PROBLEMS OF CONTEMPORARY DEVELOPMENTS IN AMSTERDAM

Gotz Hassuth - The Netherlands
Senior International Fellow
Spring Semester, 1973

The Center for Metropolitan Planning and Research
The Johns Hopkins University
Baltimore, Maryland
### TABLE OF CONTENTS

1. Scale as Compared to Baltimore .................................. 1

2. Short History of Amsterdam ........................................ 4

3. Developments between the World Wars .............................. 5

4. Developments Since 1945 ............................................. 3
   a. Residential Areas .............................................. 9
   b. Commercial Areas ............................................. 9
   c. Traffic and Transport ........................................ 11
   d. Outdoor Recreation ............................................ 15
   e. Regional Development ........................................ 19

5. Some Information on Administrative Issues ....................... 19
   a. The Department of Public Works of Amsterdam .............. 19
   b. The Lease-Hold System ....................................... 21

Appendices I - VII .................................................... 23
1. Scale as compared to Baltimore.

Travelling outward from downtown Baltimore, one will subsequently pass a rather crowded inner city and then the outer city, which is less densely populated. An upheaval of all sorts of non-residential activities will mark the existence of the beltway fringe-area after that, which will be followed by some developed areas that only very gradually loose their urban character. Eventually, some 10 to 20 miles may lie between downtown C.B.D. and genuine rural districts, in which the scene of farmlands, barns, meadows, and woods prevail.

An urban pattern with this type of townscape and scale is not very common in the Netherlands. The city limits there usually are well recognizable by simple optical means, even in a highly urbanized region like that of Amsterdam. A comparison between the cities of Baltimore and Amsterdam will, therefore, be difficult unless some arbitrary but otherwise plausible assumptions are accepted regarding (1) city size and (2) the region that is socially and economically integrated with it.

With this in mind, it will be assumed that (1) Baltimore city may be compared with the agglomeration of Amsterdam (consisting of the municipalities Amsterdam, Amstelveen, Diemen and Ouder Amstel), and (2) that the Baltimore SMSA may be compared with the region lying within a radius of some 15 miles from Amsterdam-center.*

The difference in regional population is small, since the Amsterdam region would, by these standards, have 2 million and the Baltimore

*Shortest distance from downtown Baltimore to Baltimore SMA border is some 18 miles; longest distance is 40 miles.
SMA 2.07 million inhabitants.

The difference in the number of inhabitants of the two "cities" is also comparatively small. Considerably different, however, are the respective acreages, as may be seen from the following table.

<table>
<thead>
<tr>
<th></th>
<th>population (x 1000)</th>
<th>acreage*</th>
<th>density</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(sq. mi.)</td>
<td>Km²</td>
</tr>
<tr>
<td>Baltimore city</td>
<td>906</td>
<td>81</td>
<td>208</td>
</tr>
<tr>
<td>Amsterdam</td>
<td>820</td>
<td>45</td>
<td>124</td>
</tr>
</tbody>
</table>

*Main waters excluded

It follows that over-all densities in Amsterdam city are more than 50% higher than in Baltimore city. Densities are rapidly declining in Amsterdam, however. This is mainly effectuated by the increased economic welfare of the population. Land use statistics that have been compiled since 1931 by the research department of the municipal planning agency of Amsterdam show that the acreage of urban land per capita has increased from approximately 50 sq. ft. in 1931 to 170 sq. ft. in 1971. Large industrial areas and Schiphol airport have not been taken into account as "urban land" in this more than threefold growth. The following table gives an impression of how this growth is composed in terms of land use categories.
### Urban land use in Amsterdam

<table>
<thead>
<tr>
<th>Urban land use</th>
<th>Acreage 1931</th>
<th>Acreage 1971</th>
<th>Acreage/cap.</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(km²)</td>
<td>(%)</td>
<td>(km²)</td>
<td>(%)</td>
</tr>
<tr>
<td>Traffic and public spaces</td>
<td>9.6</td>
<td>28.20</td>
<td>32.81</td>
<td>26.40</td>
</tr>
<tr>
<td>Parks, public gas and lawns</td>
<td>2.7</td>
<td>7.94</td>
<td>26.98</td>
<td>21.90</td>
</tr>
<tr>
<td>sport fields, playing grounds</td>
<td>1.9</td>
<td>5.58</td>
<td>7.84</td>
<td>6.30</td>
</tr>
<tr>
<td>allotment gds., cemeteries</td>
<td>1.9</td>
<td>5.58</td>
<td>4.00</td>
<td>3.20</td>
</tr>
<tr>
<td>industr. sites</td>
<td>3.0</td>
<td>8.82</td>
<td>9.56</td>
<td>7.70</td>
</tr>
<tr>
<td>port and storage areas</td>
<td>2.0</td>
<td>5.89</td>
<td>3.50</td>
<td>2.8</td>
</tr>
<tr>
<td>building blocks</td>
<td>10.9</td>
<td>32.10</td>
<td>30.51</td>
<td>24.60</td>
</tr>
<tr>
<td>sites in preparation</td>
<td>2.0</td>
<td>5.89</td>
<td>8.80</td>
<td>7.10</td>
</tr>
<tr>
<td>total</td>
<td>34.0</td>
<td>100.00</td>
<td>124.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

*Multiply km² by 0.39 to get acreage in sq. mi.
Multiply m² by 11.1 to get acreage in sq. ft.

**Excluding large port and industrial areas along North Sea Canal under development. These are totalling 22 sq. mi. (including water). Schiphol Airport is also excluded.

Highest increase show parks, public gardens and lawns. This is partly due to the realization of a new park, covering some 3.5 sq. mi., but more so to the increase of acreage for lawns, lying in building blocks of new residential areas. The application of different definitions of land use categories makes the comparison between the spatial developments in the cities of Baltimore and Amsterdam very difficult.
2. **A Short History of Amsterdam**

Amsterdam may be assumed to have started its history in the beginning of the 13th century as a fishery settlement on the border of Amstel River. Some dykes - still existing now - were built to protect the inhabitants against high tide. The settlement did not grow fast until the end of the 16th century.

In the 17th century the city became rich from trade with oriental countries. This was partly caused by transferring the commercial function of places like Venice in the Mediterranean to Lisbon (Portugal) first and later on to Amsterdam. The City Council decided in 1612 on such an extension of the city, so there would be adequate expansion room within the new ramparts for some time to come. The so-called Three Canals Plan was the result. The area reserved within its boundaries indeed proved to be sufficient to cover the city's spatial needs for two and a half centuries (until about 1870 - a century ago).

A steady decline of Amsterdam as a port and trading city occurred in the first half of the 19th century, partly because of a deteriorating connection with the sea. In 1874, the North Sea Canal was opened, which together with the period of industrial boom - mainly based on the import and processing of colonial products - effectuated a strong improvement in the city's economic position.

To house the city's increasing population, several residential areas were quickly developed outside the ramparts of the 1612 plan. (In 1890, the overall density in the inner city equaled approximately 100,000 inhabitants per sq. mi.) Both layout and dwelling quality of the outside districts are a source of concern to city councils of today.
The 1901 Housing Act provided some deterrents to prevent sub-standard housing construction. First public housing under the Act was built in 1907. In addition, a plan for the southern section of Amsterdam was prepared by Dr. Berlage and was accepted by the City Council in 1917.

3. Development Between the World Wars

After the First World War, town planning and architecture received new impulses. The romantic view on architecture of the "Amsterdamse School" that prevailed up till then was increasingly questioned by groups of mainly younger architects and town-planners that favored a more rational and analytic approach to planning problems. This conviction gained in popularity and in 1920 the City Council decided to establish a City Development Department that would work on these lines as a separate organization within the body of the Public Works Services.

The first task of the new department was to prepare a long term General Extension Plan for the city. This plan was completed in 1935 by the collaboration of various sections of the Public Works Department. After passing the procedures laid down in the Housing Act, the plan was approved by the Crown in 1939 and thereby obtained the force of law.

One important incentive to draw up the plan was the population growth. By 1930, the city had more than doubled its population in the preceding 50 years (Amsterdam contained approximately 350,000 inhabitants in 1880 and 800,000 in 1930).

It was feared that the city would face similar bad living conditions for the majority of its inhabitants as were known from cities such
as London, Paris and Berlin, if growth rates remained the same as in
the past.

Careful research showed, however, that this would be quite improb-
able since the city population would never - according to the calcula-
tions - exceed 1.1 million people. A separate commission had, in the
mean time, already developed some ideas on size, location and quality
of residential areas. This "Tuinstad Commissie" (garden-city commis-
sion) recommended in 1929 a decentralization of the future growth of
the city, anticipating that some five or ten residential units with
40 to 60 thousand inhabitants each would be best for the city's future
expansion from a social viewpoint. These units should be self-supporting
in terms of employment, recreation and socio-cultural facilities. They
would be linked to the central city by means of railroad services.

The recommendations of this committee were generally accepted as
far as the layout for the residential units was concerned. Their ideas
about decentralizing city-growth were, however, rejected. Main arguments
for maintaining a centralized growth were:

1) that no unlimited growth of the city had to be feared, and

2) that the significant types of employment for Amsterdam -
such as wholesale trade, banking insurance and special-
ized industrial activities - were appropriately located
in or near the central business district, which also is
located practically in walking distance from the Central
Station and the harbor area. Their development would not
be stimulated by decentralization of the labor market nor
would their partial relocation be an easy task.
According to these conclusions, the new residential areas were projected at such distances from the industrial and central business districts that their inhabitants could reach them in a reasonable time by the means of transport that were expected to be most efficient at that time (mainly bicycle and streetcar or bus).

Residential and commercial or industrial areas were separated by a variety of recreational areas. The whole conception left ample possibility for flexible developments through time.

Main extensions of the city by residential units were envisioned on the west side of the city, south of the industrial areas adjacent to the basins for general and bulk cargoes along the North Sea Canal. They were arranged around an artificial lake, partly with the purpose to provide for a recreational area.

On the southern side a further extension of Schiphol Airport was proposed and an "artificial" wood covering some 2,250 acres and a new residential zone for inhabitants with moderate and higher incomes. In addition, a new industrial area with access to the railroad network and to the waterways was projected on the eastern border of the Amstel River.

No extension was proposed on the southeastern side of the city. This area was left open for several reasons, the main one being that some reserve space for new urban functions should be provided for in case of developments that are not foreseeable.

Also, on the northern side of the city (across the Y-Channel), no extension plans were contemplated, in order to avoid heavy traffic flow across the water.
A system of radial and tangential roads was proposed to serve the future traffic needs of the city. To relieve the central station, a belt railway was projected to run through the edge of the existing city.

Apart from the report on the desired size and quality of residential areas, a whole series of reports stating the quantified estimates of future needs (in terms of space, time and money) for different fields eventually preceded the preparation of the General Extension Plan. Among these were reports on:

- the regional development (commercial, residential, recreational);
- intercommunal traffic connections by road, air, rail, and waterways;
- the demand of industrial sites;
- horticulture and agriculture;
- recreation and sport;
- the system of local main roads for motor traffic;
- the system of water control and sewerage.

4. Developments Since 1945*

(See Appendix I to VI for illustrations referring to the subject.)

Since the Second World War, the implementation of the ideas incorporated in the General Exterior Plan proceeded so rapidly that all the land that

*An article by Giovanni Astengo on recent planning history of Amsterdam appeared in *URBANISTICA*, Vol. #2, 1949. An extensive record of the developments regarding the realization of the General Extension Plan since 1949 appeared again in *URBANISTICA*, Vol. #38, 1963. The latter record was written by Albertus van Hulraven, who was director of the Public Works Department of Amsterdam until 1963.
was supposed to be needed for the year 1980 is now already in use. Obviously, revisions of the General Extension Plan have been necessary to meet the demands of post-war developments. At present, a new outline plan is being prepared, which sets out the main lines of developments within the Amsterdam region.

a. Residential Areas

The size of residential areas in the 1939 Plan have - for a number of reasons that will be discussed later - proved to be inadequate to accommodate one million inhabitants. As a consequence, the new outline plan will provide more space for residential and recreational areas:

- Amsterdam-North is to be expanded to house about 1,000,000 inhabitants.
- The areas lying southeast of the city will also accommodate some 100,000 to 120,000 inhabitants, with provision for industry and offices.
- In the south, the municipality of Nieuwer Amstel will be expanded to house about 100,000 inhabitants.
- When all these plans have been completed, more than half of the Amsterdam population will still be living in those sectors of the city which existed before the Second World War. This means that a high concentration of dwellings is again proposed for these sectors needing urban renewal programs.

b. Commercial Areas

Some 70% of the occupied population of Amsterdam may between 1970 and 1980 be employed in white collar jobs. Workers are increasingly
attracted from outside the city. The 50,000 commuters of today may be expected to double in the next 15 or 20 years. An obvious problem arising from this development is the amount of space that will be required for additional establishments with commercial and public service functions.

A delicate balance between various residential and nonresidential uses of urban space in the central city should be maintained. Home and small scale industries within the inner city create a variety of vital activities. As has been pointed out at length by several authors in the last decade*, it is the existence of large, densely-populated areas in the direct vicinity of the inner core of a city that makes these centers attractive for a mixture of highly-specialized educational, commercial, socio-cultural and administrative functions.

If the equilibrium between residential and nonresidential areas is upset, the central city as a commercial, social and cultural focusing point will weaken. In addition, people will find it difficult to view the inner city as 'home' and the central city will lose its appeal as a preferred place of residence.

To cope with the space demand for large-scale establishments, the new outline plan features appropriately located sub-centers" (or sub-cities, as they are sometimes called) for the accommodation of these expanding commercial and institutional functions. These subcenters are located near the belt road (with a railway track running parallel to it, for more than half of its circumference, when completed) and have a combined area of some 500 acres. This will fulfill the needs of overflow

---

of these larger establishments for the next fifteen years or so. (It
might be noted here that the radius of the Amsterdam beltway is two to
three miles from the center of the local C.B.D., as compared with approxi-
mately six to nine miles for the baltimore beltway from its correspond-\nlocal C.B.D.)

The inner city of Amsterdam employs more than 150,000 workers,
which is about half of the total number of workers employed in Amsterdam,
(The inner city covers approximately 3.1 sq. mi.). It is expected that
the number of employed people in the inner city will grow by some 50,000
in the future. Some additional 190,000 to 150,000 "new" employees will
work in the subcenters at the outer edge of the pre-war city in the
future.

b. Traffic and Transport

The old parts of Amsterdam were built in a period when streets
were looked upon more as spaces that were open for all kinds of public
use, such as outdoor craftsmanship activities (carpentry, drying of
dyed textiles, etc.), selling, playing.

This was a period when heavy freight cargoes were handled through
the canals and the streets were mainly the domain of pedestrians. The
city's size did not call for other special means of traffic since it
would be only a matter of a ten to twenty minutes' stroll to go from
home to the main shopping street or to the harbor or to the meadows
beyond the city limits.
As a result, only relatively narrow streets running in radial directions were made. Consequently, today's heavy traffic flow poses serious problems due to the concentric layout of the city together with the recent concentration of employment and facilities in the central area.

The increased use of the motor car compared to the use of other modes of transportation may be illustrated by the following table.

<table>
<thead>
<tr>
<th>Mode of Transport</th>
<th>1960</th>
<th>1968</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>abs#</td>
<td>abs#</td>
<td>abs#</td>
</tr>
<tr>
<td></td>
<td>(1000)</td>
<td>(1000)</td>
<td>(1000)</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>motorcar</td>
<td>67</td>
<td>93</td>
<td>+26</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>40</td>
<td>+40</td>
</tr>
<tr>
<td>streetcar, bus</td>
<td>59</td>
<td>70</td>
<td>+11</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>30</td>
<td>+20</td>
</tr>
<tr>
<td>bicycle</td>
<td>155</td>
<td>72</td>
<td>-83</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>30</td>
<td>-53</td>
</tr>
<tr>
<td>________________________</td>
<td>______</td>
<td>______</td>
<td>_______</td>
</tr>
<tr>
<td></td>
<td>281</td>
<td>235</td>
<td>-46</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>100</td>
<td>-16.5</td>
</tr>
</tbody>
</table>


A main reason for the decline in the use of bicycles is the decrease in residential densities within the pre-war city limits. This causes an overall increase in the travelling distances between house and work per person. Thus, whereas in 1957 the number of bicycles leaving the inner city in an evening rush hour was five times higher than the number of cars doing so, in 1968, the number of bicycles and cars were approximately equal.

Studies of the expected development of the city and of future transport needs show that it will not be possible to divert all increased journey-to-work traffic to the motorcar. A feasible economy
solution for Amsterdam would be the organization of a means of public transport, which eventually will have to carry about 60% of the journey-to-work traffic. In order to meet this demand, a network of subway tracks (metro) has been projected. It will consist of three radial lines, which are routed in such a way that 80% of all destinations will lie within walking distance from the stations. The maximum journey time from the periphery to the center, walking included, will be 35 minutes. With this network, it will be possible to reduce auxiliary travel by bus lines.

A regional railway network is also being considered which would serve areas lying within the region of Amsterdam. The lines of this system would be part of the national railway network, supplemented by a number of new lines to proposed new towns. In all probability, a necessary part of this regional railway system would be a new line through the heart of the city running north south.

For motor traffic, the outline plan proposes a network of roads:
- regional traffic would be conveyed to the city by a system of radial highways. Some exist already; others are under construction. These highways would terminate on the main beltway.
- urban traffic would be conveyed over a network of main urban motorways. Their function would be to carry the traffic over city-wide distances. Some parts of these roads have already been completed, including the one that connects the inner city with Amsterdam North and includes the Y-tunnel.
Local traffic is the most difficult part of the urban road system, especially within the old city. Traffic studies should continue to be carried out in close relation to urban renewal proposals. It is probable that only a limited number of motorways with heavy traffic should be tolerated within the urban renewal areas. They should, in general, terminate on a ring road along the margin of the old or "inner" city. These local or secondary roads should have exits and intervals of about half a mile. In the more recent town extensions, these roads would be elevated, so that pedestrians and cyclists can pass them unhindered. Several miles of these have already been constructed.

One integral part of the traffic system is the plan which restricts parking facilities. For this purpose, the city has been divided into a number of zones. Zones lying nearer to the center would be provided with less parking space for long term use than would zones with higher residential densities which are located nearer to the outskirts of the city.

In general, car parking capacity is brought into balance with the capacity of the road network as well as with the proximity of future metro stations.

The accessibility of the inner city by car has reached its ceiling in terms of the number of parking spaces available. This ceiling will not be lifted in future plans, and the number of parking spaces in public open space will be reduced by providing more parking garages at
appropriate locations. Total parking space for inner city will be restricted to serve some 30,000 cars.

In spite of these restrictions, the accessibility of the inner city may substantially be improved by providing better means of public transportation. The metro network may eventually quadruple the accessibility of the inner city when completed. (Total accessibility per hour of inner city in one direction may be estimated at that time at some 250,000 persons, of which 130,000 may travel by subway, some 40,000 by regional and intercommunal railway, 50,000 on bicycle or foot and some 30,000 by car - calculating that the 30,000 cars that may have access will have an average occupancy of 1.5 persons.)

d. **Outdoor Recreation**

The Netherlands and, in particular, the environs of Amsterdam have little to offer in the way of nature. Every person, young and old, will have to be sure that in this increasingly densely populated country there will be sufficient space for him to spend his leisure time in his own way, whether alone or with others. The question here will be whether his enjoyment of leisure must still be regarded as 're'-creation, i.e. as relaxation after work; or as 'creation', i.e. as forms of activity in the greater amount of free time which will eventually be available.

In the Amsterdam General Extension Plan, recreational standards were set on the basis of careful observations of people's behavior during their leisure time spent in parks. The amount of leisure time for the average inhabitant in that pre-war period has changed so much
in the meantime that these standards - however progressive they may have seemed in the thirties - have become out-of-date by now (from more than 48 hours per week in 1935 to less than 40 hours per week today).

The required area of parks was, for example, put at 5.2 square yards per person, and these were so located that those serving the daily needs of residential areas were at a maximum distance of a quarter of a mile from the dwellings. Larger parks, where a longer time was spent, were planned to serve an area within a radius of half a mile. There were no wooded areas in the immediate vicinity of Amsterdam. As mentioned earlier, the General Extension Plan incorporated the Amsterdam Wood.

The ideas about the use of recreational areas have changed over the years and there is now a greater diversity of use. This should remind us of the possibility that those who come after us will have different ideas again, so that it will always be necessary to leave ample margin for new possibilities.

Parks are also more intensively used today than previously. Playing fields are no longer used only by the players. In well-equipped clubhouses, relatives and friends are also welcome, thus increasing the recreational value of these facilities.

Standards for the amount of space per person for sport facilities, set at 4.6 square yards in the General Extension Plan, are, therefore, no longer adequate and should be raised to 7.75 square yards per person or perhaps higher in view of new developments regarding organized sports.
As for the large outdoor recreational parks, like the Amsterdam park, we see appearing next to the enjoyment of nature new uses such as day camping in tents, paddling in small rubber boats, riding - including the use of small amenable ponies - walking, cycling, fishing, rowing, playing and resting. One feature of outdoor recreation that merits special mention is the boom in physical exercise called 'trimming.' In all these cases, the spatial demands for parking the car are a menace to recreational opportunities so that additional and better situated parking spaces must be provided.

All in all, it may be concluded that Amsterdam did not start with myopic approaches in the late thirties. Nevertheless, far too little has been done for the sake of recreation of its inhabitants.

If we consider the shortcomings, it appears that in the post Second World War plans for residential areas, too little attention was paid to all the aspects of a genuine residential environment (the area in the immediate vicinity of the dwelling). While there was plenty of open space in the neighborhoods and these spaces were generously apportioned, the number of car ownerships have increased and young people have been deprived of recreational space. (Car ownership per 1,000 inhabitants in Amsterdam increased from 25.5 in 1950 to 78.3 in 1960, and to 255 in 1970; the expectations are for an increase to 350 in 1980.)

Playing in the street before and after school is a part of the Dutch child's way of life, but it has become a hazardous activity in the older parts of the city. Children and traffic have become increasingly a mutual threat. Quite soon after the war, an experiment provided for a few toddlers' play areas, open to the public and provided with a sandpit, climbing equipment and seats for older people. The
experiment was a remarkable success. From that time a large number of these play areas, varying in size, were systematically laid out in the old as well as in the new districts. For the younger children, basket and volleyball ball pitches and roller skating rinks were provided. In addition, in the new neighborhoods, a greater number of footpaths were provided to create a separate domain for the playing child.

In the future, Amsterdam will be the main center in an urban region with some two or three million inhabitants. This urban region should be considered as a whole from many points of view. Many functions will have to find their definite place in it, and the need for space for outdoor activities in the conglomeration's open space will have to be considered.

The allocation of space near the coast - some fifteen to twenty miles to the west - affords great possibilities, but these must be shared with visitors from the rest of the country and from abroad. The preparation of a recreational area of about 6,900 acres on the southern side of the North Sea Canal between Haarlem, Velsen, and the western extensions of Amsterdam has been started. Later this zone will be extended north of the North Sea Canal. Another area in Waterland to the east of the Zaan district, called the Twiske polder, is also being developed into a recreational park. Finally, an important recreational area is envisioned to the east side of Amsterdam, bordering the future Y-lake and lying between Amsterdam and the new town of Almere, on the southern border of the reclaimed land of the former Zuyderzee.
e. Regional development

In past centuries, easy access to the open sea represented a basic condition for the economic development of a region. For Amsterdam and its surrounding areas, the North Sea Canal provided the needed access. The economic potential of this canal generated important port and industrial activities in the Zaan district, timber and food industry, and in the Y-estuary, fishing, iron and steel works. Haarlem developed into a provincial administrative and service center, while in the Cool, the residential district to the east of Amsterdam, radio and television industries quickly developed. Today, the core area in the regional outline plan is the Amsterdam agglomeration with a great port and industrial zone located on the west side and the Schiphol International Airport on the south side.

Three radial extensions of this regional area have been proposed for both work and residence. The effect of these extensions will be to involve a much larger area - up to 25 to 30 miles from Amsterdam - in the development of the city. The northwestern extension will be towards Alkmaar and the northern one towards Hoorn. Each of these two wings will be able to absorb a population of about 300,000 inhabitants, with a more distant future growth upwards to half a million. The northeastern wing will be in the direction of the new towns of Almere and Lelystad. This wing will presumably have the same population capacity as the two wings mentioned before.

5. Some Information on Administrative Issues

a. The Department of Public Works of Amsterdam*

The Public Works Department is one of the 45 departments and services

* A more extensive description of the function and organization of the Public Works Department is available at the library of the Center for Metropolitan Planning and Research, The Johns Hopkins University. Description dated 1965.
which assist the city administration in performing its task. The other
departments and services deal with housing, health, code enforcement,
social care, fire and crime protection, garbage collection and environmental
hygiene, water supply, energy supply, etc.

The department is subdivided into nine sectors, each of which is headed
by an assistant director. The following sectors and subdivisions may be
distinguished:

1. General Management
   - Secretariat
   - Accounting
   - General and Economic Affairs
   - Public Relations

2. Personnel Management
   - Personnel and Salary Affairs
   - Organizational Affairs
   - Social and Human Relations

3. Urban Development
   - General Affairs
   - Legal Affairs
   - Research (several branches)
   - Design (several branches)

4. Land Administration
   - Financial Accounting
   - Land Release
   - Land Acquisition
   - Rent and Lease Affairs
   - Topographic Documentation
   - Planning Control and Land Value Assessment

5. Civil Engineering I
   - Parks
   - Roads
   - Sewage and Water Quality Control
   - Site Preparation

6. Civil Engineering II
   - Bridges
   - Harbors and Hydraulics
   - Tunnel Construction
   - Subway Construction

7. Building Engineering
   - Buildings (design and construction)
   - Building (maintenance)
   - Technical Equipment

<table>
<thead>
<tr>
<th>Sector</th>
<th>Subdivision</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Management</td>
<td>Secretariat</td>
</tr>
<tr>
<td>Personnel Management</td>
<td>Personnel and Salary Affairs</td>
</tr>
<tr>
<td>Urban Development</td>
<td>General Affairs</td>
</tr>
<tr>
<td>Land Administration</td>
<td>Financial Accounting</td>
</tr>
<tr>
<td>Civil Engineering I</td>
<td>Parks</td>
</tr>
<tr>
<td>Civil Engineering II</td>
<td>Bridges</td>
</tr>
<tr>
<td>Building Engineering</td>
<td>Buildings (design and construction)</td>
</tr>
</tbody>
</table>
3. Soil mechanics
   - Research Laboratory
   - Advice Management

9. Preservation of historic buildings
   - Design
   - Construction

The following table shows the financial budget* in 1964 and the number of employees on May 1, 1965, in the Public Works Department:

<table>
<thead>
<tr>
<th>Function</th>
<th>Budget '64 (mil. gld.)</th>
<th>No. of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhead Functions (1, 2, and 3)</td>
<td>0.7</td>
<td>246</td>
</tr>
<tr>
<td>Urban Development (3)</td>
<td>2.9</td>
<td>139</td>
</tr>
<tr>
<td>Land Administration (4)</td>
<td>1.0</td>
<td>298</td>
</tr>
<tr>
<td>Civil Engineering I (5)</td>
<td>112.4</td>
<td>543</td>
</tr>
<tr>
<td>Civil Engineering II (6)</td>
<td>64.1</td>
<td>294</td>
</tr>
<tr>
<td>Bldg. Engineering (7)</td>
<td>64.3</td>
<td>376</td>
</tr>
<tr>
<td>Preservation of Bldgs. (9)</td>
<td>1.7</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>247.6</strong></td>
<td><strong>1822</strong></td>
</tr>
</tbody>
</table>

b. The Lease-Hold System **

The major part of the municipal territory of Amsterdam is property of the municipality. Building sites are not sold out but have been let out on long-lease terms. This arrangement dates from a municipal act in 1896, when the Council decided that the increase in land values, because of a growing demand for space, should benefit the community as a whole and not landowners. In 1966 an investigation into the question of whether the lease-hold system is still a useful institution led to a confirmation of the principle. The main arguments were the same as in 1896, the only difference being that support for them had increased over the years:

* This consumes approximately 60% of the city's annual budget of which approximately 50% again is spent on traffic improvements.

**An explanation concerning the history and the functioning of this system is available at the library of the Center for Metropolitan Planning and Research at the Johns Hopkins University. Entitled 'Lease-Hold in Amsterdam.'
Costs of preparing sites for building are high and carried by the municipality.

These costs do not break even with revenues of sites at purchase.

Municipal sacrifice is required to enhance quality of living conditions in the city. As a consequence it is only fair that the benefits of these improvements go to the municipality.

Since 1966 lease-hold contracts have been issued for lands with residential as well as industrial or commercial uses. These contracts cover a period of 50 years, and will be automatically continued, if no extraordinary objections from the municipality arise with regard to existing or future land-use interests of the community.

Ground rents are re- assessed only in two ways:

1. Every fifty years - on dates specified on the lease-contracts - re-estimates of the real value of the land are set up and agreed upon. Evaluation may have changed because:
   - location of the site has improved in the course of time
   - accessibility has become better
   - scarcity of space has increased, etc.

2. Every five years re-estimates of the nominal value are set up and agreed upon. This evaluation is determined by changes in the buying power of money. The annual rent is then refixed according to the altered average price-level for the net national product. These alterations are periodically published as index-figures by the C.B.S. (Central Bureau of Statistics).
<table>
<thead>
<tr>
<th>Year</th>
<th>Inhabitants</th>
<th>Employment</th>
<th>Means of Transport</th>
<th>Max. Home-Work Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1830</td>
<td>202,000</td>
<td>69,000</td>
<td>Walking, boats, horses</td>
<td>Approx. 2 miles (45 min. walk)</td>
</tr>
<tr>
<td>1920</td>
<td>750,000</td>
<td>285,000</td>
<td>Walking, bicycle, streetcar</td>
<td>2 to 3 mi. (30 to 45 min.)</td>
</tr>
</tbody>
</table>
APPENDIX II

1960

inhabitants : 870,000
employment : 370,000
commuters (balance) : 24,500
means of transport : walking, bicycle, moped, tram, car
max. home-work distance : 4 to 6 mi. (30 to 45 min.)

1970

inhabitants : 831,000
employment : 383,000
commuters (balance) : 59,000
means of transport : walking, bicycle, moped, tramway, bus, motorcar
max. home-work distance : 5.5 to 10 mi. (45 to 80 min.)
Population Figures

<table>
<thead>
<tr>
<th>Date</th>
<th>Centrum</th>
<th>Amsterdam</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 Dec. 1889</td>
<td>310.067</td>
<td>408.061</td>
</tr>
<tr>
<td>31 Dec. 1909</td>
<td>268.180</td>
<td>566.131</td>
</tr>
<tr>
<td>31 Dec. 1920</td>
<td>255.805</td>
<td>647.427</td>
</tr>
<tr>
<td>31 Dec. 1930</td>
<td>182.940</td>
<td>757.386</td>
</tr>
<tr>
<td>1 July 1936</td>
<td>156.928</td>
<td>782.500</td>
</tr>
<tr>
<td>31 May 1947</td>
<td>144.549</td>
<td>803.847</td>
</tr>
<tr>
<td>31 Dec. 1966</td>
<td>106.392</td>
<td>866.421</td>
</tr>
</tbody>
</table>

*Excl. the area that has been added to Amsterdam on 1-1-1921*
afbeelding 38 structuurachtergrond aggregatie Amsterdam (Outline Plan in Preparation)
The following graph illustrates the relation between growth in economic welfare and its effects on space demands. Since the graph shows index-figures only, the following table containing absolute approximates may eventually be of some help for the purpose of research on comparable situations in the United States.

<table>
<thead>
<tr>
<th></th>
<th>5720  ha in 1940</th>
<th>2450  ha in 1940</th>
<th>2150  gld in 1940</th>
<th>107,000 in 1940</th>
<th>221,000 in 1940</th>
<th>800,600 in 1940</th>
<th>3.65 in 1940</th>
</tr>
</thead>
<tbody>
<tr>
<td>urban area (incl. sites in prep.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>urban area</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>real income per capita (1963 price-level)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>families</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dwellings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>inhabitants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>average dwelling occupancy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>categorie</td>
<td>1940</td>
<td>%</td>
<td>1963</td>
<td>%</td>
<td>index</td>
<td>1940</td>
<td>%</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------</td>
<td>------</td>
<td>-------</td>
<td>------</td>
<td>-------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>havens en bevaren wateren</td>
<td>1159.7</td>
<td>20.3</td>
<td>1274.7</td>
<td>21.6</td>
<td>107.4</td>
<td>1787.7</td>
<td>17.6</td>
</tr>
<tr>
<td>spoorwegen en emplacementen</td>
<td>177.4</td>
<td>3.1</td>
<td>227.2</td>
<td>3.8</td>
<td>117.9</td>
<td>267.6</td>
<td>2.6</td>
</tr>
<tr>
<td>grote parken, bos</td>
<td>309.2</td>
<td>5.4</td>
<td>84.1</td>
<td>1.4</td>
<td>113.0</td>
<td>287.6</td>
<td>2.6</td>
</tr>
<tr>
<td>buurtparken, plantsoenen</td>
<td></td>
<td></td>
<td>352.7</td>
<td>3.5</td>
<td></td>
<td>937.3</td>
<td>17.6</td>
</tr>
<tr>
<td>gazons</td>
<td>314.6</td>
<td>5.5</td>
<td>34.1</td>
<td>0.6</td>
<td>163.1</td>
<td>167.6</td>
<td>0.9</td>
</tr>
<tr>
<td>sportterreinen</td>
<td></td>
<td></td>
<td>9.3</td>
<td>0.2</td>
<td>171.2</td>
<td>9.3</td>
<td>0.1</td>
</tr>
<tr>
<td>speelplaatsen</td>
<td>275.2</td>
<td>4.8</td>
<td>221.4</td>
<td>2.2</td>
<td>185.0</td>
<td>9.3</td>
<td>0.1</td>
</tr>
<tr>
<td>jeugdterreinen</td>
<td>1207.5</td>
<td>21.1</td>
<td>1611.4</td>
<td>15.9</td>
<td>113.3</td>
<td>70.6</td>
<td>0.7</td>
</tr>
<tr>
<td>volkstuinen</td>
<td>887.3</td>
<td>15.5</td>
<td>1447.3</td>
<td>14.3</td>
<td>109.4</td>
<td>483.2</td>
<td>4.8</td>
</tr>
<tr>
<td>industrieer in aanmaak</td>
<td>321.6</td>
<td>5.6</td>
<td>483.2</td>
<td>4.8</td>
<td>106.9</td>
<td>93.6</td>
<td>0.9</td>
</tr>
<tr>
<td>opgehoogd terrein</td>
<td>262.6</td>
<td>4.6</td>
<td>386.7</td>
<td>3.8</td>
<td>120.0</td>
<td>157.4</td>
<td>1.4</td>
</tr>
<tr>
<td>opeenhoopt terrein</td>
<td>434.6</td>
<td>7.6</td>
<td>2517.4</td>
<td>24.9</td>
<td>89.4</td>
<td>111.4</td>
<td>1.0</td>
</tr>
<tr>
<td>terrein in aanmaak</td>
<td>253.1</td>
<td>4.5</td>
<td>345.3</td>
<td>3.4</td>
<td>249.2</td>
<td>170.8</td>
<td>1.6</td>
</tr>
<tr>
<td>lintbebouwing</td>
<td>14.2</td>
<td>0.3</td>
<td>192.2</td>
<td>3.9</td>
<td>98.9</td>
<td>9.3</td>
<td>0.2</td>
</tr>
<tr>
<td>dijken</td>
<td>13.3</td>
<td>0.2</td>
<td>171.8</td>
<td>3.2</td>
<td>85.1</td>
<td>9.9</td>
<td>0.2</td>
</tr>
<tr>
<td>woonwagenkamp</td>
<td>1.0</td>
<td>0.0</td>
<td>232.5</td>
<td>4.6</td>
<td>59.4</td>
<td>9.9</td>
<td>0.2</td>
</tr>
<tr>
<td>op 1 januari</td>
<td>5717.0</td>
<td>100.0</td>
<td>10147.3</td>
<td>100.0</td>
<td>115.9</td>
<td>10147.3</td>
<td>100.0</td>
</tr>
<tr>
<td>totaal stedelijk gebied</td>
<td>2442.5</td>
<td>42.6</td>
<td>3569.8</td>
<td>35.1</td>
<td>111.9</td>
<td>1711.8</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Totaal landelijk gebied**

**Totaal gehele gemeente**

**Explanation of Definitions Used in Appendix V:**

- **Urban Area (incl. sites in prep.):**
  - "Total Urban Area" (U)
- **Urban Area =**
  - "Total residential area" (R)

- **Grondgebied naar gebruik per categorie in ha op 1 Januari:**

- **Total municipal territory**

**INDEX**

- Havens en bevaren wateren
- Spoorwegen en emplacementen
- Industrieer in aanmaak
- Opgehoogd terrein
- Jeugdterreinen, speelplaatsen
- Volkstuinen, schoolwerktuinen
- Bouwblokken, huizen
- Sportplaatsen, ideeën en bomen
- Volkstuinen, tuinderijen
glands

- **Water**
- Havens, storage and military land
- Bouwwerken
- Tuinderijen
- Veenderijen
- Grasland
- Port-, storage- and military areas
- Arable land
- Pastures
- Peat-cuttings
APPENDIX VI  Page 29

SOME READINGS ON PHYSICAL PLANNING IN THE NETHERLANDS THAT ARE AVAILABLE AT THE CENTER FOR METROPOLITAN PLANNING AND RESEARCH, JHU


2. Text of the Physical Planning Act (as revised by the Act of April 20, 1964).


5. A series of eight documents, dealing with topics on physical planning in the Netherlands, edited by the Information Service of the Ministry of Housing and Town Planning, The Hague.
   5.2 Residential Environment (ditto for 1969).
   5.3 Traffic and Transport, in particular in urban areas (ditto 1970).
   5.4 Rural Areas (ditto 1971).
   5.6 The "Randstad", urbanized zone in the Netherlands, March 1970.
   5.7 The Development of the South-West Region of the Netherlands, April 1971.
   5.8 Some Salient Points of the Physical Planning Act, October 1969.


9. Stedebouwkundig Plan voor Lelystad, special issue in the three monthly periodical 'Driemaandelijkse Bericht betreffende de Zuiderzeewerken', edited by the ministry of Traffic and later Control, the Hague, July 1964. Authors: Prof. C. van Eesteren in cooperation with Gotz Massuti.


13. Function and Organization of the Public Works, Department of the City of Amsterdam, 1965, by R. A. van Oiraven. Director of P.W.E.


17. Lease-hold in Amsterdam, ed. by Public Works Department, 1979.