Plan for Adelaide. With the benefit of representations following the review by the public and local officials, the Parliament in effect accepted the plan, by enactment of the Town Planning Amendment Act in 1963, as a guide to the development of the metropolitan area of Adelaide.

This 1962 plan was a coarse-grained development scheme, a master plan or structure plan, that indicated in a general way areas for residential, commercial and industrial development, open spaces and park areas, and a rudimentary transportation system indicating bus, rail and general traffic routes. The framework was expected to be filled out by functional plans in areas such as transportation, and by detailed zoning plans to be prepared by the local jurisdictions within the area.

Organization for General Planning

Two significant steps followed the approval of the plan. The Planning Act itself was substantially strengthened by an amendment titled "The Planning and Development Act, 1966-1967" and a functional transportation plan in line with the 1962 framework plan was prepared.

The 1966-1967 Act provides for the appointment by the Governor of a Director of Planning and a Deputy Director of Planning, each of whom must be a professional planner. It also provides for the appointment of an eleven member State Planning Authority, a corporate body under the chairmanship of the Director of Planning. Ex officio members include the Director of the Engineering and Water Supply Department, the Commissioner of Highways, and the Surveyor General. The seven other members are appointed by the Governor as follows: one who is nominated by the Minister of Housing, one the nominee of the Minister of Transport, and one the nominee of the city of Adelaide; one who is selected by the Governor from a list of three names supplied by Municipal Association of South Australia; one from a list of three names supplied by the Local Government Association of South Australia; one from a list of three names from the South Australian Chamber of Manufacturers; and the last from a list of three names supplied by the Real Estate Institute of South Australia. Thus nine are elected or appointed officials or their designees and the other two are from the private sector, representing parties at interest rather than the general public. The general public gets its opportunity for input later, however.

The Governor also appoints a Planning Appeal Board of four members. One is a judge, a magistrate, or a legal practitioner of at least 10 years standing who is chairman of the board; one is selected from a list of three names supplied by the South Australia division of the Australian Planning Institute; one from a list of three names supplied jointly by the Municipal Association of South Australia and the Local Government Association of South Australia, but who may not be a member of the Authority; and one who has knowledge of and experience in public administration, commerce or industry, and who likewise cannot be a member of the Authority. Any person who is "aggrieved" by any decision of the Authority or a local council in a planning matter may appeal to the Board, which in turn can affirm the decision or require the Authority or council to take such action as it may direct. Any person whose appeal to the Board is denied may appeal to the Land and Valuation Court on any matter of law with respect to the issue.

The Planning Process

Under the 1966-1967 Act the Governor on the recommendation of the Authority may declare any area of the State a "planning area." Before recommending such action the Authority must invite representations from every council whose area is proposed to be included within the planning area, and forward any representations and its recommendations with respect to them to the Minister, who in turn transmits them with his recommendations to the Governor.

Once the planning area is designated the Authority is required as soon as practicable, to inventory the area to determine the adequacy of its transportation facilities, its provision for parks and open space, the adequacy of its subdivision and zoning provisions, and services such as water supply and sewerage, all in view of the future needs of the area. With this information at hand the Authority must prepare a "development plan" following consultation with all councils of the area and all functional agencies concerned with servicing the area. It must obtain from the Commissioner of Highways his plans for developing roads and other traffic facilities within the area, and "give due consideration" to them.

Upon completion of the plan it is placed on public display by the Authority, and all the local councils within the area and the public are allowed two months to make any representations in writing to the Authority regarding the plan. The Authority considers all representations, and forwards the plan, together with a summary of the representations and its recommendations with respect to them, to the Minister. The Minister in turn forwards the submission, together with his recommendations, to the Governor, who can accept, modify or require reconsideration of the plan by the Authority. Where the decision is to proceed, the Governor by proclamation may declare the plan to be the authorized development plan, to form the basis for regulations to implement it. The development plan may be amended by supplementary plans for any portion of the area that re-examination at any time indicates are needed. While the highway plan is prepared by the Commissioner of Highways, its inclusion in the development plan in effect means that its review and approval as a part of the plan rests with the Authority and ultimately with the Governor, though by implication it would appear to carry virtually the weight of a "given" in the planning process.

Plan Implementation

Implementation of the plan is through the local councils on the basis of "planning regulations" consistent with the development plan proclaimed by the Governor. Regulations may be general, covering the entire planning area, or recommended by a local council to apply to the area of that council only. They are enforced by the local councils. While the decision to recommend regulations by any council is voluntary, all councils in the metropolitan area of Adelaide have complied. The authority to recommend regulations is general in scope; the 1966-1967 Act lists some 20 specific areas which regulations may cover. In addition to the usual zoning and density of use requirements the listed areas include the regulation or prohibition of any building or structure "that is likely to cause increased or excessive vehicular traffic or traffic congestion or hazard" and the requirement of "space or accommodation appropriate to the use of any land within the planning area for the parking, loading, unloading, turning and fueling of vehicles upon such land." Planning regulations may cover advertising and other signs, and the regulation of access, including prohibition of access on arterial streets. Thus there is authority in law for the local councils to take action to insure that development and transportation facilities remain in balance.

Approval of the development plan reserves land required for public purposes but does not preclude its continued use for the purposes in effect at the time of approval. An owner may not change his use of the land without approval of the Minister, and should the Minister refuse permission the agency for which the land was reserved must proceed to acquire it at that time if the owner desires. If the value of a property is decreased by the provisions of the plan, an owner is entitled to compensation in the amount the price for which he can sell the property is less than the fair market value on the date of the sale had the plan not affected the value of the property.

The Planning and Development Act of 1966-1967, since amended in only very minor respects, appears to provide ample authority under State regulation enforced by local councils for orderly development of rural and urban areas and to maintain a balance between land use and the facilities, including specifically transportation, to serve it. Whether the authority is exercised in practice remains to be seen.

Transportation Planning

Because the transportation element of the 1962 plan, as formalized by the subsequent planning acts was not sufficiently detailed, five agencies--the State Planning Office, the Highways Department, the city of Adelaide, the Municipal Tramways Trust, and the South Australian Railways--joined in conducting the Metropolitan Adelaide Transportation Study (MATS). The heads of the five agencies comprised the Steering Committee, and set up a technical committee from professionals in their agencies to advise on the conduct of the study and the development of an implementation program. Three consulting firms, two from the United States and one from Australia joined in the conduct of the study, now being kept current by the staffs of the agencies.

The study was described as a "typical" urban transportation study of the period. It had the advantage of an approved development plan of the area, however, and was undertaken under quite specific guidelines. It was to guide and direct transportation facilities so as to preserve and enhance the social and economic welfare of the community as a whole, make maximum use of existing facilities, support the land use pattern, serve all major traffic generators with emphasis on the central business district, and do so within financial resources likely to be available to the agencies involved. Inasmuch as the transportation plan was an area-wide plan, beyond the areal responsibility of any council, but within the scope of the State approved development plan for the metropolitan area, the process may be described as "mezanine" planning. It covered plans for road, rail, and bus travel and parking, the first three of which are responsibilities of functional agencies rather than local councils.

Adelaide was fortunate in that Colonel Light, who was charged with planning the early city of Adelaide placed the center some six miles back from the coast where development was easy. He laid out a street network of generous width in about a two-mile square and enclosed it with a park or greenbelt. As the city has grown the center has become primarily the location of general office buildings, banks, and major retail activity, and light commercial development has come along the radial arterials outside the green belt. As the area has expanded geographically it has filled in a good deal of the space between the smaller suburban centers and is encroaching on land desired by some communities, at least, to be left as open space, hill face zone, and "paddocks" (areas that would be "fields" in U. S. terminology).

The planning studies indicated that the 140 square mile area of urban development would about double in the 20-year period 1965-86 to accommodate an increase in population from 750,000 to 1,250,000, with the number of daily trips about doubling from the current level of 1,400,000. The number of cars was expected to increase from 198,000 to 443,300, just under 3 persons per car. As car ownership has been increasing and the city expanding in its single-house pattern, the modal split on an area-wide average daily basis showed 19 percent by public transportation. Should transit use follow its recent trend, it would decline to 9 percent by 1986. Total vehicle miles of travel on arterial roads of 4 million on a week day in 1967 (an average trip length of just under 3 miles) would reach 10 million by 1986 (an average trip length of nearly 4 miles as the area expands).

Public transportation currently is provided by commuter service on lines of the South Australia Railways and by tram and bus lines operated by the Tramways Trust. One of the objectives of the plan is to encourage the use of public transportation, and to this end rail service is to be improved by extending the rail lines in the city center from the present terminal by means of a tunnel under the central business district to provide stations near the commuters' destinations, and extending some radial lines, particularly to the south. Express service on the rails would be integrated with lines of the bus system to permit easy transfers at stations, and the bus lines would be extended in developing areas so that no house would be more than one-quarter mile from a bus route. Express bus service would be provided in corridors not served by rail, and buses would connect the suburbs by circumferential routes. With the proposed improvements in public transportation the downward trend in transit usage would be slackened but not halted, for the trips on an average day in 1986 are expected to be 112,000 by rail and 272,000 by bus (Note: It is not known how many of these trips use both modes through transferring from one to the other. However the total transit trips, 284,000 trips, represent 15 percent of the estimated total of all trips, compared to 19 percent in 1967 (a figure that seems consistent with that for other Australian cities on an area-wide basis).

Plan Implementation

The major increase in travel will be by highway, of course, and will be accommodated by a freeway-expressway network totaling 60 miles of freeways and 19 miles of expressways, in addition to the existing arterials, many of which will be upgraded with improved traffic control provided. The freeways will not penetrate the central city. North-south freeways will pass to either side of the green belt, connecting with existing arterials that cross the greenbelt. One on the north will cross the greenbelt in tunnel. To accommodate the increased number of vehicle trips to the central city it is expected that 2500 short-term and over 15,000 long-term spaces will be provided by private and public financing.

Under this plan transportation will be kept in balance with other development, and the increase in motor vehicle use, reduced to some extent by improved public transportation, can be accommodated if the plan is implemented. The cost is estimated over the 20-year period, to reach \$574 million Australian (about \$700 U. S.) of which \$436 million, about 75 percent, is for the highway portion. Rail improvements amount to \$79 million, of which \$32 million is for new rolling stock and \$33 million for the subway. Bus transit improvements call for \$28 million, nearly all for rolling stock and parking \$30 million, all in terms of 1960 dollars.

These are large figures for Adelaide and the State, especially the highway portion. It is estimated, however, that by 1986 the annual benefits in saving in time and operating cost will exceed \$70 million, totaling by then well beyond the construction cost. And it is expected that the safer freeways will account for a saving of at least 350 lives by 1986. It was concluded that these direct benefits represent only a small portion of the indirect benefits to the area through the balanced transportation system.

Programming Highway Improvements. The plan is implemented largely through programs of the functional agencies. The more detailed or finer-grained plans that were produced by MATS departed in a number of instances from the 1962 plan that had been approved by the Governor, requiring changes in the earlier designation of land use. All such changes are amendments to the plan, and call for the same opportunity for review by the public and approval by the Planning Authority, the Parliament and the Governor that are required in preparing an original plan. Thus the highway plans must be approved, in each substantial change, as a part of the general plan by the amendment process. While there is no requirement for citizen participation in the planning process, the public can make its opposition, if any, known and felt through the representations it may make during the period the plan is on public exhibition. The Highways Department feels that it is sufficiently responsive to public feeling to alleviate the need for more formal citizen participation procedures. The Department is very conscious of the influence of the environmentalists, who are making themselves felt there as elsewhere. It is felt that educational programs and discussions of proposals are essential before plans are advanced for formal public review, and that it is the better part of discretion not to seek approval of long-range plans that may invite a range of criticism if the long-range plan can be approached by shorter-range programs that will not raise serious objection, yet are consistent with the course-grained master development plan.

(Note: This approach of "taking what the defense will give," to use a current philosophy of the new breed of quarterbacks, is about what other States in Australia have concluded is a practical approach to keeping the program moving, acquiring needed land as it becomes available under its prerogatives, until the time seems ripe to proceed with a specific project.)

All in all a plan for balanced transportation in the metropolitan area of Adelaide seems to have been achieved--balance by mode, balance in financing, and balance with development. While programs to implement the plan, once they become known by the necessity of amending the approved general plan, may cause problems of project priority, the means to implement the plan seem to be at hand or in view and the prognosis is for success.

PLANNING IN PERTH

Perth is the capital of Western Australia. In the one million square mile area of the State there are one million people, of whom two-thirds live in the metropolitan area of Perth, which embraces that city and 25 other local jurisdictions in an area of about 2000 square miles. While Western Australia lagged behind the rest of the country in its development in early years, the last decade has seen a growth rate considerably exceeding the general growth of Australia, with the rate increasing in the latter part of the decade. Population increased at an annual rate of 3.5 percent in Western Australia between 1965 and 1970, compared to two percent in Australia as a whole. In the same period motor vehicle registrations increased at an average annual rate of 7.9 in Western Australia, compared to 5.4 percent for the nation as a whole. Motor vehicle ownership in the metropolitan area at a level of about 2.3 persons per vehicle is expected to reach 2.0 by the end of the planning period in 1989.

The rapid growth of Western Australia is attributable largely to the exploitation of mineral deposits, particularly iron, bauxite, salt, oil and manganese ore. The iron ore reserves now confirmed in the northern part of the State are perhaps the largest in the world, for which Japan provides a nearby market. Production and export of beef are also increasing rapidly. While employment in these primary production areas is widely spread and generally in the northern part of the State, the impact on the economic and population growth of Perth area, the only metropolitan area, is substantial. It has been estimated that one new job in the primary production area produces two new jobs in Perth. The estimate that the population of the State will reach two million by 1989 and that between 1.4 and 1.5 million will be in the metropolitan area--between 70 and 75 percent--foretells real planning and programming problems.

Highway problems in Western Australia are not unlike those in the other States. Funds have to be divided between the expensive freeway construction in and around Perth, and the very extensive mileage of low volume roads associated with the rural economy and mineral production. Construction is often difficult, even though the terrain is generally not bad, simply because of the problem of water. In some areas even deep wells produce salt water and special construction techniques had to be developed to permit its use. Moving of cattle over the "beef roads," in which the Commonwealth participates with special grants, permit the use of triple- or quadruple-bottom combinations in lengths up to 145 feet on specific lightly-traveled routes. Tandem axle loads are limited to 16 tons, although there are pressures for increased limits. These have been resisted because of the cost of accommodating the heavier axle loads, although as in the arid areas of the other States low rainfall and rarity of below-freezing temperatures minimize the problem to some extent. (NAASRA is now embarking on a nation-wide study to determine economical axle loads and vehicle dimension limits for the Australian road system.) Design standards are high and construction uniformly excellent, as it is performed almost entirely with State forces. The annual program for construction and maintenance on roads, including the freeway and expressway construction in the Perth area, but excluding funds allocated by local authorities, currently runs at a level of about \$64 million Australian (about 80 million in U. S. dollars) with about 70 percent derived from Commonwealth sources. Most of the State revenue is derived from motor vehicle registration fees, with a small portion from driver license fees and overload permits.

Highway responsibility is vested in the Main Roads Department, administered by the Commissioner of Main Roads under the Minister of Works. The organization is decentralized, with eleven division offices (one, Kimberly being headquartered at Derby nearly 1500 miles from Perth). Each division engineer is responsible for all design and construction in his region although specialized help is provided when needed from the central office. Work in the metropolitan area is handled by the Metropolitan Division, except for large or complex projects that are assigned to a special staff. With the overall work under the virtually self-sufficient division engineers, the central office staff can and does devote much attention to the metropolitan area.

General Planning

The city of Perth is centered on the Swan River about 10 miles from its mouth to the south west at Fremantle, the principal port for the area. Perth is at a point called the Narrows, where there has been a bridge since 1959. Below the Narrows the river widens to a broad basin at points over a mile in width, before narrowing at Fremantle where it is bridged again. Urban development has occurred on both sides, with almost all the shoreline protected as park and recreation area. Urban development is oriented in the north and south directions along the coastal plain, for like other Australian cities, access to the inland requires crossing a range, not high but rugged, in this case a granite escarpment called the Darling Range. Generally the area to the south offers the best location for industry, although there are also good beaches and lakes that make a diversity of use desirable. An industrial concentration is being developed to the south-east along the line of the standard gauge railway as it skirts the city. The area to the north along the coast, with its many beaches is particularly well suited for residential development.

Planning in the modern sense in the Perth area began 20 years ago when a Royal Commission report on planning in Western Australia recommended, among other things a new town, Kwinana, south of Perth. The next year the consultant, Professor Gordon Stephenson, together with a newly appointed Town Planning Commissioner assembled a team to prepare a plan for the Perth region. This team, in the face of a population at that time of about 400,000 and low rate of growth foresaw a population of 1.4 million in a region of 2000 square miles at the year 2000, and prepared "boldly" for it. Now the current estimates foresee more than that number in an inner 600 square mile area ten years earlier. But the plan, presented to the Parliament in 1955 was a practical one and with only modification in some details is serving as the bases for current planning.

Organization for Planning. This early plan was exhibited to the public, and with consideration of the resulting representations the Parliament enacted an Interim Development Order to be administered by the Town Planning Board to protect the area from any type of development contrary to the plan until a more detailed plan and specific authority to administer its implementation could be developed. In 1959 the Parliament created the Metropolitan Regional Planning Authority (MRPA) of 12 members, and the first members were appointed in 1960.

The membership includes the chairman, appointed by the Governor; the Town Planning Commissioner; the Main Roads Commissioner; the Chief Engineer Water Supply, Sewerage and Drainage Board; the Director General of Transport; the Surveyor General; the Lord Mayor of Perth; four local authority representatives, one each from the four districts into which the 25 Councils of the area except Perth were divided, selected by vote from the Councils of each district; and a businessmen's representative selected by joint action of the Chamber of Manufacturers, the Chamber of Commerce, and the Real Estate Institute of Western Australia. Thus there are five ex-officio appointed members who have responsibility for functional programs, five elected officials, a businessman and the chairman, giving balance to the authority.

The authority was instructed to prepare a planning "scheme" for the metropolitan area, having due regard for the 1955 plan. By 1962 it had done so, in the form of an atlas of maps showing recommended development of the area, backed up by proposed legislation to make it legally binding. The proposals were exhibited before the public, and with the re-examination and some modifications as a result, the plan, officially entitled the "Metropolitan Region Scheme," was passed by Parliament and approved by the Governor to go into effect on October 30, 1963.

The scheme gives the MRPA the responsibility for determining the general land use pattern for the area, but leaves to the local jurisdictions the responsibility for administering the plan through local planning schemes and zoning. The local planning schemes must be approved by the Minister of Town Planning as conforming to the regional plan.

The Plan Itself. Under the regional scheme as approved, all the land was classified either as reserved for public purposes or zoned for private use. Public uses for reserved land, listed in 10 categories included parks and recreation areas, forests, waterways and catchment areas, railroads, port facilities and controlled access and other major highways. Use of such land is permitted for the purpose for which it was reserved, or for continued use as of the time of approval of the scheme, and any other use is allowed only on approval of the MRPA. Land zoned for private use fell in six categories--central city, urban, urban deferred, industrial, rural, and private recreation. Use of any of this land, except for the construction of single houses, is by approval of the local council, based on its approved planning scheme if it has one, or otherwise on the basis of the uses permitted by the regional scheme.

While the MRPA has little responsibility in the actual administration of the regional scheme, it has taxing authority to derive funds for its own operations and to permit it to acquire land needed for public purposes and to pay compensation to any who are damaged by the restrictions placed on the use of his land under the approved scheme. Usually it has the choice of paying compensation or acquiring the land at the request of the owner for fair market value. In this way it has become the holder of large acreage, the cost of much of which will ultimately be reimbursed by the agency for whose purpose the land is reserved. The authority can issue bonds to acquire land also, for eventual use by other agencies.

Decision was made early in the planning process that development uncontrolled geographically could not be allowed, and discussion revolved around the question of whether the development should be guided into corridor growth or in suburban clusters. Proposals submitted to government finally called for both-- clusters within four corridors. Two corridors extend to the south, one along the coast and one some miles inland, one extends to the east and the fourth to the north along the coast. Major suburban centers are proposed to be developed in each corridor at distances of 20 to 30 miles from the center of Perth, with smaller identifiable communities strung along the spine and served by controlled-access highways, but two would also be served by rail. Land outside the corridors was proposed to be zoned as rural.

Plan Implementation. Pressures on the Authority to modify the status of reserved or zoned land has not been lacking. As the population began to increase rapidly as the economy of Western Australia reached boom proportions, housing in Perth became scarce and strong representations were advanced by developers, land owners, and speculators to rezone land from urban deferred to urban to permit new subdivisions. While land zoned for housing was apparently not insufficient it evidently was not available in tracts of a size and location to attract large developers, with the result that prices for lots soon became out of reach for the average prospective home owner. On the other hand, providing services at public expense under available financing to make the raw land usable for subdivision limited the amount that could be released. Over a period, however, by a policy of taxation of land released on its value in its potential use, allaying the fears of the public with respect to the scarcity of land, but largely through negotiation with prospective developers to share the cost of land preparation, the situation has been brought under control. One consortium of major developers, for example, agreed to participate not only in the trunk sewers, principal water supply provisions, and subdivision streets, but contributed substantially to the cost of the major arterial route serving the area. With prospects for speculative profit in urban or urban deferred land less promising, speculators have been turning to rural land, but the Authority has been able to hold the line against requests to rezone from rural to an urban category.

One reason that the implementation of the plan has thus far been successful is the good coordination that exists between the Authority and the State agencies and local jurisdictions concerned. The Town Planning Department provides technical services to the Authority and its committees, as do other State agencies, the Main Roads Department "seconding" professional personnel to aid in transportation aspects for example. In the other direction there are planning committees within each of the four districts into which the regional councils have been grouped, each with a planning officer supplied by the Department. The Town Planning Board, set up in 1929 to control land subdivision throughout the State, works closely with MRPA in developing its land use plans or modifications of them as need arises, to maintain consistency of policy State-wide.

On paper at least, the Town Planning Department appears to be the key to assuring that development follows the plan. Local planning schemes of the 26 jurisdictions within the region must be approved by the Minister for Town Planning, as must modifications of region scheme such as a change in a highway alignment. Since both the local jurisdictions, and the Town Planning Department (and the Main Roads Department among others) are represented on the MRPA, however, such actions should be facilitated. Major changes in the plan or refinement and expansion of it, such as the corridor transportation plan, must be approved by both Houses of Parliament, however. Beyond having authority to approve plans and local zoning ordinances, the Minister is also the agency to hear appeals from any decisions or actions, and his decision on an appeal is final, with no recourse to the courts permitted. However, in 1970 a Town Planning Appeal Court was created, allowing people the choice of appealing either to the Court or to the Minister. Thus the general plan for the metropolitan area is developed and kept current by the Regional Planning Authority, comprising mostly appointed and elected officials, under guidance of the Town Planning Department and subject to Parliamentary approval. Detailed plans to administer the planning act are the responsibility of the local jurisdictions through voluntarily prepared local plans and zoning ordinances, subject to approval of the Minister of Town Planning. Where there are no approved local schemes, the Authority may assume authority to pass on all proposals for development, however.

Transportation Planning

Transportation planning in the metropolitan area has been a continuing function since the earliest days of the original plan development between 1953 and 1955. First attention was given to highway needs. While the scheme defined the extent and location of controlled access highways and other regional roads, the more specific data needed for functional planning, design and programming were obtained in a series of studies conducted by MRPA and the M. R. D. between 1958 and 1966. Much of this material was coordinated with the census data. With reference to problems of the CBD, as distinct from the Region, a parking study of the city of Perth was also conducted by the MRPA in 1965, but the roles of bus and rail transit obviously needed more study.

To meet this need, a Cabinet subcommittee was formed comprising the Ministers of Transport, Works, Town Planning, and Police and Traffic to provide guidance to and Cabinet liaison with a Steering Committee charged with conducting a Perth Region Transportation Study. The Steering Committee was chaired by the Minister for Transport and comprised in addition the Commissioner of Main Roads the Town Planning Commissioner, the Director-General of Transport, the Deputy Under-Treasurer, the Lord Mayor of Perth, and the Study Director, Dr. Robert Nielson, a transportation economist. Staff assistance was provided by professionals assigned to the Study by the Town Planning Department, the Main Roads Department and other agencies.

With the large amount of data available from the earlier studies and with the aid of an American consultant a series of alternative transportation plans was developed. While there are rail lines in three of the corridors, as well as between Perth and Fremantle, these lines and most State mileage is narrow gauge. The line in the eastern corridor, and extending across the continent to Sydney is either standard gauge or dual gauge, however. It was accepted that rapid transit will be provided in all corridors, but question was whether it should be by rail or bus in exclusive lanes. The first recommendations leaned heavily toward the bus, but under a change in State government during the course of the study, reconsideration was requested with the objective of placing more emphasis on rail. It was understood that rail might replace bus at some future time if warranted, but the "interim" nature of bus operation then posed some difficulties.

The reconsidered plan submitted to Government envisions a combination of rail rapid transit, generally using existing railways upgraded to standard gauge, with the tracks in the city center depressed. In other corridors reliance would be placed on the bus in reserved lane or on special busways. In the case of a narrow gauge line now operating between Fremantle and Perth through a fully developed area of family housing embracing a number of small suburban centers, it was proposed that the rails be removed and express bus operation substituted. It is reasoned that the low utilization of the present system is because of the preference of the people to use private vehicles rather than to walk to the stations. It was proposed that buses would circulate in the neighborhoods and run express upon reaching the new busway that is now the rail line. The bus line would terminate near the main rail station in Perth in a new pedestrian-oriented center city area. Local buses would continue to circulate through the center city. The various plans are still being considered by the Parliament (August 1972) and with Cabinet support, ultimate approval is expected.

Perth is an automobile oriented city, however, and the long-range plans are based on a 50-50 split between public and private transportation to the city center. The plan calls for some 150 miles of freeways by 1989, one mile for every 15,000 persons, a figure regarded by MRPA as low compared to a mile per 10,000 to 12,000 persons planned in other cities throughout the world. Plans for freeways and other major highways adjacent to the city center are being developed with an appreciation of the "holding capacity" of the center city, and forecasts of the increasing load of by-passable traffic. The freeway coming in from the south will connect with those leading east and north at the complex Narrows interchange now under construction and together they provide close-in connections to the downtown area on two sides. The interchange located on made land on the waterfront offered difficult design construction problems because of subsurface soil conditions. Caissons to support the structures sunk into bedrock, developed lists as the interiors were excavated, and had to be plumbed by unique jacking with horizontal guys. The interchange has necessarily been under construction for a long period with temporary roadways and detours, and has caused some criticism for that reason, but once completed and the new area landscaped it will be an environmental as well as a transportation asset.

Balance Between Transportation and Development

Transportation in Perth is planned to be in balance with planned development. Whether it will remain so remains to be seen but presently there is obvious concern over the prospects. As an example of maintaining this planned balance proposals for redevelopment of the Parliament House Precinct with government office center was examined. This is a focal point in the center city development and its scale and amenities must be approached with sensitivity, with attention given to building heights, preservation of the commanding view, and other factors befitting its purpose and location. Among the factors in the study preceding development of part of the precinct to be used for government offices were access to it and its "holding capacity." On the basis of the choice of mode of transportation and the transportation facilities that exist or could be provided, it was concluded that the area should accommodate no more than 2800 employees. As a result only one office block was built, rather than the five originally proposed.

That this restraint is not necessarily being followed in the city of Perth by private development, however, is seen in a still more recent proposal by the MRPA that government incentives be enacted to encourage development of the decentralized centers in the four corridors in conformity with the extended planning scheme. Contrary to this plan office and retail development has continued to concentrate in the Perth CBD to the extent that transportation costs to give the needed access may come to be beyond reach. Deliberate increase of taxes in the center city based on the number of new employees, coupled with lower taxes in the corridor centers and low interest loans to stimulate commercial development there have been suggested. At the same time the MRPA would release enough rural land for urban development in the areas of the corridor centers to meet the needs estimated for some 10 years ahead. But the proposals stopped short of recommending a ceiling on employment in the whole downtown area as had been done in the case of Parliament House Precinct. At the same time the city of Perth is considering an ordinance that would set a maximum number of parking spaces that might be provided by private interests in new buildings and possibly authority to fix minimum parking fees to force travel by transit. Most of these proposals must go before Parliament and be passed by both Houses, so the decision finally will be by the political process. The lines as to the future of the region are being drawn. Meantime a private consultant commissioned by the government a year ago to review the corridor plan has recommended virtual abandonment of all planning controls, especially on rural land. Evidently some interests are chafing under the present planning constraints.

There is no requirement for citizen participation in the planning process, except as the public may make its views felt through their elected representatives who serve on the MRPA or on the district committees. As a matter of course, however, the MRPA in the general planning field and the Main Roads Department in the highway field are very conscious of the importance of public education and support, and carry on extensive programs of reports and news releases concerning their proposals, programs and accomplishments. One excellent example is a model of the downtown freeway system located at a prominent point on high ground overlooking the downtown area and almost directly above the complex Narrows interchange noted earlier. With descriptive literature and an attendant at hand to explain its significance a viewer can easily visualize how the work on the ground below is forming links in the ultimate network on which he will ride.

Summary

In summary, transportation planning and general planning are closely integrated, and the current plans place transportation in a neutral position with respect to development. Facilities are planned to permit private vehicle use at desired levels, yet with development sufficiently concentrated to make public transportation feasible. To maintain this balance will require constraint on center city development, however, or forcing a choice of mode of travel on commuters contrary to their desires, or require a degree of highway and parking development in the downtown area beyond financial feasibility and perhaps detrimental to the downtown environment. A choice seems to be in the making.

PLANNING IN CANBERRA

(Updated to May, 1973)

Canberra is the seat of the Commonwealth government, located in the Australian Capital Territory (ACT), a roughly rectangular-shaped area of 910 square miles oriented north and south and, again roughly, about 20 by 50 miles in dimension. The area was finally delimited in 1909, after considerable interstate argument, in line with a provision of the constitution of 1900, the year the Commonwealth was founded. Canberra city is located only about 10 miles from the northern boundary of the territory. It is on a plateau surrounded on the east, south and west by low mountain ranges and contains within it several individual peaks from which the entire area may be viewed. It is this area that is most suitable for urban development. Toward the south the mountains get higher and with ample numbers of streams serve as catchment areas and recreational lands. Somewhat incongruously for a national capital, the area also produces good crops of softwood timber.

Early Planning Efforts

The Australian Capital Territory is located within New South Wales, about 400 miles from Melbourne and 200 miles from Sydney, on land transferred by New South Wales to the Commonwealth on January 1, 1911. Most of the land was then privately owned, but by now all but a small amount has been acquired by the Commonwealth. With agreement that the seat of government would remain in Melbourne until suitable provision could be made for the Parliament, the home of the Governor-General, and necessary government offices and residential quarters, an international competition was announced for the design of the new capital. Walter Burley Griffin, a Chicago architect won the competition, but a Departmental Board revised his plan and in 1912 began the first stage of construction. A change in government resulted in scrapping the revised plan in 1913 and inviting Griffin to come to Australia to implement his award-winning plan.

Griffin's plan envisioned a city center and a government center separated by a lake, and residential areas, all in park-like settings, taking full advantage of the rolling terrain to give prominence to the more important buildings. His plan is said to reflect the architecture of the 1893 Columbian Exposition in Chicago, and the general layout to show the influence of Olmstead and Burnham. But despite the excellence of the plan, Griffin proved to be a better designer than an administrator, and in 1920 after little progress toward implementation, he was relieved. During his tenure, however, he so firmly fixed the elements of the plan on the ground that it could not readily be changed (fortunately, it would seem) and it is the basis of the greatly expanded plan of today, with his original philosophy having stood well the test of time and a half century of changes. The city he planned to accommodate a population of 25,000, with an eventual maximum of 75,000 now includes some 150,000 with a foreseeable population of 500,000, and with present planning based on the possibility of having to accommodate 1,000,000 sometime in the next century.

By 1924 after considerable discussion and some strong efforts to modify it, the Griffin plan was formally adopted by publication in the Gazette, and thereafter no change could be made without approval of the Governor General and both Houses of Parliament. The 1924 Act established the Federal Capital Commission with authority to plan, construct, and administer Canberra. To get on with it, the Commission was advised to give priority to the essential government buildings and facilities to permit the movement of Parliament and more important agencies to Canberra, and to leave the construction of the monumental buildings and features to the future. Under this injunction the Parliament was enabled to begin functioning in Canberra in May 1927 in a provisional House of Parliament still in use, and movement of government agencies started. Even today, however, many agencies (including the Department of Works and the Commonwealth Bureau of Roads) remain in Melbourne, attributable to many factors.

Another change in government took effect and in 1930 the earlier act was repealed, the Commission abolished and responsibility for Canberra divided among government departments concerned with various functional areas such as works, health, and education. What with the depression and World War II things got no better, leading to still more committee and commission reviews until agreement was reached to centralize the authority for planning and development of the capital in a Commission. The decision was effectuated by the "National Capital Development Commission Act, 1957," amended to some extent in 1960, and now the statutory authority for the administration of Canberra under the title "National Capital Development Commission Act 1957-1960."

The National Capital Development Commission

This act is brief and simple, yet it is highly perceptive and effective legislation as clearly evidenced by the remarkable progress that has been made in the little over a decade since its enactment (it was assented to on December 13, 1960). It established the National Capital Development Commission, constituted by a Commissioner and two Associate Commissioners appointed by the Governor-General for seven-year terms, eligible for reappointment.

The Commission is a corporate body, reporting to the Government through the Minister for Urban and Regional Development. Its functions are simply described. It is to "undertake and carry out the planning, development and construction of the City of Canberra as the National Capital of the Commonwealth." To carry out these functions it may provide, or arrange for the provision of, buildings, roads, bridges and any other necessary works on Commonwealth land, or on other land at the request of the owner and with the approval of the Minister. It may not depart from the official plan of Canberra published in the Gazette in 1925, as modified and amended, thus perpetuating the Griffin plan as the planning base for the expanding area. Land needed for development of any sort may be made available by the Minister for the Capital Territory to the Commission for management, and for construction of its own works, and while the Commission may not lease the land for private use (the Minister for the Capital Territory actually is the party to the lease) neither can the Minister lease the land without the consent of the Commission. In the event the Commission and the Minister do not agree on any matter, the Minister does not prevail, but rather a decision is reached by the Governor General (failure to reach decision is so rare as to be negligible, however).

The Act provides for an advisory committee called the National Capital Planning Committee of nine members under the chairmanship of the Commissioner. The eight other members are appointed by the Governor General for three-year terms, eligible for reappointment. Two architects are appointed from a list of names provided by Royal Australian Institute of Australia; two engineers from a list provided by the Institution of Engineers, Australia; two planners from a list provided by the Royal Australian Planning Institute; and two other persons with "special knowledge and experience in artistic or cultural matters." The Committee in its role of advising the Commission may request the attendance at its meeting of any officer or employee of the Commission or the Commonwealth, and call upon any Department for any report or other pertinent material.

Responsibility and Authority. Lines of responsibility and authority between the Commission, the Government and the people of the area are not sharply defined by legislation. In one sense since there are no locally elected officials to govern the city or the Territory, the Commission in many areas acts in their stead. While the administration of the Territory is a function of the Department of the Capital Territory, many other Departments have specific responsibilities within the ACT as well as their broad national responsibilities. As noted, the Commissioner reports to the Minister for Urban and Regional Development, but any differences that they cannot resolve between themselves are decided by the Governor-General. While it does appear that plans and programs of the Commission require specific Parliamentary approval, any modification of the 1925 "Gazetted" plan that is proposed by the Commissioner and accepted by the Minister must be laid before the Joint Parliamentary Committee on the ACT--a bi-partisan committee of both Houses. The committee must review and report on these and any other proposal submitted to it, but no positive action by Parliament follows if the committee approves. Decision to add to or to change the road network, which could involve the release Crown land for residential development, the establishment of a new town or the construction of a freeway, for example, are laid before it for review and approval or possibly Parliamentary veto. Thus the Commission's policies, plans, and programs are subject to review by both the executive and legislative branches of government.

In practice, however, administrative procedures have evolved in such a way that the Commission's plans and programs are developed cooperatively with the many government departments such as Works, Health, Education and Treasury, as well as Interior, so approval at Government level, while hardly pro forma, offers little problem. In large part this must be attributable to the sound policies and programs the Commission has proposed and followed. It recognizes that Canberra as the national capital must be developed as a monumental city and a cultural center, but that it must also be an economically and socially viable area, and that with its rapid growth a balance must be constantly maintained between employment, residential capacity, transportation, educational and health facilities, and general amenity. This it has been able to accomplish mechanically by virtue of the total control it exerts over land development, and politically because it has demonstrated its ability to maintain the desired balance in growth. As a consequence it has continued to earn public and Government support. The Commission regards itself as "production oriented" and has been able to proceed toward the "grandeur" foreseen by Walter Burley Griffin without sacrifice to efficiency and economy on the way.

Current Planning and Development

The population of Canberra, numbering 40,000 when the Commission was established in 1958, has now passed the 160,000 mark, and at its annual growth rate of around 9 percent will reach the 500,000 level within 20 years. Programs must be carefully articulated to keep all things in balance. Basic to its planning process is the development of a long-range or strategic plan looking toward the 500,000 level in some detail, but considering at the same time that development under it must be expandable to serve a potential population of 1,000,000 that might be reached soon after the turn of the century. The long-range plan is implemented by rolling 5-year programs that are financed by annual appropriations by Parliament. The Commission has no taxing authority nor are property taxes as such collected from residents or businesses. Instead payments for the use of the land are channeled directly into the general funds of the Treasury, from which the Commission's appropriate funds are derived.

The Planning Process. To carry out the planning and development process the Commission has created a small multi-disciplined staff totaling just under 300 people. Included are 24 planners, 18 architects and 20 engineers, reflecting different branches of their professions, along with professionals from other disciplines. The staff capability is extended as needed by contract with consulting firms who can offer special specialized advise or assume specific design functions, leaving the staff to review their reports and designs, but also more free to consider the overall planning strategy and practice. Early work was concentrated on the broad principles or urban growth with in-depth investigations made of the benefits and disadvantages of a variety of alternatives growth patterns. Heavy reliance was placed on simulation modelling, with computer input derived from local trends and the quantifiable experience of other cities both in and out of Australia. Economic and social costs of services such as transportation, water supply and sewerage, education, hospitalization, and many others under each alternative were explored. Preferences of the public were carefully considered, based on opinion surveys, discussions and particularly on experience as the program developed in its early stages.

The Plan Itself. From this review came the decision on which the pattern of present and future growth is based. The area will not be single city center oriented. Government employment there will be held to a figure close to its present level to avoid overburdening the city and holding government office buildings to a number and size and height consistent with the amenities the capital city deserves. Growth of office and shopping area will be progressively reduced so that development in the city center can be related to capacity or accessibility. There will not be similar restraint on central residential population, although as the earliest-built housing becomes ready for replacement in a few years more emphasis may be placed on multi-family units.

Expansion will take place in new towns providing for government and private employment, residences, schools, commercial activity, light industry (mostly service oriented) and cultural activity. The extensive analytical work led to the conclusion that each town should accommodate 75,000 to 150,000 residents and related employment opportunities. Location of government agencies is to be a strong factor in creating employment opportunities, but private enterprise also shows interest in locations in the towns. The new towns will be located along three axes in a "Y" pattern rather than circumferentially. This "Y" pattern emerged from the computer studies referred to above which considered a wide range of parameters including terrain and the minimum costs of servicing them, particularly with transportation. (It is interesting to recall that the "new town" plan of Paris also utilizes a "Y" pattern.)

The first of the new towns are being developed, possibly over a 20-year period, as series of neighborhoods grouped into somewhat self-contained neighborhood groups, around a town center. Each neighborhood will provide for 3000 to 4000 residents with a primary school, park and recreational and convenience shopping facilities. Three or four neighborhoods are grouped together in a neighborhood group. Its core is called a group center, with a supermarket, a range of shops, service stations, banks and professional offices characteristic of a small regional shopping mall in the United States. Ample parking space is provided. A town thus comprises 8 to 10 or perhaps more groups. The new towns now in planning phase are designed with more flexibility and the neighborhood concept is not necessarily being used.

The town center is the focus of employment. In Woden, the town next south of Canberra and about five miles from the center, on the stem of the "Y" pattern, there will be provision for about 15,000 employees, 9,000 in government offices and the remainder in private employment. Another new town, Belconnen, now being developed to the northwest will accommodate 23,000 employees, 10,000 in government offices. The town centers, in contrast to Canberra give opportunity for higher-rise buildings. In the town centers there will be department stores and the full range of shops, perhaps a college, a hospital, churches, restaurants and all facilities and services expected of a city of 100,000 or more in population.

The Transportation Element. The key to the efficiency of the neighborhood-group-town-city hierarchy is transportation, and that was an important factor in deciding upon the "Y" pattern. Transportation is automobile oriented, but for all who wish to use it, public transportation by bus is available. Like all Australian cities, Canberra is a single-house society, 80 to 90 percent of the units in the new towns being in that category. Experience and opinion surveys show that half the families want 3-bedroom houses and another quarter want 4 bedrooms, and 95 percent want 2 carports or garages, indicative again of a life style that demands flexibility in transportation.

The street pattern in the neighborhoods provides access from the homes via collector/distributor roads to the arterial streets that in turn lead to the group center. Traffic-free pedestrian access from the homes to the neighborhood center is inherent in the plan. Arterial streets connect the neighborhood centers with the town centers. Bus lines give access by public transportation to the group centers and the town center, where in each case there is a major bus terminal. It is in connecting the town centers with the city center, along the axes of the "Y" that Canberra departs from the more conventional pattern of metropolitan growth. In the center of each axis will be a rapid transit line, currently planned to be served by express buses individually operated on reserved right of way. The right of way will be available in the future, should patronage demand and technology permit, to be used by buses in trains or some type of fixed-rail vehicle. Buses can enter the express lanes at the town centers after picking up passengers at the group centers, or they could run exclusively in their express lanes with patrons transferring from local buses by cross-platform transfers at the bus terminals as they are being designed.

By giving direct service from town center to city center it is hoped that transit will be encouraged and an economically viable system made possible. The bus lines are operated by the Department of the Capital Territory, with operating costs currently subsidized to the extent of half a million dollars per year. In contrast the freeway system will not penetrate the town or city centers but will run along the edges of the growth corridors. Connection between towns will be facilitated in this way and the freeway system will skirt the edge of the city with access to the center by good arterial streets. Travel from towns to the city center would be more direct by arterial streets or transit than by freeway but not necessarily faster. Studies have shown that the modal split under this total transportation plan would be influenced to some extent by parking charges. It is anticipated, however, that 12 to 18 percent of the total trips to the town centers will be by transit, and that the trips to the

city center by that mode will be in the range of 16 to 40 percent, depending on parking or other policies that might be adopted. The current peak-hour modal split of about 15 percent transit riders is expected to increase progressively. It would appear that if the policy of holding employment in the center city to somewhere near its current level is adhered to, relatively free movement of traffic may be expected to continue. Maximum volumes in the 50,000 vehicles-per-day range do not cause appreciable congestion on the present system and the peak period is very short.

Control of the Use of Land

While transportation is perhaps the key to efficiency, the key to balance in development is the total control over land use the Commission exercises. Ownership of land remains in the Crown, and is opened up for leasing for specified use as called for by the development program. To use a neighborhood as an example, the Commission lays out the plan in detail and prepares the land for improvement, building the roads, sewerage and water mains and installing all utilities, a function requiring about a two-year lead time. With the costs of providing the infrastructure known, rents are set to defray this cost over a 20-year period. The permissible use is carefully specified, describing the size and type of house and the minimum cost of construction, lot by lot on lots generally in the 8,000 to 10,000 square foot range, going into such detail as the construction material and other factors to insure aesthetically consistent and attractive development. An interesting by-product of this process is that the need for zoning is eliminated. While "zones" such as for residence, parks, or commercial or industrial use are identified in the long-range plans, zoning to cover detailed nature and density of use is unnecessary.

Once the Commission has made these preparations, the Department of Capital Territory sells leases for the lots at auction, prospective owners bidding for leases, usually 50 years in duration for business leases and 99 year residential leases. The proceeds of the auction go direct to the Treasury. The successful bidder thus buys his right to construct a house under the specified conditions. The lease may be renewed at its expiration, at the option of the Commission, but if the leasee's desire to renew the lease is denied the Commonwealth Government must pay him the value of the improvements as of that time. While "reserve price" is fairly stable inasmuch as it covers only the cost of the raw land and land preparation, the amounts bid for leases vary with the demand for housing or other uses and the ability of the Commission to foresee the demand and keep the supply of prepared land in balance. Bidders may bid for a single lot, or a builder may bid for a block of up to perhaps 10 blocks. Since construction must start within a specified time, however, land cannot be held for speculation. Over recent years the reserve price for an average residential lot has been about \$3200 and the average bid for a lease about \$3000 above that. Leases for business have sold for much higher prices. A lease for a service station, for example, might bring a quarter of a million dollars.

While most residential property is privately owned and built, the Commission builds houses for sale or rent, with renters often having option to buy. The greater portion of multiple dwellings are in the publicly built category. The Commission also provides for commercial and business development in the same way, but in the town centers and group centers a substantial part of the development is in public building or government offices that the Commission itself builds. Uses of blocks leased for commercial development are specified in detail, such as for a department store or a hotel, or a block of shops, or service activity. This degree of control means that the Commission's estimate of needs for each type of activity must be accurately made, but the level of bids for land as it is released for specific purpose does give opportunity for appraisal of the decisions as development progresses.

Public Participation

There is no legal requirement for public participation in the planning process, nor are there any locally elected officials to or through whom citizens of Canberra can express their views on its planning and development. Complaints may be expressed and objections heard by the Commission but seldom bring any significant change, since the overall public good takes precedence over individual objections. The Commission is most conscious of the need for public support, however, and it maintains active and varied means of communication with the public. Many reports of plans and progress are prepared for wide distribution to keep the people informed, motion pictures are used to explain programs and exhibits are maintained both in the city and in the towns. A model of the entire area, kept current with progress in development, is located at Regatta Point, a high point on the shore of Lake Burley Griffin, a key feature of the original Griffin plan only recently completed. In this dramatic setting the people can visualize the entire area, and actually see from the vantage point a good part of it, revealing not only the form of the city but its purpose. Ample literature describing various aspects of the plan is available there.

The public relations program is not limited to informing, however, for various means are used to solicit opinion from and judge reaction of the public. Opinion polls with respect to desires in housing are conducted, for example, and can be validated by the reception of newly planned neighborhoods that were based on their findings, as shown by the bids for leases. Questionnaire surveys as to the nature of recreational facilities guide the Commission's program in this area and again the decisions can be tested by the use of the facilities.

Prospects for Success of Planning Strategy

Of course planning in a city growing largely because of government agencies moving into the area offers advantages over one in which employment opportunities are less controlled. Hopefully up to 60 percent of the workers living in a town will work there, and as employees in a government agency newly housed in a new town seek permanent residence, it is logical to expect them to locate in the same town. Yet employees of city-based agencies also are active bidders for leases in the new towns, indicating that transportation will still be a key factor in the success of the ultimate metropolitan complex. On the other side of the coin, this confirms the appeal of the Commission's design of the neighborhoods in the new towns.

There is every indication that the total planning concept as being carried out in Canberra works well. It has support of the public and the government. The population is younger than the average for Australia and its major cities, as might be expected in a new city focussing on government employment. Average personal income is about 20 percent above the level of the rest of Australia. It is an outdoor-oriented population both in living and recreation, that has yet to reach a level of population to support the recreational and cultural attributes of Sydney and Melbourne, its almost neighboring cities. The few ventures to establish nightclubs have failed, for example, and the theatre and even cinemas and moderate priced restaurants still leave something to be desired (Note: A young marine stationed at the U. S. embassy regards the post as undesirable because Canberra is "too quiet"). But these inadequacies, if they are of concern to many people, will fade with the steady population growth. The only concern at this point would appear, to the investigator at least, to be where the 1,000,000 will live if the area gets that large. Most of the area suitable for urbanization, as noted earlier, is north of the city, and the city is only 10 miles from the border of New South Wales. Development over the border can in fact already be seen from high points in the city. There is no basis now for controlling development in New South Wales, nor any legal basis even for coordination. While relations between the Commission and the officials of New South Wales are regarded as excellent, it would appear that something more solid than cooperation at personal level will be needed to insure the same high quality of development in the whole of a million-sized area that now exists and will continue in the Australian Capital Territory. The new Australian Government is keenly aware of this need and it is expected that inter-governmental action will be taken.

Summary

In summary by total control of the use of land and by sensitive administration an efficient, pleasant, very livable city is developing, one that will complement the "grandeur" of a monumental capital in a magnificent setting envisioned a half century ago by Walter Burley Griffin. With its total control it still has allowed for free choice of living among its residents. It strongly resembles Stockholm in its total control of land by public ownership and its administration through the leasing process. But so far it has been in direct contrast in its transportation, in giving full scope to the personalized movement the motor vehicle permits. It is taking maximum advantage of this new mode in its planning, not discouraging its use, fitting a mode that Griffin could not have foreseen into a plan he developed, yet retaining in current development opportunity to adapt to some future mode that cannot be foreseen by this generation. The linear development has left all its options open.

CHAPTER X

PLANNING IN CANADA

October, 1972

Government authority in Canada is heavily province oriented. The Federal government by long tradition confines its concern almost wholly to matters regarded as of truly national importance, leaving the exercise of local and regional authority generally to the provinces. The provinces on their part maintain fairly tight control over local government.

Federal Interest in Transportation Programs

This philosophy is quite evident in the area of transportation. Navigation, shipping, and rail transportation have long been regarded as areas of national interest, and the Parliament has exclusive legislative jurisdiction over them. As technology has advanced national jurisdiction has been extended to cover civil aviation, inter-provincial pipelines, and to safety aspects of inter-provincial trucking. By legislative jurisdiction the Federal government may regulate transportation in all these areas, and can at its discretion, provide transportation as well, as evidenced by national ownership of the Canadian National Railways, complementing the privately-owned Canadian Pacific, and of Air Canada complementing privately-owned air services. Most of the larger airports and all national harbors have been provided or improved as a Federal responsibility.

Areas that traditionally have not been regarded as of national concern include highways and urban transportation, but in each of these areas a growing Federal interest is emerging. In the highway field, the Trans-Canada highway is accepted as of national importance, but even so the responsibility for its construction was left to the provinces. The federal government did decide to assist in its funding, the proportion varying within the different provinces depending on the ability of each province to find revenues to complete its sections to desired standards. To enable Quebec to complete the section within Montreal, now nearing completion, where the highway goes directly through the centers of both the "old" and "new" city there is very substantial Federal aid. Also, highway construction here received high program priority because of "Expo 67" the exposition being obviously of national importance. Even with the acceptance of national concern in the Trans-Canada highway, however, there is no present indication of continued support of highways at Federal level once that highway is brought up to accepted standards throughout its length.

The emerging interest in urban transportation, aside from any over-all social or economic concern of possible national importance, can be seen in the areas of railway grade separations, and airports in which systems of national concern impinge or depend upon transportation within the urban areas. Federal funds in limited amount are available to provide highway-railway grade separations as a matter of safety. Some of these funds are available for grade separations in urban areas. Where studies show that a relocation of the railroad would be cheaper than providing the necessary grade separations, the relocation financed from grade crossing funds can be accepted as an alternative, as is often the case in urban areas. Any major relocation effort in an urban area obviously affects provincial and local interest, especially in transportation, so here Federal funds available for a national purpose (safety) can be directed to local urban improvements benefiting local transportation and other services. Funds are now small in amount but, even so, at small scale they offer an opportunity for some local areas to benefit from a program of national concern. As an aside, it is of interest that the railroads have authority to expropriate land for railway purposes, but as of now the government has no authority to expropriate railroad property for other public purposes where that property is no longer needed for railroad purposes, or where a relocation may be in order. Legislation has been proposed to remedy this situation.

Airport Planning and Development. In the area of airports, national policies and programs have a significant effect on local and provincial policies, plans, and programs. Here the Federal government has responsibility for the provision of the airport and its facilities, but not for access to it. Access is the responsibility of the province, but the Federal government can assist by participating in the planning, both technically and financially, and if thought necessary and desirable, in the cost of the resulting programs. The Federal government assumes responsibility for seeing that appropriate access is provided, both by public and for private transportation. At present the demands for both are thought to be best satisfied by freeway connection to the urban freeway and arterial systems but if feasible and appropriate rail connection and service could be provided as a national function by the Canadian National Railways.

While the location of a major airport is entirely a Federal responsibility, it is recognized that its impact on the province and local communities is so great as to require their involvement in its planning. Examples of the way in which this occurs is seen in new airports now programmed in Toronto and Montreal. Initially the location of the new airport for Toronto was proposed by the local communities to be west of Toronto,

that proposal being influenced by the trends and prospects of growth in the Toronto area, and the fact that it could be easily related to the existing airport northwest of the city center. In its planning for the future of the province, however, decision was reached to encourage the growth of the Toronto area to the east, in the corridor connecting Toronto and Montreal, where development is lagging. Accordingly under agreement between the Province of Ontario and the Federal Government the new airport is to be located well to the east of Toronto near North Pickering. Responsibility for providing access and other facilities will fall upon the province and the local or regional municipalities. It is to be expected that Federal funds will be provided to assist in financing the needed improvements within whatever jurisdictions the responsibility for providing them may lie.

An interesting and important approach has been taken to insure development in the vicinity of the airport compatible with the use of the facility. The government expropriated 88,000 acres, sufficient to include all of what is termed "noise land" as well as the airport itself. The land not needed for the operations of the airport and its access and other related facilities will be available for rigidly controlled use by private or other public development, either under lease from the government or by purchase with covenants precluding inappropriate use. Appropriate uses would include most industry, activities that could operate in buildings suitable for sound insulation, agriculture (not including dairy or poultry farming) or open space or forestry for example. While the primary purpose of ownership is to prevent undesirable development and possible future problems resulting therefrom, not overlooked was the fact that the new airport will produce great increases in nearby land values, increases that now will not result in private windfall or speculative profits. They will instead be returned to the public as benefits resulting from public investment, and can become a significant factor in recouping the amount of the original cost. By careful planning and programming the airport and its adjoining noise lands can become a self-liquidating investment but, perhaps more important, will not attract undesirable neighbors nor itself become one.

The Montreal situation is very similar. The Federal government expropriated 90,000 acres to the northwest of Montreal, at Ste. Scholastique, but has turned it over to the Province of Quebec for administration. Here, the original proposals by the city called for the location of the new airport to the south, but again the decision of the Federal Government and the Province of Quebec was to encourage development to the west, again looking toward better distribution of growth and emphasizing the Toronto-Ottawa-Montreal triangle. Building over a 20-year period, the Federal Government has committed thus far over \$650 million, of which some \$100 million is to aid local municipalities and the province, through loans and grants, in constructing roads, bridges, water supply and distribution and sewerage systems that the area will require as the airport reaches full use. A freeway connection to Montreal must be provided, but negotiations between the Federal and provincial authorities as to its financing are still in process. Included in the grants to the local agencies were funds to aid them in their planning processes as well as in construction programs.

Thus in this national program the Federal government finds itself cooperating with the province in planning airports, and participating with the provinces and local municipalities in planning, programming and financing related improvements, particularly roads to give access from the central city and the surrounding smaller municipalities. It is the impact on the local municipalities of a program of national responsibility that is the direct reason for the Federal government concerning itself on a specific program basis under ad hoc arrangements, with the planning and financing of local facilities, particularly transportation facilities.

Urban Transportation. While there is yet to be acceptance of responsibility on the part of the Federal government for the "provision" of transportation (meaning participation in its cost) there are indications that some justification is being sought for accepting urban transportation as a matter of national concern. It has been suggested by some officials, speaking not for the record, that urban congestion can increase the cost of doing business and thus result in increases in prices that are felt nationally. Further, since most major cities are located where they are because of the transportation facilities they offer--water or rail--travel and transportation of the provinces and the nation are focussed on them. Thus it could be reasoned that it might not be improper for the Federal government to assist in financing urban transportation improvements in proportion to the extent that the travel and transportation of national scope imposes a burden on the area. But there is no present indication that in Canada local urban transportation generally is regarded as a national problem and deserving of Federal financial aid.

The Ministry of Transport

Administration of the Federal transportation functions rests with the recently formed Ministry of Transport. Reporting directly to the Minister are the agencies providing transportation (Air Canada and Canadian National Railways), the Transport Commission responsible for economic and safety regulation except for trucking, and the "line" administrations responsible for providing for transportation (air, marine, and surface, with rail and highway separated within surface). In addition there are the Transportation Development Agency and the Ministry Executive. The Transportation Development Agency is concerned with new developments, with

emphasis on technological improvements and innovations, and with intermodal aspects as well as new developments within modes. The Ministry Executive has as its principal responsibility concern with policy, planning, and major projects. It is staffed with some 20 professionals in a variety of disciplines including social as well as hard sciences. Its function is to examine how under existing authority programs of national scope can best be directed to the total transportation needs, and what new policies and authority would be of benefit in meeting present and foreseen needs.

The Transport Commission, the Development Agency, and the Ministry Executive work in close cooperation not only in analytical and research areas but also in launching demonstration or pilot projects. One such project is the GO system in Toronto, where innovative equipment is being used on rail lines of the Canadian National Railways to improve commuter transportation into the central area of Toronto (GO stands for Government of Ontario, for the province of Ontario is a participant in the experiment. The trains come as well as go).

The Federal share of this study, designed to look particularly at the economic aspects of this approach is drawn from the Transport Commission. It has two particularly significant aspects. First it recognizes that the Federal government will inevitably become involved in urban problems with growth in Canada as in others countries heavily concentrated in metropolitan areas, approaching 70 percent in these areas by 1980 under current estimates. It is also recognized that the multiplicity of local jurisdictions necessitates coordinating or direct action by some central authority if some urban functions, especially transportation, are to be effective. Second the project is referred to as a pilot rather than a demonstration project, recognizing that once a service is started on an experimental basis, it can hardly be terminated if it is accepted by the public, even if it operates at a loss. Thus the Federal government has accepted that on a project by project basis it may find itself contributing to providing urban transportation service on a continuing basis. One problem is to determine how far the Federal government can or should go in pilot studies without "opening the flood gates" of Federal support for local programs.

As a general philosophy it is expected that transportation services in the different modes should be supported by the users. While this is not a legislative requirement, public expenditures for highway and air transportation are just about met by their users. Rail transportation requires some subsidy, although the authority of the railroads to engage in other activities such as operating ships, trucks, pipelines and even hotels tends to hold subsidies low. Water transportation is heavily subsidized, and of course urban transportation, by whatever mode, requires substantial public subsidy, but not from Federal funds.

Funds for the programs of the Ministry are appropriated annually by Parliament on the basis of budget requests prepared by the various ministries and agencies, and reviewed by the Treasury. Research programs and experimental projects are identified and justified individually in the budget request somewhat along the lines once strongly advocated in the United States called planning programming and budgeting, but more realistic. Once the Parliament authorizes the programs by approval of the overall budget, funds for the specific line items are then authorized by the Treasury. Thus the Treasury by its budget review and subsequent authorization of funds has responsibility for overall program coordination and fiscal control over the total Federal program as authorized by the Parliament.

Ministry of State for Urban Affairs

Execution of the Federal programs, and in fact their development, in local areas, as well as coordination of Federal, provincial, and local plans and programs for specific local areas present severe administrative problems. Trying to develop a sensible order of administrative responsibility has been likened to attempting to untangle a bowl of spaghetti, and it has been commented that the real urban problems in transportation and other fields as well are administrative far more than technical or even financial.

To help bring about this necessary coordination there was recently established the Ministry of State for Urban Affairs. This is one of two Ministries (the other is Science and Technology) that have no program responsibility but cut across the lines of other Ministries, which are organized vertically. Its function is to review what is being done in urban areas in the way of coordination of programs, what is needed, and what ought to be done to bring about a desirable organizational structure in the particular areas.

The Ministry has two principal branches--Research and Policy, and Coordination. It is the latter wing that deals with the specific local communities by assigning a coordinator to an urban area. This coordinator has responsibility for coordinating the programs of the several Federal agencies that are being carried on in the area, carrying the authority of the Minister of State for Urban Affairs as his lever. He also has the responsibility of organizing a three-level committee of Federal, provincial, and municipal officials in the area in order to produce coordination of the programs of the agencies at the different levels. In this capacity the coordinator is

middle man between the province and the Federal government, and through the Ministry of State can feed back to Ottawa his on-the-ground observations of how the Federal programs are working out.

The Ministry, and locally its coordinator, also has responsibility in the planning area. One phase is arranging for the training of planners at local level, to build up in each area a competence paralleling that of the Federal and provincial agencies involved. Another phase of his responsibility is the organizing of a planning committee or organizational structure comprising not only technical and official personnel of the jurisdictions involved, but representatives of civic and even pressure groups. Where there is no plan for organized public participation, he is expected to develop a means of bringing the public into the planning process. And finally he should be able to review the planning process as to its technical soundness, and actually to assist in its development and execution.

This program of the new Ministry is only in its formative stage, and while the coordinator would seem to have to be somewhat of a paragon to discharge all his responsibilities, the approach has been working in limited areas in several cities. With the Federal programs, or even Federal participation in provincial or local programs very small, the coordinator has the responsibility of trying to coordinate principally programs of agencies at other government levels, a difficult game, it would appear, in which to have large influence in view of the few chips he can hold at the beginning. But again, at limited scale the early efforts are reported to be succeeding, and certainly the results if successful can be of real value.

PLANNING IN ONTARIO

Functional planning in Ontario has by an evolutionary process become integrated with and a product of economic planning on a province-wide and regional basis. While the Federal government has had responsibility for planning for regional development for a decade under the Area Development Agency, its purpose was to assist those areas showing a low growth rate, either rural or urban. In contrast in Ontario, the province of the highest economic and population growth rates, the objective is more to bring a better balance of growth throughout the province, aiding the regions in the north, northwest, and east to accelerate their growth or to stabilize their existing economy and to constrain the continuing rapid growth of the Toronto and other metropolitan areas. Even with the three principal economic activities of the province being mining, forestry, and tourism, population was moving to the metropolitan areas along Lake Ontario from Toronto to Niagara, where manufacturing and commerce predominate, and whence over half of the product not only is shipped out of the area but out of the country.

General Planning

Early concern with the development of the province showed that many problems transcended the borders of municipalities but were smaller in scope than the whole province. As early as the mid-fifties the Provincial government had begun setting up Regional Development Associations to guide its programs. In 1966 a White Paper entitled "Design for Development" was published that outlined a series of steps the province might take to balance and structure economic growth throughout the Province. It stressed the importance of regionalism and recommended continuation and strengthening of regional organizations to aid in bringing that about.

Organization for Planning. Following the recommendations on the White Paper, the Regional Development Branch was established in the Department of Economics and Development, later transferred to the Department of Treasury and Economics, and now under a reorganization of the Provincial Government, located in the Ministry of Treasury, Economics and Intergovernmental Affairs. It is strongly supported with a growing budget.

The Branch receives direction, guidance and advice from within and outside government. To aid it in understanding regional and local needs and resources, the Regional Development Associations are continued but renamed Regional Development Councils. The Councils are advisory to and partners of the government, and made up of officials of local municipalities and interested persons from the private sector. There is a Provincial member on the Board of each Council.

In addition to this group representing local officials and other citizens, there is in each region a Regional Advisory Board made up of senior civil servants from each Provincial Ministry having a field office in the region. Thus responsible input from local and Provincial interests in each region is assured.

With the aid of this local advice, and the results of university research that may have been undertaken at the behest of the Branch, and cognizant of Provincial policies and programs, the Regional Development Branch is in position to recommend to its Minister a development concept and program for each region. Of course, in all stages of its planning the Branch keeps in close contact with other ministries to seek advice and assistance, and to facilitate coordination in their planning and programming.

To review the Branch's recommendations, a Cabinet Committee was established to direct and coordinate the regional planning and its implementation. The Minister of Treasury, Economics and Intergovernmental Affairs chairs the Committee, the other members including the Prime Minister and representatives of key ministries. Reports are reviewed by this committee before transmittal to the Cabinet for consideration, or public release. Thus there is a formal chain or line of communication from the Parliament to the local citizens and locally elected officials to aid in establishing Provincial policies responsive to local and regional needs, resources, and aspirations. And vice versa, it enables local and regional planning to be kept in tune with overall development policies and thus to qualify the local public and private agencies for their appropriate shares of Provincial programs or other benefits in the way of grants, loans or other economic growth incentives.

The Growth-Point Concept. As a matter of development philosophy the Province has adopted what is called the Growth-point concept. The concept recognizes three types of growth points, primate, linked, and strategic. Primate growth points are those that have within their areas the means for sustained growth and the power to attract activities to them. Toronto would be such a growth point, as would other metropolitan areas. Linked growth points are those coupled economically and socially or even by commuting for employment with the primate points. It is considered that they would lie within 90 miles of the central city. The strategic growth points are those independent of the primate or linked growth points and of one another. They might be centered around a specific mining or manufacturing activity, and would depend for their viability on the health of that activity. These are areas often declining but of potential growth, if strategy indicated, by infusion of growth incentives such as encouragement of manufacturing or other activity by direct subsidy, tax relief or other measures. Primate centers will continue to grow, it is assumed, and so too will their linked centers. The place of planning there, through local action and Provincial programs, is to structure the growth along desirable economic and social lines.

Ontario has been divided into five Development Regions. While planning has been going forward in all regions, the Toronto Centered region was given first and predominant attention. It now contains over half of Ontario's population and in 30 years could include as much as 60 percent. With the increase in population presently occurring largely in the Toronto metropolitan area at the expense of the more remote areas, four possibilities were considered. First to allow present trends to continue, thought to be undesirable. Second, deliberately to accelerate the decline of the outlying areas, also discarded as undesirable. Third, to encourage substantial growth of the remote areas, likewise discarded because of the massive investment that would be required to produce a sharp reversal of the present trend. With these three dismissed, a fourth was adopted, calling for a moderate expansion of strategic centers to offset the decline in population of the outlying area, and coupling them with the primate or faster growing centers. It envisions a growth in a band along the lake, with a bulge toward the north centered at Toronto, and a series of strategic centers some 20 miles to the north.

Transportation is of course a key factor in the success of a plan such as this, not only in structuring the growth in the metropolitan area, by developing appropriate linkages between the primate and linked centers, but also in coupling the strategic centers and the rural areas with the more concentrated area. Moreover, repeated reference was made in the description of the plan development in the Toronto Centered area to the Metropolitan Toronto and Region Transportation Study (MTARTS) begun in 1962. This study not only provided much basic information on the interrelation between transportation and land use, but provided in the most significant portion of the area an organization and a continuing data base essential to development of the overall plans and programs for the area.

Translation of Regionalists Local Plans. Implementation of regional plans is accomplished by programs of the municipal or regional governments and by those of the Province, developed by close cooperation between the local governments and the Provincial ministries in both planning and programming. In the expanding urban areas the problems of coordinating the activities of the many local municipalities has led to the several regional governments now existing in Ontario. Toronto is the earliest and best known, originally including the city of Toronto and 12 other municipalities, and embracing an area of 240 square miles. That the Toronto metropolitan area has been rapidly expanding was recognized in the MTARTS, for which the planning area included 720 square miles, and more recently by the establishment by the Province of a new regional government, Regional York, bordering Toronto on the north. The Province is proposing two others, one east and one west of the present Toronto Regional boundaries.

Each municipality, whether it is a regional municipality as Toronto or a small city is required to prepare a development plan for its area for adoption by its council, and approval by the Province. Once approved by the Minister of Treasury, Economics and Intergovernmental Affairs, it becomes the Official Plan. This plan depicts the proposed land uses and functional facilities such as sewers and transportation in a general way. It is prepared with the cooperation of the Provincial ministries that are concerned, which provide technical and financial assistance--75 percent in the case of the transportation phases of the planning--and encourage the

development of the municipal plan along lines that are consistent with the regional plans for the area. The representatives of the ministry of course can also provide as input into the local plan the plans and programs at Provincial level in the area.

There is no requirement for public participation in the preparation of the plan but based on judgment and experience it is a practice to bring the public into all phases of the planning process. As experience is gained, the procedure for citizen participation is becoming increasingly structured, as seen in the case of the current repeat MTARTS in Toronto. Rather than holding formal public hearings meetings are arranged in the planning area at which various alternatives are described by the planning staff, and advice or suggestions of individual citizens or groups solicited.

Once the municipal council adopts the plan, it is forwarded to the Ministry for review and approval. Any citizen or group that objects to any aspect of the plan may appeal to the Municipal Board for a hearing. The Municipal Board is an independent Cabinet-level Board, comprising a chairman, five vice chairmen and nine other members with varied professional backgrounds appointed by the Cabinet from outside government. It has a small professional staff and carries out its authority through hearings, making quick, sometimes on-the-spot, decisions. While its decisions can be appealed to the Cabinet, reversal is so rare that appeal is seldom taken. It has broad authority over municipal affairs. Beyond its function of hearing complaints with respect to the Official Plan and advising the Minister as to its recommendation with respect to any appeals, it has the responsibility for approval of all local zoning ordinances, and for approval of issuance of bonds by any municipality that has authority to do so. So it can keep a tight rein on municipal planning and programming throughout the Province.

Once the Official Plan is approved, the municipality then must prepare zoning ordinances consistent with the broader land use plan that was approved, which, as noted above, must be approved at Province level. That these ordinances once approved can be rigidly enforced is seen by the requirement in one case in which a building permit was issued in error, contrary to the zoning for the area, that the building be demolished. As a further means of insuring adherence to the plan, the Province must approve all requests for land subdivision, and by its participation in trunk sewers can have a large hand in determining the priority of subdivisions. Likewise by its own program of Kings Highways (State primary system in U. S. terminology) and its heavy participation in local arterial street construction programs, the Province can be strongly influential in assuring adherence to the plan. And any local official, group, or citizen can appeal to the Municipal Board if some circumstances has permitted departure from the plan.

Program Control - An Arm of Policy. Assurance of development according to plan on either a regional or municipal basis requires a substantial degree of control at Province level and of technical and financial assistance to local jurisdictions. The Province of Ontario is in the process of reorganizing its government structure to accommodate the increasingly pressing demands in this area and others as well.

A cabinet minister has three basic functions--representing his constituency as an elected member of the Legislature and a political leader, speaking for his department in regard to policy and other matters before the Cabinet and the Legislature, and serving as the chief executive of his department. To relieve the ministers of some of their duties and responsibilities that are becoming intolerable, several innovations have been or are being introduced.

A Policy and Priorities Board within the Cabinet has been established to advise the Cabinet on overall government priorities, to review all major proposals from departments or Cabinet committees for their relative importance and consistency with accepted policy and programs, and to identify new policies and programs that should be examined. Further, Cabinet committees were set up comprising ministers with related program responsibilities to coordinate programs in their areas.

A more significant innovation is the creation of a new type of minister called a Policy Minister. A Policy Minister has responsibility for providing leadership in developing policy in a distinct field, within which lie the related ministries. Each program minister still has full program authority and responsibility for direction of his department and the boards or committees within his ministry. The Policy Minister does not have authority over the program ministers within his policy field, but he is a member of the Policy and Priorities Board and speaks in behalf of those ministries before the Board and the Cabinet. By having no responsibility for administering programs, as a second major responsibility, the Policy Minister can devote greater thought and effort to developing liaison between the public and the government in his policy area. Within the Cabinet the Policy Minister and the program ministers have equal rank.

Under this ongoing reorganization three policy fields have been identified--the Social Development Policy Field, the Justice Policy Field, and the Environment and Resources Development Policy Field. It is the last field that contains the Ministry of Transportation and Communications, along with the following: Agriculture and Food, Environment, Labor, Natural Resources, and Trade and Industry. Thus the overall policies with respect to transportation are being developed and program levels established on the basis of close coordination

among the top elected officials in the areas directly inter-related with transportation. In practice of course the coordination extends to the professional staffs in the ministries within the policy field. It is to be expected that policy and program proposals developed in each ministry with the benefit of the knowledge of proposals in the related ministries through the coordinating process stand a much better prospect of ultimate adoption by the Cabinet and the Legislature than if they were developed independently. And it is expected that transportation planning is a function of overall planning, and that transportation must not only serve other development but be regarded as a positive factor in implementing the overall land use plans, whether on regional or municipal scale.

This new plan of organization is being implemented, and has reached the stage wherein it is reflected in the Provincial budget. It is facilitating the adoption of an overall growth policy for the Province, and the development of regional plans, which then serve as guidelines for the preparation of the official plan for each municipality.

Transportation Planning

Transportation planning probably requires and receives a higher degree of cooperation than any other phase of planning. From the Province-wide viewpoint the transportation planners must work closely with the other Provincial agencies concerned, obviously. But beyond that the plans and programs of the Province in transportation have a profound effect on municipal planning and development, through direct network construction and by participation in local connector and arterial street plans and programs. Thus the Province land use and transportation planners work in close cooperation with their municipal counterparts from the earliest stages of the planning process. At both levels it is recognized, however, that the lead role must be taken by the land use planners, and that the transportation system must be designed to serve the desired land use, as well as to encourage development consistent with the plan.

As in other countries the basic approach to planning accepts the interrelationship between land use and transportation. The techniques of inventorying land use and travel habits and designing the transportation networks originally followed those in use and largely developed in the United States. It should be recalled, however, that we in the United States took advantage of the pioneer work in simulation modelling being done at the University of Toronto in the early days of our own urban transportation planning. More recently as the cooperation in transportation planning has extended to all municipalities in the Province, a two-stage approach has been adopted.

In the work in land use planning in any municipality preliminary to the adoption of the Official Plan the transportation component is brought in at the beginning. While the planning is a local responsibility, the Provinces can provide both technical and financial help, as noted earlier. The amount of technical help varies with the municipality, with the regional municipalities generally having fully competent planning staffs, including transportation planners. The smaller municipalities generally must rely heavily on the Province for technical advice and service. In all cases, however, the Province can bear 75 percent of the cost of the transportation phases. Direction of the work is under the control of a committee which includes technical representatives in pertinent fields from the Province, and both professionals and officials from the locality, since the plan must ultimately be adopted by the municipal council.

The Two-Stage Planning Process. In the earlier studies several land use proposals would be considered and for each several transportation alternatives investigated. The analytical work involved in developing a transportation network for each combination has led to the development of a two-stage process. The first stage, called the Conceptual Plan (closely similar to the Structure Plan in Britain), accepts a much coarser-grained transportation component in the early phases of the planning, generally showing the travel demand only in the principal corridors under the various land use proposals. The transportation component, generally looking 20 to 25 years ahead, is sufficiently precise to test the validity of the land use proposals, and to satisfy the requirements for review of the Official Plan for approval at Province level.

Once the Official Plan is approved the municipality must prepare a zoning plan, also for approval at Province level. Again, of course, the zoning plan, establishing the allowable density of development in any land use area, **must be** closely coordinated with the transportation plan, and feed-back between transportation and land use planning at both Province and local level assured. In this stage of planning the transportation component is called the Design Plan, and the planning becomes finer grained. At this stage also it is essential to keep the public and the elected officials close to the process, for the density of development as allowed by the zoning, the mode of transportation (e.g., rail, bus, or private vehicle), and the financial capability of the municipality are interrelated.

From Plans to Programs. Under uniform procedures to be followed each municipality must produce a 20-year plan for transportation facility development, with accompanying programs. The programs provide for capital expenditure annually for a 5-year period, a single 5-year program for the next five years, and a 10-year program for the remainder of the planning period.

Once the transportation plan and programs are adopted and approved at Province level, the municipality has the responsibility for keeping the base data current, providing information as it is produced to the Ministry of Transportation and Communications for computer storage. The Province maintains data banks for all municipalities for use in reviewing and updating the transportation plan, and from which a municipality may call for any print-out it may need for its own purposes at the cost of the service. Following approval of the plan, the committee meets periodically, not less often than annually, to review the land use development and the use of the transportation facilities to determine whether they are developing as anticipated. At the same time the program is advanced a year, with the five annual programs becoming the proposals for capital expenditure for the second through the sixth years of the plan, and the 5-year increment covering the seventh through the eleventh year. By this process the third program period becomes nine years, and progressively shorter year by year, until by the tenth year the entire survey and analysis procedure are repeated and a new 20-year plan prepared. Thus the process contemplates a rolling program to implement a 20-year plan updated at ten-year intervals. For example, in Toronto the "re-do" is now in process.

Public Participation. It is becoming increasingly evident that the public must be brought early into the planning process if the results are to be accepted at local level and approved at Province level. As noted earlier one of the responsibilities in the newly created office of Policy Minister is to develop a liaison between the government and the public in the policy area. The need is recognized as no less important at local level.

There is no provision in law for public hearings in connection with transportation plans and programs, nor for that matter in connection with the development of the Official Plan of any municipality, except that any citizen or group may appeal to the Municipal Board after the fact. In practice, however, it is accepted that the public must be informed as to what the planning alternatives are, starting with the alternative of doing nothing. And an understanding must be developed that growth must be structured and that the structure be one that will produce the kind of area the people want, constrained by the financial capability of the area and the degree to which the growth pattern conforms to the regional goals and plans for the area. The program of public information is now being organized to bring information to the people on a systematic basis by meetings arranged throughout the planning area, and taking advantage of any locally organized groups such as chambers of commerce and civic associations. At these meetings the effort is to set up a dialogue, so that the views of the citizens can be obtained and the feedback introduced into the subsequent phases of the planning. The attention given to this aspect of the development of plans and programs is regarded as an important reason for the belief that in Ontario the cooperative approach to planning and development is working.

Plan Implementation. The Implementation of the plans in any urban area, is through programs of the Province, programs of the municipality in which the Province participates, and those financed by the municipality itself.

Revenue from users of transportation facilities are not earmarked. The funds available for direct programs of the Ministry and for its participation with the municipalities are provided under the budget of the basis of "perceived need." Estimates are made annually by the Ministry of Transportation and Communications of the funds required to maintain transportation services at desired level. These annual estimates are annual program increments of a 5-year plan. They are broken down into six categories, including construction, both direct and cooperative with the municipalities (and classified further by size of municipality), maintenance, operation, regulatory, and research and administration. Individual projects for direct construction are placed in priority order, based on economic analyses of benefits and costs, system continuity and priority, relation to other programs such as development of slow-growing areas and other pertinent factors. Projects for construction in municipalities are proposed by the municipalities based on the planning approach described earlier. At the start of each year municipalities request approval for the expenditure of funds for capital projects from the Municipal Board. A list of those projects involving transportation aspects is then forwarded to the Ministry for necessary funds to be made available. For roads, provincial participation amounts to 50 percent for all arterials. This is increased to 75 percent for those arterials designated as connecting links for the King's Highway system (State routes in U. S. terms).

Provincial participation in transit amounts to 75 percent of the cost of purchasing rolling stock, terminal facilities, amenities such as shelters and parking lots operated as a part of a public transportation system. Special assistance above 75 percent may be given for setting up new systems or changing fleet types, for example. In addition, subsidy will be paid by the Province at the rate of 50 percent of the operating deficit of a municipal system, up to a maximum amount determined by formula.

With this array of projects before it the Ministry prepares a proposal for review within its policy field, and by the Management Board and Cabinet. In these reviews there is the constraint of the level of funds expected to be made available by the Treasury, and the goal of structuring the development of the Province as indicated by its overall and regional plans. Ultimately the Ministry is advised of its budget figure, and with the guidance of the discussions during the review process, must tailor its program to fit the resources provided. It reviews its program project by project, and can hold back highway programs in a municipality if the budget review process indicates a desire to encourage transit or favor one municipality over another. In fact with respect to Toronto, this is the case, for with 70 percent of the peak hour trips by transit and the likelihood of increasing access by private vehicle not encouraging, preference is being given to projects calculated to improve transit capacity and attractiveness. Since Province funds are not allocated to the municipalities by formula or legislation, the Ministry is in a commanding position to accept projects on their merits and to favor projects and programs that will assist in implementing broad provincial and regional goals.

PLANNING IN TORONTO

With the City of Toronto and its suburbs growing rapidly and with provision of public facilities and services lagging far behind the need, largely because none of the individual jurisdictions had resources to meet them on individual bases, the Ontario legislature set up the Municipality of Metropolitan Toronto in 1953. With strong centralized control the Province has authority to fix or change municipal boundaries, approve subdivisions and zoning ordinances, require and approve an official plan, and approve all proposals for band issues. Under this broad authority, and at the request of the City of Toronto and one small municipality, the legislature established Metropolitan Toronto as a Federation of the City of Toronto and twelve other municipalities included in the Federation, and a chairman elected by them from outside their membership. Members are not elected to the Metropolitan Council directly, but become members by election to office in their local municipalities, those with the largest numbers of votes in each municipality generally being the designees to the Metropolitan group.

The new Corporation succeeded. It soon provided regional sewerage and water supply systems, regional parks, a system of regional expressways and arterial streets, and the advanced regional transit system including the well-known subway. All this was done on the basis of a regional planning process with resources derived from taxes and borrowing authority available under the metropolitan structure, and with considerable Provincial participation. But problems became more complex, new responsibilities were added as the metropolitan concept proved itself, and concern was being expressed over the decreasing representation in the Council of the growing suburban population. Accordingly, guided by a Royal Commission study, the municipal structure was reorganized by the Legislature in 1967.

The Metropolitan Government

Under the reorganization the Metropolitan Council now comprises 33 members, 12 plus the chairman from the city of Toronto, and the other 20 from the other municipalities, now reduced in number under the authority of the Province, from 12 to five. Each member thus represents around 60,000 constituents, with the city of Toronto rating only about one-third of the Council membership. The members still are not elected to the Council, but serve by virtue of their election to their own municipal councils, and thus wear two hats, considering regional matters when convened as the Metropolitan Council and local matters (including in many cases implementing their decisions as members of the Metropolitan Council) when acting as councilmen of their local municipalities.

Most of the responsibilities are shared in some way. Metro is responsible for expressways and major arterial roads, and the local municipalities for minor arterials, neighborhood streets, sidewalks and street lighting. All traffic signals are a Metro responsibility, but traffic regulation and pavement marking are local. The localities collect garbage, but Metro disposes of it. Metro provides water, and sells it to the local municipalities. Metro provides operating and capital costs of the school system and establishes attendance districts, but responsibility for operation of the educational system is local.

Public transportation is the responsibility of the Toronto Transit Commission, the members of which are appointed by the Metropolitan Council. Under the Metropolitan Toronto Act, the Metropolitan Corporation can contribute to operating cost, and can participate in capital costs. Presently the system is meeting its operating costs, but the Corporation is accepting 70 percent of the capital cost generally and 100 percent of the capital cost of the Yonge Street subway extension. As noted earlier, the Province may participate in capital costs and thus reduce Metro's share. Proposals for expenditure for capital improvements are subject to approval of the Council through its Transportation Committee (one of five in addition to its Executive Committee), and also of the Ontario Municipal Board. Since the Road and Traffic Department also reports to the Council through the Transportation Committee, road and street construction, traffic control, and transit operation can be effectively coordinated. And since the review and approval of capital expenditures involves elected officials acting at local and regional level and the Ontario Municipal Board, the interests of all levels of government are formally brought into consideration in capital improvement programs.

Costs of financing the Metro program, as developed in its annual budget of capital and operating expense, is divided among the six municipalities based on their assessed valuation. To assure an equitable distribution among them, Metro was originally given the responsibility for property assessment. Now, however, as a matter of Provincial decision, all property assessment in Ontario is made at Province level, to insure uniformity among regions as well as municipalities. Each municipality then fixes its tax rate at a level to provide for reimbursement of the cost of regional services to Metro, and for services that are its own responsibility.

Metropolitan Planning

With acceptance of the principle of shared responsibility for many functions within the region, shared responsibility for planning is likewise accepted, and in fact, carried even further. The Municipality of Metropolitan Toronto Act established a Metropolitan Planning Board, to be responsible to the Metropolitan Council, whose principal function was to prepare the Official Plan for the Municipality. In order to facilitate observation of the planning process and to keep itself informed as to progress in implementing the plan, the Council created another standing committee, the Legislation and Planning Committee, through which the Planning Board reports to the Council. It was recognized early that the planning area must extend well beyond the limits of the Metropolitan Municipality, so an additional 480 square miles, including 19 municipalities, were added to the 240 square mile area of Metropolitan Toronto to form the Planning Area. Thus the Metropolitan Planning Board was enlarged to include all logically concerned agencies and now comprises 28 members, representing the Toronto Metropolitan Council through a member from each standing committee, the local planning boards through a member from each, the school board, and the "fringe" municipalities, and seven members at large. Members are appointed by the Metropolitan Council, subject to approval at Province level. The Commissioner of Planning for Toronto, who is responsible for carrying on the planning process with a staff of some 50, is also the Secretary-Treasurer of the Metropolitan Planning Board. The planning staff is in effect a line unit in the Metro government, where it works closely with the other line units such as the Departments of Works and of Roads and Traffic and the Transit Commission, which have implementing authority. But it takes its policy direction from the broader Metropolitan Planning Board. While this appears to be a complex and perhaps unwieldy arrangement, it appears to work. The planning on a metropolitan basis is directed to matters of regional significance and toward the support of the core area, with little concern over local planning matters except where they impinge on regional programs or functions. To insure the quality of local planning and coordination of local and metropolitan aspects of the process, the Planning Board works closely with the local boards.

As noted earlier the Province can participate technically and financially in the planning process, up to 75 percent in the case of the transportation phases and at other levels in other phases. In the case of Toronto the financial aspect is probably the more important, but in the continuing planning the Province provides staff assistance and technical services, and assistance in planning can be drawn from the implementing departments as needed. Under this coordinated and cooperative approach the Planning Board in 1965 recommended a statement of development aims for the Planning Area. The Council appointed an ad hoc committee to review the recommendations. This committee conducted independent investigations, consulted with local municipal agencies, held public meetings and ultimately recommended that the Council adopt the proposed plan as a guide, but not forward it to the Province for approval as the Official Plan within the meaning of the Planning Act. The reasoning was that the plan embraced an area twice again as large as the Municipality of Metropolitan Toronto and that it would be improper for Toronto to appear to act for the 19 fringe municipalities, each of which under the Planning Act must seek approval of its own official plan. The plan contemplates a metropolitan area of 4 1/2 million people by the end of the century, compared to some 2 million now, and provides for the networks of roads and transit, sewerage, water supply, open space, and environmental features to serve the wide economic base not dominated by a single activity, that is envisioned.

Presumably unrelated to Toronto's decision not to seek approval of the Metropolitan Plan at Province level, the Province has since designated new regional municipalities completely surrounding the Municipality of Metropolitan Toronto, overlapping the 19 municipalities that have already joined with Toronto in the regional planning process. While this does not mean that the cooperative and coordinated planning approach cannot and will not continue, it can add complications. It could be that a regional government agency in each of the new regions would serve to enhance their planning and programming capability and make them better able to join with Toronto in planning. On the other hand it could serve to direct planning away from the philosophy of supporting Toronto as the urban core and even bring about competing metropolitan areas. Of course in that event Toronto would still hold its preeminent position if for no other reason because of its rail and water transportation facilities. The effect remains to be seen. As noted earlier the development plans for the Province call for dispersal of activity to avoid over-concentration in a limited number of metropolitan areas, opting for regional rather than simply metropolitan growth. Reports are heard of rumblings of concern over the amount of Ontario tax money now going to Toronto, and of fears that Toronto may become too dominant a political force in the Province. Its present population of some 2 million is over a quarter of the population of the Province, and in fact about 10 percent of that of all of Canada, and if the 4 1/2 million horizon-year figure were to be reached,

these percentages would be a good deal larger. Whether the creation of the new regional municipalities is a definite effort to surround Toronto with the objective of curtailing its growth is speculative, but 4 1/2 million people in four municipalities would presumably be a less dominant force than if they were in one.

Plan Implementation. Planning in Metropolitan Toronto is seriously approached and effectively carried on, as noted earlier shared between the Metro government and the several municipalities, on terms that bring all jurisdictions and agencies into the act in appropriate way. Beyond the fact that the jurisdictions of the area want to have effective planning is the requirement that the plan be the basis of the annual and long-range programs that serve as the formal applications for Provincial aid in the functional areas where it is available. With the Province participating actively with Metro in the planning, it too is a shareholder and a constructive force.

Implementation of the public aspects of the plan follows through the separate but coordinated programs of the province, Metro, and the individual municipalities. Control over private development is through the designation of land use by Metro as a product of the plan, and by intensity of use by zoning, the authority for which lies not in Metro but with the individual municipalities. The zoning ordinances must be approved by the Province, and to merit approval must be consistent with the Official Plan. Yet there appears to be no single authority to hold the building permits within an approved zoning ordinance to a level or in a time frame that will insure that services that are available or anticipated, such as transportation, will not be overtaxed.

Thus far public and private developments have been kept well in balance, largely because of the bold programs of development of transportation and other facilities and services. When Metropolitan Toronto was formed in 1953 the Yonge Street subway was in business, and has since been extended at both ends, looping through the business district to swing north and projected to be continued toward the northwest in the median of the Spadina freeway. An east-west line, the Bloor Street line, connects with the north-south lines and gives good service to the east and west suburbs. Including all surface transportation under the Transit Commission has permitted good coordination between surface and subway lines. At a single fare of 35 cents or four tokens for a dollar, transit incurs an operating deficit, however.

One of the first major projects of the 1953 Metro was the freeway now named the Gardiner Expressway along the lake shore from the west, now an extension of the route named the Queen Elizabeth Way projected as a freeway from Niagara Falls and Hamilton to Toronto. The Gardiner Expressway skirts the business district on the south and continues as the Don Valley Parkway, also built by Metro, with six lanes as a minimum, to the north where it intersects Route 401, the route from Detroit to Montreal that parallels the lake some eight miles to the north. Route 401 was built by the Province as a four-lane facility some years ago, and quickly encouraged development along it. It had much the same effect as Route 128 around Boston, except that it is linear rather than circumferential. Since then, the section within Metropolitan Toronto has been reconstructed by the Province to provide 12 lanes, three in each direction in the center with no connections to interchanges through its 20-mile length, and three on either side that provide access and egress. Merging lanes permit movement from the through lanes to the collector lanes, and vice versa, between interchanges. These lanes themselves have no access except at interchange ramps. It is a very effective design, and daily volume counts exceed 200,000 vehicles. To complete a loop around Toronto a north-south route west of the built-up area has recently been finished by the Province.

On the west and north the freeway loop might be called an outer circumferential, but the south and east legs give service to the downtown area. To provide connection between the growing suburbs on the north and downtown Toronto the Spadina Expressway was included in the plan and a good deal of work accomplished through annual program approvals. A major interchange with route 401 had been completed and right-of-way for some four miles toward the downtown area had been acquired and cleared when it was peremptorily stopped by the Province by action of the Cabinet following the expressed views of the Prime Minister. As noted earlier the plan calls for a rail rapid transit line in the median to form an extension of the University line and serve the growing northern boroughs with rapid transit as well as with freeway alternatives. The stated reason for halting construction was the belief that both automobile and rail transit are about to become obsolete, and no further expenditure should be made until a magnetically supported, linear induction motor propelled, system can be tested. Just how to bring about compatibility between the two methods of suspension was not revealed. Nor was it explained how the demand for travel by private vehicle would be met.

Balance Between Transportation and Development. The metropolitan area of Toronto is experiencing extremely rapid growth, with the population of the city of Toronto showing an increase, even though slight, in contrast to center cities generally in the United States and other countries. As shown in a report by the Metropolitan Council in 1970, population of the city of Toronto increased 5 percent between 1953 and 1967, while the population in the remainder of the area increased by over 150 percent, to reduce the city proportion to about one third that of the total metropolitan population. During this same period jobs increased in Toronto 3.5 percent as compared to 230 percent in the remainder of the area, but Toronto still has more than half the total

number of jobs. There are many reasons for Toronto's growth rate, but obviously the city could not have maintained its position in employment without good transportation. The 1970 report notes that "The subway system will extend deep into the suburban areas where it will be served by an extensive web of feeder bus lines and by large commuter parking lots. The expressway network, designed to carry heavy traffic volumes relatively long distances at high speeds, will provide the urban development area with routes connecting most of the employment concentrations and the central business district." The report goes on to state that the computer controlled traffic signal system has increased average travel speeds on most arterial roads by about 25 percent, and that this improvement ". . . combined with the expansion of the expressway network has shortened the normal rush hour period and permitted the termination of the afternoon rush-hour restrictions at 6:00 P.M. instead of 6:30 P.M." Clearly, in 1970, transportation facilities were in balance with other development, with public and private transportation each providing desired levels of service.

Whether this balance can be maintained without the completion of the aborted Spadina expressway and rail rapid transit link is doubtful, and in fact question may be raised as to whether the balance has already been upset. Transit riding did not increase significantly upon opening of the Yonge Street subway line. Street cars were carrying almost 30,000 passengers per hour on the three parallel streets--Bay, Yonge, and Church--prior to opening of the subway. The subway now carried 30,000 to 33,000 passengers per hour peak periods. No surface lines operate on Yonge Street, and the buses that replaced street cars on Bay and Church Streets carry around 3,000 passengers in the peak hour compared to 18,000 before the subway opening. Cordon counts indicate that most of the users of the subway line shifted from surface lines, and that there was no appreciable reduction in car usage following the opening. In fact in the long run, between 1955 and 1970 there was an average increase in the number of vehicles entering the downtown area during the morning peak of about 1 percent per year, compared to an increase over the full day of 2 percent annually.

As in other cities the construction of new office buildings in the downtown area seems to have provided much more floor area than the increase in employment would require. This is explained in part in other cities, and no doubt in Toronto, by the replacement of older, obsolescent buildings, and the increase in floor space per employee that modern methods and practices seem to require. And of course there is the usual shift from blue collar to white collar jobs. But new building in Toronto is still dramatic, and must contemplate an increase in employment much above the rate of increase evident over the past 15 to 20 years. How transportation will be kept in balance would seem to present serious problems.

The Yonge street subway is regarded as operating at capacity, with trains operating at two and a quarter minute headway in peak hours. While some increase might be possible by revamping the signal system to permit reducing the permissible headway to two minutes or less while running, there is doubt that trains could be unloaded and loaded much faster than at present. Platforms are not wide enough to allow much more accumulation of passengers, if any, for now lines form outside the turnstiles and even on the sidewalks as the turnstiles in effect meter the inflow of passengers to prevent exceeding the platform capacity. And one official at Province level expressed doubt as to any further subway construction in Toronto because of the cost and disruption of the city (cut and cover methods are required because of soil conditions). The only hope, apparently, of relief lies in the completion of the Spadina project.

So far as access by motor vehicle is concerned, the Spadina again offers the only prospect of substantial relief. Freeways are crowded in peak hour, with long delays on those serving the downtown area (the 200,000 vehicles per day on Route 401 are generally not concerned with access to the downtown area). While travel on them is easy in off-peak periods, travel on city streets is difficult at all times. On Yonge street, over the subway, several changes of signals at an intersection may be required to travel a block in an automobile even in midday. While it is fair to say that up to this time the modal split between private and public transportation has been based on individual preference, there is feeling at Province level that greater use of public transportation will be required, and that restriction of parking space through policies of assessment of parking facilities (within the authority of the Province) parking costs may be driven to a high enough level to force a shift away from the private vehicle.

Still in the face of travel difficulties new building construction goes forward. A 70-story office building is under construction, and a permit was issued (October 1972) for a four-story commercial mall to be topped by three towers of about 20 stories, two for offices and one for apartments. This permit, according to a press report, was issued despite protests that provision for increased traffic on neighboring streets was not being made. While the development is well within the density permitted by zoning ordinance, the timing of its issuance disregarded the impact it will have on the fine balance between transportation and other development that previously has been maintained.

An interesting factor in transportation is the housing policy. Presently about one third of the 600,000 housing units are in apartments or flats, and under the land use and zoning policies most new apartment buildings are built along arterial streets or close to transportation facilities. It has frequently been noted by U. S. planners and transit officials visiting Toronto that the subway stations can be spotted from a high point in Toronto by the grouping of high rise apartments around them. That is true, but so too can the freeway interchanges. Public housing is a shared responsibility. The Metropolitan Corporation provides housing for the elderly and the Province provides housing for low and modest income families through the Ontario Housing Corporation. Rents are adjusted on the basis of family income and deficits are shared by the Federal, Provincial, and Metro governments. Together these programs provide some 30,000 units, hardly a sufficient number to have significant impact on the pattern of transportation as do public housing programs in some European countries. What seems to be significant is that much of the high-rise apartment construction is within the city of Toronto and perhaps accounts for its growth of population, rather than the more common decline in center cities generally. But by their location along transit lines or freeways rather than close to the downtown area they do not reduce the number of transit or automobile trips into the downtown. They no doubt reduce the average length of work trips, compared to the lengths if the origins were in the suburbs, but they do not reduce the number into the downtown area nor the required capacity of transportation facilities serving that area.

Transportation Planning

Transportation planning is a responsibility of the Metropolitan Toronto Planning Board, as one aspect of its overall planning responsibility, for the transportation plan not only must be integrated with the land use plan, but as noted earlier, becomes a part of the Official Plan and the basis of the annual and long-range programs that require approval at Province level and depend on heavy financial aid from the Province.

To provide the basic data for input into transportation and land use planning the Metropolitan Toronto and Region Transportation Study (MTARTS) was undertaken in 1962 cooperatively by the Planning Board and the Province, covering the Planning Area described earlier. The study conducted with the help of a consulting firm was generally similar to those customarily carried on in the urban transportation planning process in the United States. The results were employed in developing the land use and transportation features of the plan that was recommended to the Metropolitan Council in December 1965 and ultimately adopted by the Council. While normal procedures now in effect would have called for a "re-do" of the planning process in another few years, the decision on stopping the Spadina Expressway served to advance this schedule and a repeat survey and analyses are now under way. While a factor in the decision to stop work on the expressway was the protests by environmental and neighborhood groups, other segments of the public strongly objected to the stop order. It is this reason--to try to provide a sound up-to-date basis for a review of transportation policy--that gave urgency to the current effort.

The Repeat Survey. The first step in the repeat survey was to develop a study design, one that could take full advantage of the data and analyses of the earlier study. It also must take into account the implementation of the original plan that has already been accomplished and the forces in the community that brought the plan into question and a major item of the program halted. The organization to conduct the study comprises a small group capable of consulting with officials and citizen groups, ascertaining and understanding the long-range desires for development of the area, and translating those desires to the extent economically and physically feasible, into specific goals, objectives, plans, and programs. A large staff to collect and process data was not needed. Such a high-level group was constituted as a Study Group under a Joint Technical and Transportation Planning Committee. The Study Group consists of two senior staff people assigned by the Ministry of Transportation and Communications of the Province, two by the Metropolitan Toronto Planning Board and one by the Toronto Transit Commission, and three specially hired from outside, all under a Director also hired from outside (at \$35,000 per year). The high-level staff is augmented by a small intermediate-level technical group assigned by the agencies, and necessary clerical assistance. The assigned senior staff people assure a fully cooperative approach and facilitate input into the study from their agencies as needed. The Ministry of Transportation and Communications provides the computer operations and the simulation modeling, for example, and each agency gives priority to requests from the Study Group. As scheduled the study will require two years to complete, at a cost of \$1 1/2 million, including the salaries of the assigned staff people. Seventy-five percent of the cost is borne by the Province, either through funds or assigned staff and services. Much of the cost in addition to staff salaries will go to consulting and advisory services in the fields of urban economics, public administration, environmental planning, sociology and the "harder" aspects such as traffic engineering, transit operations and general engineering and design. The consultants to be employed are expected to serve primarily as advisors, and would generally be at the level of partners in the firms employed. Thus the organization resembles somewhat a "think tank," and will draw upon assistance and advice wherever available, but because its senior staff people are largely drawn from the implementing agencies the interpretation of the material that flows in from the variety of sources should be realistic and the resulting recommendations practical.

The approach to the study that was adopted after a review and evaluation of a variety of approaches calls for a "strategic" study, somewhat in contrast to the original study that was regarded as technically oriented. The various approaches considered ranged from an "unstructured" pattern in which views as to the desirable form of the urban area and its transportation systems without constraints would be sought from citizens and officials, to a tightly structured study heavily constrained by technical and economic considerations. The "strategic" approach calls for a solicitation of opinions from elected officials, public agencies, business and civic leaders, and the general public, hopefully by the structuring of the solicitation of views to keep the responses within bounds of practicability. The Study Group would then have the job of converting these views and opinions into a realistic set of goals and objectives and of developing a strategy of planning and programming to reach the perceived goals to the extent resources would permit.

Certainly the technical skills in planning, programming, and design that exist in the area are ample to interpret the physical and economic requirements of meeting any proposed goals or objectives. The more difficult problems to be faced are finding means of reconciling the differing regional and local goals that will inevitably emerge, and developing two-way communication channels with the citizens that will encourage them to view their local desires and goals against the back drop of regional needs and within the constraints of financial feasibility. It is to this end that great attention has been given to public participation in the repeat study.

Public Participation. The importance of getting the public involved in the planning process is evidenced by a carefully structured public participation program budgeted at \$500,000. Among the many implications of the program as listed in the report underlying it are the following: a deeper and broader understanding of problems and issues will be gained; relationships between politicians and the public will be improved; issues will be more widely and intelligently discussed, and a greater degree of agreement reached; much new energy, previously untapped, will be introduced into the planning process; the staff will have to become receptive to unexpected and perhaps "wild" ideas, and deal with them; and as a positive plus, the credibility of vocal "spokesmen" who do not truly represent the interests of the people will be reduced. The concept of citizen participation is ". . . not the selling of a planning decision . . . nor confrontation between protest groups and the bureaucracy. On the other hand it does not involve delegation to the public of the politicians' decision-making responsibilities." And the program's objective is ". . . to reconcile the differing transportation needs of the various types of individuals--apartment dwellers and home owners, the affluent and not-so-affluent, the long-distance commuters and downtown residents--in an equitable and economically viable manner."

The program is organized in three phases--awareness, mutual education, and evaluation. Different techniques are of course required for each phase, and as the program is now (October 1972) just getting under way, the procedures for the last two phases are still flexible, depending to some degree on what is learned during the first phase.

The first phase will involve the explanation and clarification of the purpose of the transportation plan review program--not of the plan, but of the review study--and the preparation and dissemination of material relating to the transportation problem. Different techniques will be used in reaching different segments of the public, pointed toward the elected officials, public agencies, private agencies, and the public at large--individuals, groups, organizations. Twenty different techniques have been identified, ranging from the widespread distribution of booklets and other prepared material to small organized meetings of officials. But most stress will be placed on reaching individual citizens through their own groups and associations, hopefully with these groups where their members can be informed and enter into discussion with staff members. Where necessary the staff itself will organize community meetings and forums. Of course full advantage will be taken of the media--press, radio and TV, but emphasis hopefully will be on face-to-face meetings. A large part of the budget for public participation will be expended in preparing for and carrying out this phase.

The second phase, mutual education would seem to merge with the first, but its objective is to permit the staff to discuss and clarify material and information disseminated in the first phase, and to get the resulting feed-back from the public.

The third phase becomes the crucial phase, in which the staff must pull together and distill the ideas resulting from the second phase, and find a way to coordinate these views with the transportation alternatives that are feasible from technical and economic viewpoints. And they must return to the public to discuss alternatives with the hope of obtaining, if not consensus, at least their reasonable support.

How effective this public participation program will prove to be cannot be judged until the recommendations for the continuing transportation program resulting from the review are presented--still two years hence. But it is the most formally structured program of any observed in this investigation, and in its formulation drew from all available experience and on the advice of consultants in the social science area. It recognizes clearly the responsibilities of all interests concerned--the public, the professionals and the elected officials. And it recognizes what has become increasingly clear in nearly all countries visited--that public programs cannot, under today's attitudes, be carried on without the public having opportunity to participate in responsible manner in the decision-making process.

PLANNING IN OTTAWA

Planning in Ottawa is complicated by the fact that it is the National Capitol, or a part of it, as present policy is emphasizing the location of a substantial number of government offices in Hull, in the Province of Quebec, across the Ottawa River from the city of Ottawa. To reflect the importance as the capital, the government has designated some 1800 square miles as the National Capitol Region and has made certain functions within it the responsibility of the Provinces within the respective urban areas are the same as in other urban areas in the Provinces. In each Province a regional municipality has been established--the Regional Municipality of Ottawa--Carleton on the Ontario side of the river, and the Outaouais Regional Community on the Quebec side. And there are of course many individual municipalities within each regional municipality.

The National Capital Commission

The National Capital Commission is composed of 20 members appointed by the Governor-General, representing each of the 10 Canadian Provinces, the cities of Ottawa and Hull, and the smaller municipalities within the region. Its purpose is to prepare plans for and assist in the development of the National Capital Region. It is given authority to acquire and develop property; make the property it acquires or holds available by sale or lease to any person under conditions it may impose; construct and maintain highways, parks, parkways, bridges, buildings or any other works; cooperate with the municipalities in improvement or development of property; operate concessions or entertainment on its properties; maintain historic places or museums; conduct research and investigations in connection with the planning of the Region; and do other things incidental or conducive to the attainment of the objectives and purposes of the Commission. Funds for its operations are appropriated by the Parliament.

While the authority is very broad the Commission does not attempt to impose itself on the authority of the local and regional municipalities or the two Provinces, accepting its role in planning as one of regional scope, but it does join with the jurisdictions of the region in planning facilities or works of regional significance. By ownership of a very large amount of land, however, and having complete control over such land, it can exert a strong influence on the finer-grained planning. The Commission owns the land on which government buildings are located, and approves plans for such buildings and for the necessary services. It has recently acquired 59 acres in the center of Hull to accommodate 20,000 employees of several related government departments, calculated to emphasize the national scope of government activities and advance the purpose of the government to develop a bilingual administration. At the same time it will improve the economy of the Quebec portion of the region. The new government building area will require a new bridge, and provision is being made in the planning for an exclusive right-of-way for transit operation, with station locations tentatively selected.

The principal land holdings are in parks, however. The Commission owns 40,000 acres in a green-belt running roughly in a semi-circle east, south and west of Ottawa. This green belt averages some two miles in width, lying at a radius of six or eight miles from the city center. Its dual purpose is to provide parks and open space and to constrain the area of urbanization of the Region. On the Quebec side, the Commission owns the 88,000 acre wedge-shaped Gatineau Park, extending northwest from near the center of Hull. Ownership of this land gives the Commission considerable leverage in transportation planning, inasmuch as it must approve all facilities that would use or cross it, as well as having the authority to construct parkways with its own funds. This leverage was recently brought into play in connection with a major freeway project.

The Trans-Canada Highway traverses Ottawa, improved presently as a freeway called the Queensway, coming in from the west and passing very close to the downtown area. Leaving Ottawa on the east, however, it soon becomes a two-lane section following the south bank of the Ottawa River and connecting with a four-lane freeway at the Quebec border as it continues to Montreal. Based on a transportation study conducted in the early sixties a plan for freeway development was approved by the Province and all concerned local jurisdictions, that included a relocation of the route to the south of the present road, to approach Ottawa from the south east. It was to be built to freeway standards and would connect with the already completed Queensway near the center of Ottawa. The route in its approved location would of necessity cross the green belt controlled by the Commission, and cut through residential areas on either side. No particular objection to the plan was heard until the Province included in its 1971 budget funds to proceed with the construction of the route.

Concern with Transportation. Since approval of the freeway concept in 1965 the Commission's policy had been veering toward "balanced" transportation, and it had begun to doubt the wisdom of focussing greater volumes of highway traffic on the downtown area. And since 1965 concern over the environment had arisen, and examples of the success of citizen protest had proliferated. Stopping the Spadina project in Toronto was a striking example. So, not surprisingly, citizen opposition arose in such strength that the Commission stepped in and refused permission for the route to cross the green belt at the previously approved location.

The decision to oppose the location was taken as a constructive move however, in that the Commission set out to aid the Province, with technical and financial help, in finding with the citizen participation an acceptable location. In Ottawa alternatives were available, whereas in Toronto they were not.

Public Participation in Transportation Decision. A 10-week citizen participation program was organized. Two hundred kits were prepared showing the benefits and disadvantages of each of five alternative locations, to be distributed to the news media, officials, and citizen groups. One of the alternatives included an exclusive busway along the originally proposed line. Opinions were solicited, and technical personnel met with citizen groups, but only on the citizen's invitations. The news media described the alternatives in depth, as did a full-hour TV program. Finally, at the end of the period citizens were invited to vote by means of a ballot printed in the newspapers, giving each respondent an opportunity to record his view as to the relative merits of each of the five alternatives with respect to seven factors--cost, internal transportation, external transportation, appearance, noise, air pollution, and open space. Each respondent was asked also to weight each factor. Over 8600 ballots were received, estimated to reflect the response of 30,000 citizens. It was estimated that as many as 100,000 people had in some way been involved, out of a metropolitan population of about 400,000.

Just how the estimates of participation were arrived at, or how the weighting of factors was accomplished or utilized in analyses of the response is not clear, but there was strong support for one of the five alternatives, one which emphasized public transportation, and which took highway traffic north to a connection with Queensway east of the green belt rather than near the center of Ottawa. Just how the additional traffic that will be directed to the already loaded Queensway will be accommodated is not known, but perhaps a switch to public transportation will be achieved. But the heavy newspaper vote, while having no authority, did convince the officials of the area to recommend the favored route to the Province, with the Commission approval of crossing the green belt with a busway as the favored alternative will require, and the Province is now redesigning its network. Fortunately an alternative was available.

While this example may not stand as a model for widespread use in achieving citizen participation, it serves as a good example of constructive intervention by the Commission in regional and municipal planning. The Commission has a multi-disciplined planning staff, including transportation planners, and can assist the regional municipalities through assignment of technical personnel or financial support. The cooperative approach seems to be working, even in this complex situation involving many authorities and even delicate problems of bilingualism.

The Metropolitan Government

The Regional Municipality was established by the Province of Ontario under the act entitled, "The Regional Municipality of Ottawa-Carleton, 1968." It embraces the two cities of Ottawa and Vanier, and 14 villages and townships. It is confined to the portion of the metropolitan area lying in Ontario. The communities in the Quebec portion, as noted earlier, are assembled under the Outaouais Regional Community. Both lie within the National Capital District.

As in Toronto the municipality is administered by a Regional Council, the members of which are not elected directly to the Regional Council but serve by virtue of their election to their own local councils. The chairman is elected by the Council. There are 30 members, 16 from Ottawa, and two from Vanier, the two cities, with the remaining number representing the 14 villages and townships, apportioned on a basis of population, ranging from three from one township to one for three. As in Toronto each member wears two hats, one regional and one local. In addition to its executive committee there are four standing committees through which certain departments report to the Council. The Commissioner of Roads and the Director of Traffic Engineering Services report through the Roads Committee, and the Planning Commission through the Planning Committee.

Most functions are shared between the Regional and local Councils. Arterial roads and traffic control and regulation are regional responsibilities, and local streets and street lighting local responsibilities. Collector sewers and sewage treatment is regional, and local sewers local. In contrast to Toronto water supply and distribution are both regional functions, while garbage collection and disposal are both local. Regional planning is a regional council responsibility, and local planning including zoning and issuance of building permits local. Borrowing for either regional or local capital works is under regional authority, as are welfare services

and homes for the aged. Costs of financing the functions and programs of the Regional Council are apportioned among the 16 municipalities on the basis of their assessed valuations, with the values assessed by the Province to assure uniformity.

Prior to 1972 public transportation in the city of Ottawa and part of the remainder of the area was the responsibility of the Ottawa Transportation Commission. Beginning in August, however, that Commission was abolished and the Ottawa-Carleton Regional Transit Commission was established. This Commission comprises five members appointed by the Regional Council from its own membership. It has sole authority to operate public transportation services within the Urban Transit Area by means of surface, underground or above ground railways, tramways, buses or any other means of transportation except taxis. It can build, maintain, and operate any works needed to carry out its functions, including parking lots to serve users of the system. The Urban Transit Area is determined by the Council as any part or parts of the Regional Municipality that derive benefit from the provision of passenger transport. Within this area the Commission is authorized to fix the fares at a level it considers proper for the use of the system. Any deficit is apportioned among the municipalities included in the Transit Area by the Regional Council on whatever basis the Council regards as just and equitable, considering the degree of service provided, its financial implications and the assessed valuations of the municipalities. To have the Commission fix the fares and the Council find the subsidy if needed might cause problems, it would seem, were it not for the fact that the Commission is responsible to the Council. What the deficit, if any, may be remains to be seen. The Commission may contract or arrange for service outside the Urban Transit Area, but as of now (October 1972) there is no provision for transfer of passengers to the system operated under similar authority in Hull and the Outaouais Regional Community although buses of either authority may cross the Ottawa River. There is a prospect, however, of a system of free transfers being inaugurated, financed by the National Capital Commission.

Metropolitan Planning

For the purposes of planning the Regional Municipality is regarded as a municipality within the meaning of the Planning Act. Once its Official Plan is adopted by the Council and approved by the Ministry of Treasury, Economics and Intergovernmental Affairs, all other municipalities within the region must bring their plans and zoning ordinances into conformity. The usual procedures requiring review by the concerned ministries of the Province and the Municipal Board apply, but here in addition the National Capital Commission is included as a reviewing agency, as well as a cooperator in the planning process. Once the Official Plan is approved there can be no departure from it unless it is formally amended, either in the public or private sector. That this provision of the law has teeth is seen in the action, similar to one in Toronto noted earlier, requiring the demolition of a building erected under a mistakenly-issued building permit in one local municipality.

Transportation planning is carried on as one phase of the overall planning program by a multi-disciplined staff under the Commissioner of Planning. The Province cooperates actively in the transportation planning process by technical contribution by the Ministry of Transportation and Communications, and by participation to the extent of 75 percent in its cost. The preparation of the Official Plan, with a strong transportation emphasis, is now going forward. A report, "Official Plan--Initial Proposals," was issued in July 1972, as was a companion report, "Progress Report--Transportation Study," in the same month. Both reports were intended for wide public and official consideration and comment before proceeding with the more detailed stages of the planning. Both are written in non-technical language, and explain in easily understood manner the technical and financial aspects of the various alternatives that appear to be available as the area develops.

The approach being followed illustrates the validity of the procedures that have been adopted by the Province in transportation planning, calling for a conceptual plan as the first phase of the process to be followed by a finer-grained analysis once the general development concept is agreed upon. The 150-page progress report of the transportation study is the report of a review of the implications of a variety of possible transportation solutions in a series of possible patterns of development. It shows clearly what would be involved in developing transportation facilities to serve the volumes of public and private travel under the various development patterns, not in detail as to location or design but indicating the characteristics of the facilities--freeway, arterial streets, exclusive transit lines, for example--that would be required. It shows the dependence on private transportation that will be necessary under a low-density pattern of residential development, and that to bring the cost of rapid transit within reach financially will require high residential density. It shows the impact as well of different distributions of employment centers on transportation requirements.

The population of Ottawa (the regional municipality) in 1971 was 466,000, with just over 400,000 within the greenbelt, increasing at an annual rate of 3.6 percent. Planning is for a population of 1,000,000, likely to be reached in a 25- to 40-year period requiring about a quarter of a million new dwellings, one-third single family. It is assumed that the area within the greenbelt will be completely urbanized, accommodating

probably 650,000 people, but not more than 750,000. The remainder, 250,000 to 350,000, will be accommodated outside the greenbelt. Employment in the area is expected to increase from about 200,000 in 1971 to 450,000 in the horizon year. Obviously the distribution of employment has an impact on all service requirements, especially transportation.

To gauge the feeling of the people of the area the Planning Department solicited views of the citizens through informal releases and a series of meetings at which the problems of growth were generally described, concluding with a questionnaire survey. From the results of this survey it was concluded that the people preferred a center-oriented city, with greater reliance on public transportation. It was also concluded that the development outside the greenbelt should take the form of corridors rather than satellite cities. Accordingly under these assumptions the "Initial Proposals--Official Plan" which the public is asked to review and comment upon, describes the land use strategies that can be adopted to bring this about. Simultaneously the Progress Report on the Transportation Study considers the transportation implications of these strategies. The two reports complement and support one another in all respects.

Transportation Planning

In the area of transportation the report on the Plan Proposals emphasizes the importance of the transportation element by noting that it costs ten times as much to serve land with transportation as it does to supply sewer and water facilities. It notes that transportation, in personal movement and in the cost of moving goods, absorbs a greater portion of family income than any other factor, including food or housing. And it points out that this is the case whatever mode of travel and transportation may be selected.

Balance Between Transportation and Development. Complementing these observations the Transportation Study Progress Report discusses the implications for public and private transportation of the distribution of population and employment. In well expressed reasoning it explains that good transportation into the downtown area cannot be provided without a limit on employment there. It accepts that regardless of the amount or quality of public transportation there will still be a demand and need for private transportation into and within the area. It notes that experience in other cities shows that no more than 70 percent of the peak hour trips into the downtown area should be expected to use transit, citing Toronto as an example of where there is excellent public transportation and heavily congested streets, but where the modal split shows about that figure. Thus the number of jobs in the downtown area should be limited to a number such that 30 percent of the peak hour trips that will be generated can be accommodated by private transportation, that being the controlling element, and public transportation provided to accommodate the 70 percent. The form of public transportation needed to accommodate the 70 percent--bus, express bus, or rail--would then provide a balance, a balance between modes and a balance with developments. This is a refreshing contrast to the more common approach. Introduction of more jobs in the downtown area to call for a peak period volume greater than that of which 30 percent exceeds the highway capacity means either an extension of the peak period or a forced shift in mode to public transportation. The Planning Department makes no recommendation in its transportation progress report, but fully explains the significance of the different alternatives it describes. It cautions, however, that the 70 percent figure may not be achieved, and that advances in technology that can now be seen do not appear to offer hope for shifting of travel from the private to public mode. The experience of a Dial-a-bus demonstration project is cited, in which to be self sustaining the fare would have to be 75 cents to a dollar per trip but which, even at the low demonstration fares to encourage usage, showed that most trips were made by riders who did not travel before rather than by those who shifted from other modes.

The two reports taken together present to the people of the area an unparalleled opportunity to study and comment upon the possible growth patterns of the region. It is concluded that growth corridors to the south-east, south and southwest would not be good strategy. Some land is not suitable for urbanization, other land should remain in agricultural use, the airport is a constraint against residential development, and serving the areas with transportation, water and sewerage would be expensive. Beyond that, locating the transportation corridors from these areas to the downtown area inside the greenbelt would be difficult because of environmental factors, encountering the same problems that caused the relocation of route 417 described earlier. Factors affecting urbanization in the east and west corridors are generally favorable, however, and it is in these directions that the Planning Department favors growth. Transportation corridors are available for whatever mode the ultimate land use strategies will call for. Ottawa is fortunate in having alternatives among which to choose.

Public Participation. As said earlier, the Transportation Study Progress Report represents Phase 1, the conceptual phase, of the process now adopted for general use in Ontario. The report notes that an earlier study, the Ottawa-Hull Transportation Study, was conducted in 1963, and served as the basis of a transportation plan adopted by all agencies concerned in 1965. It is now referred to as a technical plan, and even though it was and is a sound plan from a transportation viewpoint it was made without the benefit of the views of the public of its impact on the environment and on the neighborhoods it served or traversed. It is the purpose of the Transportation Progress Report and the Initial Proposals report on land use strategies to inform the public of the benefits and disadvantages of various alternatives open to it not only in the general development philosophy but specifically in transportation, the most critical functional element of the plan. To gain informed opinion the two reports, published in July, have been available on request, and organizations, officials, and citizens have been urged to obtain and study them. To learn their reactions a series of four regional planning forums was scheduled by the Planning Department, widely advertised in the media, to be held in October 1972. Hopefully these forums will provide enough in the way of preferences, perhaps even a consensus, as to the desired course of development to enable the Transportation Study to go ahead with the next phase involving detailed location and general design criteria, the technical phase with which earlier studies began. The phase will of course take full advantage of the data bank and simulation models developed in the 1963 study. While this means of bringing the public into the planning process is far less intensive and less formally structured than the procedures now proposed for Toronto, the city is smaller, the pressures less intense, and more alternatives are available. The results should be worthy of careful study.

Planning in Ontario - A Summary

Planning in Ontario is a sharply defined three-level process --Provincial, metropolitan, and local. It is also a two-stage process involving the preparation of a "conceptual", or coarse-grained plan, followed after approval by a "design" or fine-grained plan.

The Province carries on Province-wide and regional planning, cooperating with local officials and representatives of the private sector, to produce guidelines for regional economic development, now pointed toward constraining growth of the larger metropolitan areas in favor of encouraging growth in the less populated and sometimes economically depressed areas.

In order to qualify for Provincial aids in public improvements all municipalities must prepare plans for approval at Province level, consistent with the guidelines for regional development. A metropolitan area, such as Toronto, can be designated as a regional municipality and becomes the key agency in transportation and land use planning. Governed by a council made up of elected officials of the jurisdictions within the area the council has authority for planning and implementation of plans of regional scope through taxing authority. It develops the area-wide plan through a line planning staff, which must prepare a 20-year plan, and annual programs for approval at Province level, to serve as a basis for Provincial aids in funding the public aspects of the program.

Local jurisdictions must prepare local plans, including zoning regulations, consistent with the metropolitan plan, also for approval at Province level, and annual programs to implement the plans.

There are no legal requirements for public participation in the planning process, since the responsibility for planning rests with the locally elected officials, although any aggrieved citizen can appeal to the Provincial Municipal Board, composed of officials and citizens outside government, which renders prompt decisions. Nevertheless all levels of government now regard citizen involvement in proper way in the decision-making process an essential element in planning. In the Toronto resurvey, as an example, \$500,000 of a budget of \$1,500,000 is earmarked for the purpose of developing citizen input into the program.

Balance between transportation and other development is accepted as a necessity, with neutrality among modes a desirable goal, although perhaps becoming an impossible one as some cities are allowed to develop, Toronto again serving as an example. (Note: Among all the cities visited, the investigator believes that the planning procedures in Ontario could be more readily adapted to conditions and political organization in the United States than in any of the others.)

PLANNING IN MONTREAL

Montreal is following in a general way the path opened up by Toronto in 1953. In 1969 the National Assembly of Quebec passed the Montreal Urban Community Act, joining the City of Montreal and 30 other municipalities on the Island of Montreal, an area of 190 square miles, into the Montreal Urban Community. Again following the path of Toronto consideration is now being given (October 1972) to some modifications in the organization and authorities to strengthen the regional concept. The Montreal Urban Community has authority over many functions of regional scope, but somewhat less than does Toronto Metro.

The metropolitan area of Montreal is the largest in Canada in population, nearly 3 million in 1971, showing an increase of 16 percent between 1961 and 1966, and a slower growth rate of 6 percent between 1966 and 1971. Montreal City in 1971 accounted for 1.2 million, 43 percent of the metropolitan population and 53 percent of the Urban Community, which numbered 1.94 million in 1971. In common with most center cities, the population of Montreal City declined between 1966 and 1971 by 7.5 percent, following an increase of 2.7 percent between 1961 and 1966. The portion of the metropolitan area north of the St. Lawrence is also organized as an urban Community, the Laval Urban Community, with a population of about a quarter of a million, but the area south of the river comprises unorganized individual municipalities.

The Metropolitan Government

Under the Act the Urban Community has authority to value property for assessment purposes, conduct the census, establish a development plan and a data processing competence, eliminate air pollution, standardize traffic regulations and traffic control devices, establish intermunicipal water and sewerage systems, dispose of garbage, establish minimum construction standards, and coordinate and if necessary integrate the local police and fire departments. Under this act the Community has no implementing authority in transportation (although an independent Transit Commission can construct and operate transit facilities on a regional basis), no authority over zoning nor over local municipality planning, although it does have authority in the area of building codes. It has authority to acquire land, by expropriation if necessary, and to construct and operate works necessary to carry out its functions. Nevertheless, as a first step, and with the authority to develop a regional plan within which the transportation and other facilities will receive considerable support from the Province, it can make an effective start toward regional government and services. Presumably the current review of the governmental organization within the area will strengthen this purpose.

The Community is governed by a Council composed of the Mayor and Councillors of the City of Montreal and one delegate from each of the other municipalities, ordinarily the Mayor. Each member from the small municipalities has one vote for each 1000 inhabitants, while each Montreal delegate has the number of votes resulting from dividing the population of Montreal by 1000 times the number of Councillors from Montreal. Thus the administration of regional affairs is on a strictly one man-one vote basis, although each decision must have a favorable majority of both the Montreal and the other municipality members. Every member must vote on every issue, except those in which there might be a personal conflict of interest. The Council must meet at least every two months. It elects its Chairman and Vice Chairman from among its members.

The management of the Council's affairs is by an Executive Committee of 12 members, appointed from among the Council membership, seven from Montreal, two from the "center" sector and one each from the "east," "west," and "center-west" sectors, comprising among them the municipalities other than Montreal City. The delegates from each sector have a single vote in electing the Executive Committee. The Chairman and Vice Chairman of the Executive Committee are appointed from among its members by the Council, and the two offices cannot be held at the same time by two members from Montreal or from another sector. The Council appoints a Secretary-General and establishes and appoints the heads of departments needed to carry out its responsibilities. The Secretary-General acts as liaison between the Executive Committee and the department heads, coordinates the budget estimates of the departments, and reviews proposed projects that require approval of the Executive Committee or the Council. All proposals for action of the Council are routed through the Executive Committee for recommendation.

Plan Implementation. The cost of financing the work of the Urban Community is divided among the municipalities composing it. Annually the Executive Committee prepares the budget and recommends it to the Council. If the Council accepts within a stated period it becomes effective and the amount is distributed to the municipalities on the basis of their real estate valuation. Each municipality then sets its tax rate at a level to permit reimbursing the Community and supporting its own responsibilities. Should the Community Council not adopt the budget by the specified date, it becomes effective automatically, and any protest may be referred to the Quebec Municipal Commission, which may amend the budget if it considers that it "entails serious prejudice to the rate payers of any part of the territory." Protest may be brought by petition of ten Council members from Montreal or five from other municipalities. Thus there is mechanism to assure the continuity of the Community programs and protection against unfairness in their scope or financing among the municipalities. It is not apparent that appeal to the Municipal Commission is open to individual citizens as is the appeal to the Municipal Board in Ontario.

The Transit Commission

Public transportation within the Urban Community and to the new international airport when constructed is the responsibility of the Transit Commission. This Commission was established under the Urban Community Act to take over the property and functions of the former Montreal Transportation Commission and to incorporate in its system all other public transportation systems operating wholly within the area of the Transit Commission. It is administered by three Commissioners, the Chairman appointed by the Lieutenant Governor of Quebec, and the other two by the Council of the Urban Community, one from Montreal and one from the other municipalities.

The commission has authority to own and operate within its territory a network of public transport on, above or below ground and to lease or operate business, or space for display or advertising on its property. It can add or adjust routes and provide the kind of service thought best (such as subway or bus) on routes at its discretion, but such action is subject to appeal to the Transportation Board of the Province by any municipality or individual. It may establish fares, also subject to the same appeal to the Transportation Board.

Under this authority the Transit Commission operates the subway system known as Metro and a network of connecting bus lines. It has determined that a fare of 35 cents is as high as it is appropriate to charge based on the economic status of its patrons. Costs above the proceeds from its fares are accepted as a deficit and are distributed among the municipalities within its territory (now the Urban Community plus the city of Longueuil) on the basis of the valuation of their "immovables." Annually the Commission prepares a budget and files it with the Community Council, under which the municipalities accept the cost of interest and amortization of the bonds for the constructing of the Metro, and the operating deficit. The operating deficit is now about \$2 million annually, but with rising costs will increase inasmuch as the fare level will be held constant, at least within the foreseeable future. Once the budget is filed with the Secretary of the Community it goes through the same procedure, including the appeal provisions, that apply to the general budget of the Community.

General Planning

The Urban Community Act not only authorized the Community to engage in planning for the area but required that within three years (by December 1972) it establish by by-law a development plan. The plan, it was stated, must show the assignment of the uses of land, and the approximate densities of occupation, the approximate routes of the main thoroughfares, the nature and approximate location of urban installations, and the approximate routes of utility services. Before enacting a by-law to adopt or amend the plan, the Council must hold a public hearing to be announced in a French and in an English language newspaper circulating in the territory.

The Act provided that every municipality must make available all existing plans and all studies relating to them. It did not, however, restrict the authority of the local municipalities with respect to planning, nor require, as in Ontario, that local plans and zoning ordinances be made compatible with the regional plan.

To carry out this function the Council established the Planning Department, with presently a relatively small multi-disciplined staff. As the first step in preparing the development plan the Department published in June 1972 a sketch plan--"Esquisse 72"--which considered the subjects specifically prescribed by the Act. It took the 1967 plan for the city of Montreal as a starting point, from which to look ahead on regional scale. Not all of the 1967 plan is being implemented as shown, however, with the change in the location of the airport, by National decision, from south to northwest of the city being the most noteworthy difference. The purpose of the sketch plan was to solicit quickly the views of the leaders of the Community, both officials and citizens, with respect to the proposals for development to assist the Department in producing the development plan required by the year's end.

Montreal is not a high-rise city so far as residence is concerned, but it is a high density city, with the generally two-story housing occupying land pretty solidly. Eighty percent of the people are tenants, and income and mobility are low. Public housing programs are the responsibility of the individual municipalities in cooperation with the Provincial and the National governments but are concerned primarily with urban renewal areas. Thus reservation of land for expansion of residential areas was of high importance in looking ahead.

The sketch plan showed the areas thought necessary to reserve for recreation and open space, the wooded areas that should be improved, and the desirable locations for industrial and commercial use. It indicated a desire to develop satellite centers around some of the present dispersed major shopping centers within the Urban Community, to bring employment and more diverse services to the people of the local areas, rather than continuing reliance on the downtown area of Montreal city for such services. In considering industrial sites, the questions of air pollution and water contamination were carefully examined. Transportation planning was limited to the approximate routing of main thoroughfares, but in recognition of key importance of transportation

in the success of any plan, the Planning Department works closely with the Transit Commission, which has an active planning operation, and the Ministry of Transport of the Province which has responsibility for freeway and major arterial construction within the area.

Transportation Planning

Thanks to Metro and substantial freeway mileage, as well as a pattern of fairly wide arterials, travel and transportation in Montreal is not a severe problem, and with programs for extension of both Metro and the freeway system, should not be for some time in the future, at least compared to other cities. The construction of both the Metro and some freeway mileage was accelerated because of EXPO 67 and they now serve the downtown area effectively. Along with EXPO and Metro came a building boom in the area called the "new" city that produced high-rise office buildings and hotels, and two extensive underground connected shopping areas--Place de Ville and Place Bonaventure.

The Current Situation. Accompanying the increase in building and transportation facilities has come in an increase in trips to and from the downtown area. In 1961 figures showed 90,000 trips leaving the downtown area in the peak hour, 37 percent by private car (33,000 trips at average occupancy of 1.8) and 63 percent by bus. Ten years later the figures showed about the same number by private vehicle and 80,000 by Metro and bus combined. Thus the proportion by transit stood at 71 percent, just about the peak hour proportion in Toronto and the figure set as a goal in Ontario.

Immediately after the opening of Metro, traffic decreased considerably, the decrease ranging from 5 to 21 percent along the line of the north-south Metro lines, and 16 percent at a point close to the downtown area. The decrease along the shorter east-west line that ends in the "old" city was only one percent, however. Since that time traffic has built up about to the level it held before the opening of Metro, to account for the fact that there is no appreciable difference in private car trips to downtown between 1961 and 1971. Traffic in the downtown area had been increasing at a rate of about 3 percent per year. To catch up to the level held prior to the decrease following the opening of Metro the rate became about 5 percent for the 4-year period. Whether the higher rate of increase will continue once (or if) the level reaches the earlier trend line remains to be seen but as of now traffic moves quite freely even in peak hours in the downtown area, and it would appear that there is a free choice between public and private travel, both providing good levels of service. Travel speeds on the arterial streets range from 15 miles per hour in the downtown area to 32 miles per hour as an average for the entire Montreal Urban Community in morning and evening rush hours. While downtown speeds are higher in off-peak hours, the average throughout the whole area is less in off-peak periods--30 miles per hour compared to 32--presumably because of peak hour parking and other restrictions. Average speeds on the Metro lines range from 20 to 32 miles per hour, so both origin and destination must be close to the stations for a traveler to gain a time advantage on Metro over private car travel.

There seems no doubt that the increased travel--26 percent in peak hours--into the downtown area resulting from the building boom could not have been provided for adequately without both the Metro and the freeway system. Just how the modal choice is arrived at now is not known, but it is estimated that not more than five percent of the travelers shifted from their private cars to Metro, except perhaps for a short period when it was still a novelty. For the system as a whole it is estimated that on a daily average basis, 65,000 riders walk to the station, 14,000 use their cars, and 250,000 reach the Metro stations by bus. There are two 1000-car capacity parking lots, one operated by Montreal and one by Longueuil, each at the end of a Metro line. There are no legal or policy restrictions on the amount of parking space that may be provided in the downtown area.

Provision of transportation facilities is complex. Transit service as described earlier is provided by the Transit Commission, with the Capital cost of Metro and the operating deficit of the entire system accepted by the municipalities in the Transit Territory, which is the Montreal Urban Community plus Longueuil, the deficit now running at about \$2 million annually. Major arterial routes are the responsibility of the Ministry of Transport of the Province. In the case of freeways the cost of the service roads is charged to the municipalities they traverse, the Urban Community having no authority in this field. The main east-west freeway, some 35 miles in length crosses the Urban Community generally four to five miles north of the downtown area of Montreal. It is generally six lanes in width with two- or sometimes three-lane service roads on either side, all lanes with bumper-to-bumper traffic in peak periods. The Trans-Canada highway passes through the business districts of both the "new" and "old" cities and is nearing completion in the Montreal area. With north-south freeways east and west of the downtown area, there will be a loop or belt enclosing an area about five miles in width north and south and ten miles in length east and west, with the south leg passing through the downtown district and the west leg intersecting fairly close to it. While the Trans-Canada highway in Quebec as in other Provincial is a responsibility of the Province, because of the economic levels of the Province of Quebec and Montreal, and the costs of this highway is shared 50 percent by the Federal government, 37 1/2 percent by the Province and 12 1/2 percent by the municipalities. The Province is called upon to provide a freeway connection to the new international airport, and as of now intends beyond that no further freeway construction within the Urban Community.

The Transit Commission is called upon to provide public transportation between Montreal and the airport. It may utilize buses on the freeway, or it may provide rail rapid transit (considered unlikely) and if so would utilize tracks of the Canadian National Railways, a Federal government agency. In addition there is rail commuter service into the downtown area on five radiating lines, east and west along the river, two from the north, and one from the south. The local municipalities provide the local street system, street lighting and sidewalks, and as noted, service roads where they are provided along the freeways built by the Province. There can be no direct Federal assistance to the Urban Community or the municipalities, but the Federal government can and does make grants for innovative projects and in this way can contribute to some extent in aiding local transportation.

Plans for the Future. As provision of transportation is complex and requires a high degree of coordination and cooperation among agencies, so too does transportation planning. Transportation planning was being carried on before the Urban Community Act was passed. The City of Montreal had a plan, including transportation features, adopted in 1967. The Province coordinates its major arterial planning with the city planners. And the Transit Commission, under its former name, Transport Commission, was actively planning for an extension of Metro before the Urban Community came into being. While the function of the Planning Department of the Urban Community is expected to coordinate all planning in the area, it must do it, under present law, by gaining cooperation rather than by specific authority. As noted earlier there is no requirement that zoning in the local municipalities be made compatible with the plan for the Urban Community, and while the law has required Provincial approval of local zoning ordinances, it is not clear whether that still applies within the new Urban Community. Beyond that, violation of a zoning ordinance is punishable only by a nominal fine, so little control can be exercised over development in the private sector, even upon adoption of the plan by by-law.

In this situation planning is being coordinated by regular weekly meetings of a study group on which are represented the several agencies concerned. In the transit area there is the Metro Transportation Bureau, an arm of the Transit Commission, that is responsible for constructing the subway system that the Transit Commission subsequently "owns" and operates. This Bureau conducted in 1969 an extensive home interview travel study, obtaining for all members of the households sampled all trips by all members, including walking trips, and a listing of those who made no trips. Relationships between travel and land use were developed, and the Planning Department of the Urban Community has developed simulation models that make it possible to relate transit and urban renewal planning, and to aid in route and station location in areas planned for new development. The proposed extension of the Metro system will add 55 or 56 stations, so it becomes a major factor in both transportation and general planning in the area. As noted, Provincial planners from the Ministry of Transport coordinate their work with that of the Urban Community, for their authority includes not only the major arterial street system but also sharing in the capital cost of Metro. The subway extension now programmed is estimated to cost \$430 million. Toward this financing the Province contributed \$9 million in the current fiscal year, and intends to increase this amount by 20 percent annually to reach a total contribution of \$240 million, something over half the anticipated capital cost.

In summary, without strong legal authority and with still inadequate staffing of the Planning Department of the Montreal Urban Community, there is good coordination of transportation planning among local, regional, and Provincial officials and among modes, largely through voluntary cooperation. There is good coordination of implementation of transportation plans, still through voluntary coordination, aided by the fact that the agencies concerned all report to Urban Community Council. Whether the review of the organization of the Community now in progress will bring more formality into the procedures and strengthen the authority to require adherence to the general development plan remains to be seen. Without strong control over private development there can be no assurance that the good transportation service now available and planned for the future can be maintained. Moving in this direction is the city of Montreal which is now embarking on a policy of acquisition of parcels of land to lease to industries in order to attract industry to the city and to make maximum use of public transportation systems. A long-term lease for a clothing industry complex costing \$18 million is the first awarded under this new policy.

CHAPTER XI

CONCLUSIONS AND RECOMMENDATIONS

Following are the conclusions and recommendations of the study:

Conclusions

- I. Transportation and general urban planning are more readily coordinated in the countries visited than in the United States.
 - a. Transportation is regarded as a land use and is planned along with all other land uses by multi-disciplined planning departments at metropolitan level. Transportation planning is in effect an integral phase of general urban planning, rather than an independent, even though generally related, effort as in the United States.
 - b. By United States standards planning staffs in other countries are large, and embrace all significant disciplines. Higher levels of government assist in financing planning, especially the transportation phase, and often "second" specialized technical personnel to the local agencies to insure that all needed disciplines are brought to bear as the planning proceeds.
- II. The overall plans, including the transportation aspects, carry more authority than do those in the United States.
 - a. The planning departments are line departments of the governments they serve, metropolitan or local. When plans are completed they must be adopted by the appropriate local officials.
 - b. Once adopted by the local governments the plans must be approved at higher government level, sometimes at state or province level, sometimes at national level, and sometimes at both. Substantial changes may be made only by repeating the approval process. Approval at the higher level generally makes the plans legally binding or gives them the effect of law.
 - c. Once the general plan for a metropolitan area is approved, local jurisdictions must develop plans for all or portions of their areas, including zoning regulations, consistent with the metropolitan plan, also for review and generally approved at higher government levels.
 - d. Through this process local officials are relieved of much of the pressure to grant variances or modify zoning regulations so commonly experienced in the United States.
- III. Implementation of the plans through public programs is more orderly than in the United States, with a better balance among the various elements of the plan as it is developed.
 - a. The plans generally are realistic, inasmuch as the local officials who approve them are conscious of the cost of implementing them, and of the necessity of funding the public programs through their own taxing authority and anticipated grants from higher levels of government.
 - b. The planning departments themselves prepare for approval long and short range programs and annual budgets, all for approval at higher government levels, to serve as the basis for local tax levies and grants-in-aid, either of the "block" or categorical nature.
 - c. Programs and budgets are prepared in close cooperation with functional departments of both the local and higher government levels.
- IV. Citizen participation is more formally organized than in the United States, and probably more constructive.
 - a. In nearly all countries visited citizens must be given opportunity to review proposed plans and to file objections to any features. All objections must be considered and acted upon by the appropriate officials. All objections and the action taken on each is reviewed at higher government level as one aspect of its responsibility for review and approval of plans.
 - b. The opportunity to review and comment on the plan applies to the overall plan, of which transportation is but one element, rather than on one element--transportation--or on a sub-element--highway plan--as in the United States. The citizen can better understand why a particular mode or a specific highway design is proposed to attain a balance between transportation and other elements of the plan.

- c. Despite this, citizen opposition to certain elements does arise as the programs progress. Generally the effect appears to be less obstructive than in the United States, however. Strong efforts are being made in several countries to provide for constructive citizen participation in the early stages of the planning process, however.
- V. Private development, the key to maintaining a balance between transportation and other development, is better controlled in other countries than in the United States.
- a. In the overall plan, the allowable density of land use is related to the capacity of the infrastructure to serve it. Of all elements of the infrastructure transportation is the most costly. Density of land use generally is controlled by zoning regulations, which under procedures in virtually all countries visited, cannot be changed except by repetition of the planning process with attendant requirements for approval at higher government level. Transportation of desired quality, with respect to mode and capacity can be expected to be maintained in the ultimate development.
 - b. In no area visited (except for two unique cases in which the city can or does own all the land available for development) is there authority to control private development with respect to timing. Without such authority there is no assurance that private development may not get out of phase with public development of the infrastructure, with transportation the element of the infrastructure most likely to lag behind, even though ultimately under a technically sound plan and effective control the planned balance may be achieved. Control of timing of private development, as well as of its character and density, is essential if a continuing balance between transportation and other development is not only to be attained but maintained over time.

Observations

The following observations, while technically not conclusions of the study, are believed by the investigator to be worthy of consideration.

In the early philosophy of the U. S. Department of Transportation the long range goal in urban transportation was to relieve the citizens of dependence on the private motor vehicle by providing him with an attractive system of public transportation to give him an alternative as to his mode of travel, in other words to develop an overall system of transportation embracing different modes in such measure as to make transportation a neutral factor in urban development and life. Other countries have a similar goal, one even requires in national legislation that each mode be allowed to serve its most effective purpose (i. e., to be neutral) and that each be supported by its users, perhaps conflicting requirements.

Yet even where this is a policy goal it becomes apparent that the mode that is needed depends on the particular life style that is desired or achievable, and that the different modes are seldom alternatives to one another but rather are complementary. High density of occupancy of both residential and commercial land may demand a high capacity public transportation system, whereas low density areas can be effectively served only by private transportation. In either case neutrality between or among modes cannot be expected. Transportation can be in balance with development, but it is hardly neutral.

In the United States the term "balanced transportation" has come into common use, without a clear definition of the word "balance." Most commonly it seems to be used as a balance between modes with the corollary that there should be a balance in funding, with no clear statement of or even basis to decide what the balance should be. What is really needed in an effort to attain and maintain a desired quality of urban life, however, is the attainment and maintenance of a balance between overall development and the infrastructure to serve it, with transportation, as noted earlier, the most costly and perhaps most significant element of the infrastructure. There are many measures of the quality of urban life--quality of the water, effectiveness of law enforcement, or quality of education, as examples. But in the array of measures, quality of transportation should be among the most important. Its quality should be measured by the degree to which the total transportation system is in balance with development and the extent to which each of the modes it comprises is capable of serving the demands to be imposed upon it by the character and density of land use accepted by the people as reflecting their goal of achieving their desired life style. Without allowance in the early planning stages for the amount of each mode of transportation needed to maintain that element in balance with the planned development and without acceptance of strict control of development in accordance with the plan, there can be no assurance that balanced transportation (under the definition used here) can be attained and maintained, or in other words that the quality of one element in urban life--transportation--can be assured.

In most countries visited the authority and generally the desire to control development to insure such balance exist, although as noted earlier, the authority to control the timing of private development is less general. In the United States, however, neither the authority nor the desire to control development seems to exist, with the result that cities as they are being allowed to develop create inordinately difficult problems and staggering costs to provide or provide for the amount and quality of transportation that the people of a viable city should expect. Indeed it is probably already too late to overcome the transportation deficiencies, not only because of financial but also of physical limitations, in some of our city centers as they have developed. The question is: how long can we as a nation continue to allow the same situation to develop in the expanding suburban areas of our major metropolitan areas, or in the medium-sized metropolitan areas rapidly becoming major centers? Without more effective controls we seem to be creating problems for the next generation equal to or perhaps even worse than those we are trying to solve today.

Recommendations

- I. Communities in the United States, especially the growing metropolitan areas, that wish to have assurance of transportation systems of high quality could well afford to adopt the practice in other countries in planning their transportation as an element of overall use planning and accepting the degree of public control over private development necessary to assure a continuing balance between transportation and other development.

- II. Transportation officials, having responsibility for the element of the urban infrastructure far more costly and possibly more significant than any other in determining the quality of urban life, and faced with staggering costs in difficult and sometimes vain efforts to provide or provide for the transportation needed to serve unchecked development, could well afford to take a leadership role in developing community support for acceptance of the maximum degree of control over private development that can be supported under the political maturity of any community. Federal and state legislation relating grants-in-aid to the adequacy of the planning and development control processes can be strongly influential, but are unlikely to succeed without local community support of the philosophy of reasonable public control over the use of land. The higher levels of government, however, can give stature and authority to the locally-developed plan by reviewing it for technical adequacy and by its approval of it making adherence at local level in both public and private sectors a legal requirement.

- III. The following series of steps, listed roughly in ascending order of authority of the higher levels of government to oversee the administration of local plans, drawn from practices in cities outside the United States, are steps that jurisdictions might take to make planning in this country, especially transportation planning, more effective.
 - (1) Prepare plans locally--get review and recommendation from an ad-hoc group at metropolitan level.
 - (2) Prepare plans locally--get review and approval by an ad-hoc group at metropolitan level. Amend the plan only with approval at the same level.
 - (3) Prepare an area-wide plan by an ad-hoc group representing local jurisdictions, and encourage each locality to develop local plans to conform. Amend by the same process.
 - (4) Prepare area-wide plan by a representative ad-hoc group for approval by local jurisdictions of the area, and encourage each locality to conform. Amend by the same process.
 - (5) Prepare area-wide plan by official group established by State legislation, with membership representing local jurisdictions and perhaps State agencies. Local jurisdictions prepare local plans in conformity for approval of metropolitan group. Amend by the same process.
 - (6) Same as (5) but with State level approval of both metropolitan and local plans.
 - (7) Prepare State-wide regional plans or development policies at State level, and then follow (6), with area-wide plans required to conform to State and regional plans or policies. (This is the procedure most commonly found in the countries visited in the investigation.)
 - (8) Same as (7) except: (a) area-wide agency members elected to that office; and (b) area-wide agency authorized to implement area-wide programs such as housing or freeways (the Greater London Council is so authorized).
 - (9) Same as (7) but with area-wide agency authorized to release land classified in the plan as urban reserve for planned use on the basis of negotiation to insure coordination in timing by public and private development (Perth has this authority).

- (10) Same as (7) but with city authorized to acquire all land planned for urban development for release parcel-by-parcel under provisions specified in long-term leases. (This procedure, followed in Stockholm and Canberra, gives the officials virtually total control over public and private development, and can and does produce balance among all the elements of the plan as it is implemented.)

It may be observed that of these 10 steps, even the first of which goes beyond common current practice in the United States, one must go to step 7 to reach the least "restrictive" practice in any of the other countries visited, yet in none of those countries was there indication that the degree of higher level control exercised was regarded as onerous by the local officials. (Note: In more than one instance officials in other countries who had spent time in the United States observed in conversation with the investigator that they felt that people in their countries are more ready to accept some restrictions on their personal freedoms for the good of the community than are Americans. The investigator offers no comment.)

APPENDIX

The investigator wishes to acknowledge his indebtedness to the people in the various countries he visited for the time they devoted to individual discussions of the subject, the information they imparted during these discussions and their help in supplying material in the form of reports and copies of laws and regulations that formed the principal basis for this report. In what may perhaps be an overly democratic way, the names are listed alphabetically by surname only, without regard to sex (Miss Michele Jodon-Kenton: Jodon-Kenton), title (Sir William Glanville: Glanville), or position (Director-General Olhede: Olhede). The investigator hopes none will feel slighted by omission of the indication of his or her sex, title or position.

Many others not named contributed to discussions with the investigator in the course of meetings or gatherings organized for his benefit. For example, in Perth, Western Australia, a special meeting of the Coordinating Committee of the Perth Transportation Study was convened to describe the procedures and problems involved in the study and the prospects of implementation of the findings and recommendations.

Also representatives of the Road Federations in the various countries aided immensely by arranging interviews with the appropriate officials and handling the logistics of the investigator's travel.

Finally, special thanks go to those in several countries who took the time and trouble to review drafts of the chapters relating to their countries to verify the statements therein, and in some cases to up-date the material to reflect changes since the investigator's visit.

The list is as follows:

Australia:

Aitken, Andrews, Brake, Conner, Delaney, Dent, Donaldson, Finger, Flynt, Glynn, Holton, Johnke, Lowe, Luxton, Metcalf, Minty, Mofflin, Price, Reiher, Schmidt, Shaw, Thomas, and Westerman.

Canada:

Bach, Bolduc, Cass, Clack, Clarke, De Visser, Durrant, Foley, Frechette, Gedye, Howden, Jodon-Kenton, Melinyshyn, Pearson, Stacey, and Wronski.

Denmark:

Reinstrup, Roed, and Wetchen.

England:

Ames, Andrews, Barry, Bayliss, Bor, Boddie, Buchanan, Burns, Charlesworth, Geeson, Glanville, Herbert, Hillier, Kolbuszeweski, Olley, Pailing, Phillipson, Rathbone, Ridley, Rihandi, Robson-Smith, Row, Scott, Smulian, Sones, Stinson, Toole, Williams, Wood, and Wright.

France:

Dubois-Taine, Fryborg, Goldberg, Huet, Koenig, Le Comte, Lecocq, Poulit, and Sardin.

Germany:

Beissel, Draesel, Kark, Lindemann, Muller, Reichlet, Schmarsel, and Ullrich.

Scotland:

Armour, Bell, Gavin, Godden, Hodgen, Mansley, Robert, Steele, and Turnbull.

Spain:

Acosta, Blanco, Brinis, Cubillo, Duran, Figueroa, Heras, Luarda, and Viqueras.

Sweden:

Boye, Goranson, Grabe, Hagglund, Kallstrom, Kohlmark, Lundberg, Olhede, and Tenryd.

Switzerland:

Bachman, Bouy, Bucheli, Cottier, Fritz, Favre, Genton, Hidber, Hoppe, Hurni, Koch, Krahenbull, Meyer, Neiderberger, Platner, Plottier, Rotach, and Rothisberger.