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جامعة عين شمس  
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قسم التخطيط  
العمراني

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**Analytical And Comparative Study Of Rates Of  
Services Inside The Cities In Light Of  
Planning Standards And Rates**

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دراسة تحليلية مقارنة لمعدلات الخدمات داخل المدن في  
ضوء المعايير والمعدلات التخطيطية

Thesis for the Fulfillment of Master Degree

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وكذلك اتوجه بجزيل الشكر للجهات التي يسرت اتمام هذا البحث  
وهي :

- (١) هيئة المجتمعات العمرانية الجديدة
- (٢) الهيئة العامة للتخطيط العمراني
- (٣) جهاز تنمية مدينة السادس من اكتوبر

## ملخص

"دراسة تحليلية مقارنة لمعدلات الخدمات داخل المدن في ضوء المعايير  
والمعدلات التخطيطية"

### مقدمة:

اهتمت الدراسات والأبحاث المصرية خلال السنوات الماضية بقضية المعدلات التخطيطية في المدن والمجتمعات العمرانية الجديدة في مصر. ولقد كان هذا الاهتمام طبيعياً في ظل حركة العمران الواسعة التي تشهدها البلاد، والاتجاه القوي نحو إقامة المدن والمجتمعات العمرانية الجديدة في أماكن مختلفة من الجمهورية، بهدف تخفيف المشكلات الإسكانية التي تتعرض لها البلاد بوجه عام والمدن الكبرى بوجه خاص.

لذلك فمن المناسب أن نتناول الدراسة موضوع المعدلات والمعايير التخطيطية لخدمة المجتمعات السكانية في مصر، حيث أن عنصر الخدمات من العناصر وثيقة الارتباط باحتياجات السكان. وبالتالي نحتاج لدراسة الخدمات السكانية، وصولاً لمعرفة مدى ملاءمتها لاحتياجات السكان من جهة وإمكاناتهم من جهة أخرى.

أي تحليل هذه الخدمات من النواحي العمرانية، الاجتماعية والاقتصادية، حيث أن تكلفة الخدمات مرتفعة بالنسبة لتكلفة التجمع السكني ككل.

بالنظر لهذه النواحي تم رصد بعض الملاحظات:-

- 1- نقص بعض الخدمات العمرانية - في المناطق العمرانية القائمة أو الجديدة - رغم اتساع مساحتها أو وجود فائض بها رغم صغر مساحتها.
- 2- ظهور بعض الخدمات في أماكن لم تخطط لها.

- ٣- اختفاء بعض الخدمات من الاماكن المخططة لها.
- ٤- بعض الخدمات تجتذب خدمات وانشطة اخرى للنمو بجوارها.
- ٥- بعض مشكلات المرور تنمو حول بعض الانشطة والخدمات العمرانية.
- ٦- ظهور نوعيات جديدة من الخدمات تؤثر بشكل مباشر و غير مباشر على العديد من الخدمات المتعارف عليها.
- ٧- التغير المستمر في مخططات المجتمعات الجديدة فور البدء في تنفيذها او تعرضها للعرض والطلب.

وفي محاولة لتحديد المشكلة من خلال هذه الملاحظات كان علينا طرح الاسئلة التالية:

- ١- هل المعدلات والمعايير العمرانية في مصر ثابتة؟
- ٢- هل الاشتراطات والمعايير التصميمية المستخدمة الآن في مصر مناسبة للمجتمع المصري الحالي؟
- ٣- ما مدى تأثير مستوى وموقع الخدمة بالنسبة لشبكة الطرق والاستخدامات المحيطة، على كفاءة الخدمة والتقييم الحقيقي لها؟

#### **فرضية البحث:-**

يحتاج المجتمع المصري الحالي الى توجه جديد للمعدلات والمعايير التصميمية للمجتمعات العمرانية، يرتكز على التصنيف الاقتصادي والثقافي للمجتمعات. هذه المعايير التصميمية يجب ان تعالج من خلال ادارة التنمية تنمية المجتمع ككل.

#### **هدف الدراسة:-**

تهدف الدراسة الى التحقق من مدى مواءمة المعايير والمعدلات المحلية والعالمية المستخدمة في تخطيط الخدمات العمرانية، للتطبيق داخل المجتمع المصري، وذلك من خلال دراسة مقارنة لنماذج من التطبيقات المحلية والعالمية.

## منهجية البحث:-

لتحقيق الهدف من الدراسة، تم الاعتماد أولاً على دراسة تحليلية نظرية تلتها دراسة حالة ميدانية. ويمكن تلخيص المنهجية المتبعة كما يلي:-

### أولاً: التحليل النظري وتحديد الفرضيات النظرية:

وهنا تم تحليل التجمعات العمرانية ( احجامها، احتياجاتها وكيف يتم تخطيط وادارة الخدمات بها) من هذه التحليلات تم الوصول الى بعض الافتراضات النظرية والتي سيتم اختبارها من خلال الدراسة الميدانية. ايضاً قامت هذه التحليلات بتوجيه البحث الى افضل طرق تناول الدراسة الميدانية والبيانات المطلوبة وافضل طرق تحليلها.

### ثانياً: اختبار الافتراضات النظرية من خلال الدراسة الميدانية: -

وهنا تم اختيار منطقة الدراسة والتركيز على بعض العينات داخلها، وكذا تصميم استبيان تم تحليله احصائياً، وصولاً الى المؤشرات الاولية التي نحتاجها لتخطيط خدمات عمرانية ناجحة.

## هيكل البحث:-

يتكون البحث في جزئين:

### الجزء الاول:

يتناول في ثلاثة فصول الدراسة النظرية: تحليل المجتمعات العمرانية وخدماتها والعوامل المختلفة المؤثرة على عملية تخطيط الخدمات العمرانية وكذا تحليل تفصيلي لكل خدمة على حدى.

## الجزء الثاني:

ويتناول في دراسة الحالة، معايير اختيارها وبياناتها الاساسية. ثم تحليل مناطق الدراسة التفصيلية ومقارنة الخدمات القائمة والمخططة، وايضاً مقارنة المعدلات بها مع المعدلات العالمية والمحلية الاخرى. واخيراً يتم عرض نتائج البحث وتوصياته.



## **Abstract:**

### **Analytical And Comparative Study Of Urban Residential Services Rates In Light Of Planning Design Standards And Rates**

The Egyptian studies and researches were interested, in the recent years, in the issue of planning rates and design standards in the cities and urban communities in Egypt. This interest was quite natural, in the light of the massive urbanization process all over the country, and the strong orientation towards the establishment of new cities and communities in different parts of the country in order to reduce the housing problems in the whole country and in big cities in particular.

Therefore, the study is appropriate to handle the planning rates and design standards for serving the housing communities in Egypt, considering the service facility elements are closely related to housing. Thus, studying the housing service facilities required and their appropriateness to the inhabitants needs and capabilities.

That's to say, analyze these service facilities from the urban design, social and economic aspects, as the service facilities costs are relatively high in proportion with the total cost of all the housing community.

**On focusing on these aspects few points were observed:**

1. In many new and old districts in Egypt, for some urban service facilities there is lack in spite of their large areas with respect to standards or excess though they occupy relatively small areas.
2. Some service facilities were located in places that were not planned for them.
3. Some service activities diminish in places planned for them.
4. Some service activities attract other activities to grow or accumulate around them.
5. Several traffic problems grew around some services activities.
6. New sorts of services appear that may affect the old ones.

7. Continuous change of plans of new communities at the beginning of their implementation or their subject to supply and demand law.

Trying to define our problem here through these observations will direct us to ask the following questions:

1. Are the rates and standards of urban residential services in Egypt stable?
2. Are the design specifications of residential services used now in Egypt applicable to the present Egyptian community?
3. How much does the location and quality of urban services with respect to road system and other land-use affect their functionality and so the real evaluation of the service?

### Study Hypotheses

The present Egyptian community needs new approach for design rates and standards based on economic and cultural classification of communities. These design standards must be managed through the management of the urban development of the whole community.

### Aim Of The Study

This study aims to verify the compatibility of local and global design rates and design standards of planning urban residential services to be applied to the present Egyptian community, through a comparative analytical study of some local and global examples.

### The Study Methodology

To achieve the aim of the study, it was based on a theoretical analytical study followed by a field survey.

The used methodology can be summarized as followed:

**First:** the theoretical analysis and determining the theoretical hypotheses:

Here the urban communities were theoretically analyzed (their sizes, requirements and how their service are planned and managed). From

this analysis we reached some theoretical hypotheses which will be tested through the field survey study.

This analysis also directed the study to the optimum method of handling the field survey, the required data and also the most suitable method of analysing the data.

Second: Testing the theoretical hypotheses through the field study:

Here we test the study area and samples, and design some "questionnaire" which will be statically analyzed to produce the primary indicators we need for planning for our successful urban community services.

### Study Structure

The study consisted of two parts:-

The first part deals in three chapters with the theoretical study, analyzing the urban community and its facilities, as well as the different aspects involved in the process of planning for the urban services facilities.

The second part: states the case studied, criteria of selecting the study areas and its basic data, then analyzing the detailed study areas and compare their actual services with their design rates and the different global and local rates used in planning urban service facilities.

Then the study conclusions and recommendations are produced.

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## Part One: Theoretical Study

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## **Chapter One: The Community**

## **1-1) Introduction**

The Egyptian studies and researches were recently interested in the issue of planning rates and design standards in the cities and urban communities in Egypt. This interest was quite natural, in the light of the massive urbanization process launched all over Egypt, and the strong orientation towards the establishment of new cities and communities in different parts of the country in order to reduce the housing problems in the whole country and in large cities in particular.

Therefore, the study is concerned with the planning rates and design standards serving the housing communities in Egypt, considering that the service facility elements are closely related to housing. Thus, studying the housing service facilities as well as its appropriateness to the inhabitants' needs and capabilities is required. That is, to analyse such service facilities as for the urban design, social and economic aspects, since the service facilities costs are relatively high in proportion with the total cost of all the housing community.

On focusing on these aspects some points were **observed**:

1. In many new and old districts in Egypt, there is lack in some urban service facilities in spite of their large areas with respect to standards or excess though they occupy relatively small areas.
2. Some service facilities are located in places that were not planned for them.
3. Some service facilities diminish in places planned for them.
4. Some service activities attract other activities to grow or accumulate around them.
5. Several traffic problems grow around some services activities.
6. New sorts of services appear that may affect the old ones.

7. Continuous change of plans of new communities at the beginning of their implementation or their subject to supply and demand law.

Trying to define the research problem through these observations will lead to the following questions:

1. Are the rates and standards of urban residential services in Egypt stable?
2. Are the design specifications of residential services used now in Egypt applicable to the present Egyptian community?
3. How much does the location and quality of urban services with respect to road system and other land-use affect their functionality and so the real evaluation of the service?

#### **1-1-1) STUDY HYPOTHESES**

The present Egyptian community needs new approach for design rates and standards based on economic and cultural classification of communities. These design standards must be managed through the management of the whole urban development of the community.

#### **1-1-2) AIM OF THE STUDY**

This study aims to verify the compatibility of local and global design rates and design standards of planning urban residential services to be applied to the present Egyptian community, through a comparative analytical study of some local and global examples.

#### **1-1-3) THE STUDY METHODOLOGY**

The research starts by a theoretical study followed by an analytical comparative study of local and global examples.

The applied methodology shown in figure (1-1) can be summarized as follows:

First: theoretical analysis and determination of the theoretical hypotheses:

In this part, the urban communities were theoretically analysed i.e., their sizes, requirements and how their service are planned and managed. Through this analysis some theoretical hypotheses were reached.

Meanwhile, this analysis directed the study to the optimum method of handling the case study, the required data and also the most suitable method of analysing the data.

Secondly: Testing the theoretical hypotheses through the case study.

Here, the study area and samples are tested and statically analysed, so as to produce the primary indicators needed for planning successful urban community services.

Comment [ss1]:

## STUDY METHODOLOGY

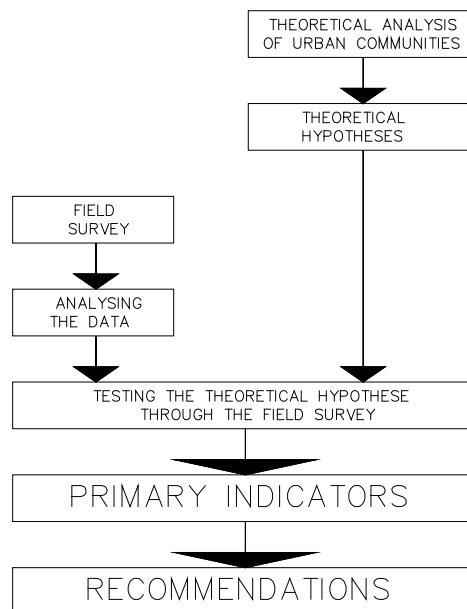


figure (1-1) the study methodology



## **1-1-4) STUDY STRUCTURE**

The study consists of two parts: -

Part One: in three chapters deals with the theoretical study, analysing the urban community and its facilities, as well as the different aspects involved in the process of planning the urban services facilities. Analysed examples of local and global cases of urban communities' services centres are presented when ever needed to illustrate whether they manage to succeed or not.

Part Two: states the case study, criteria of selecting the study areas and its basic data. Then, analysing the detailed study areas and comparing their actual services with their design rates and the different global and local rates used in planning urban service facilities.

Accordingly, the study conclusions and recommendations are deduced.

## **1-2) Setting Urban Communities**

The term "Community" is frequently used to refer to a geographical unit having certain common characteristics. But these common characteristics can be diverse. They can be political, administrative, social or economic. The difficulty of defining a community arises from the complexity and heterogeneity of the contemporary social fabric. Therefore, the most immediate task in defining a community is a search for the most crucial common characteristics. That's to say, a community is defined as a neighbouring geographical units – ranging from a small block to a large metropolitan region – whose members share the major portion of daily transactions of sustenance needs.

Community has taken many forms throughout recorded history. Whether it is wandering tribes of early man, the medieval concept of landschaft, the New England town, the grid of small-town America, the urban core or the suburbs, people's relationship with their environment and with other people has fluctuated and adapted to change. The cities of the world that have weathered the test of time and remained active population centres have evolved during

hundreds, and in some cases, thousands of years of constant modification. They have reasons for existing, which has not been incorrectly planned but has responded and been adapted to the societal evolution of the centuries.

**“ Regardless of their founders’ reasons for creating them, they have survived because they fulfil the commercial, social, and psychological needs of their citizens.”<sup>(1)</sup>**

The character and identity for which they are well known have developed as a direct response to their citizens’ need for order and sense of place. The success of the great cities of the world is due, in large part, to the trial-and-error method of the ancestors of community and city planning as they refined the best components, while discarding the unsuccessful, unlucky ones that failed to serve their intended purpose. What is left is not so much a testimony to the skilfulness of the planners, but rather reveals the present stage of the continuing evolutionary process of development.

**So, what is community?**

Community has a variety of connotations, so a few misconceptions must be cleared up: Community is not randomly accumulated parts or sections loosely tied-up together through roads and waterways, nor is it the homogeneous excess of interchangeable shopping centres, office building, housing, and open spaces.

Community also must not be thought of as a connection of special interest groups all asking for attention and demanding that their concerns be addressed. The divisiveness of this concept is opposing community.

According to Merriam-Webster’s collegiate dictionary, Tenth Edition, community is

**“An interacting population of various kinds of individuals (as species) in a common location” or “a group of people with a**

---

<sup>(1)</sup> Gerald A. Perterfield & Kenneth B. Hall, Jr.-1995, “A concise guide to community planning” P.5

**common characteristic or interest living together within a larger society.**<sup>(2)</sup>

Additionally, it can be the area in which a population lives, and may be identified with the way of life, e.g., a farming or a fishing community, a steel town, or a college, university town.

"A community may be known for some specific trait such as innovation, ingenuity, determination, or traditional values and morality. The term community also suggests a certain amount of interdependence and self-sufficiency, sometimes a result of necessity."<sup>(3)</sup>

In our rush to accommodate demographic explosion, we have been reacting to the exaggerated pace of development, and not managing or directing it. We have to reconsider our communities in terms of human scale rather than automobile scale. Paying attention to the time-distance relationship between our housing, employment, shopping, and recreation areas is critical if we are to achieve any realistic sense of community. Our cities and communities need to be of a finer texture, allowing more opportunity for interaction among our diverse people and thus enhancing our mutual understanding of one another by identifying and focusing on the commonalities among us.

George Tobey, in his book, *A HISTORY OF LANDSCAPE ARCHITECTURE: The relationship of people to the environment*,<sup>(4)</sup> says that

**" We need to establish goals that guide our planning efforts. He suggests that the values, habits, and objectives of the community's citizens must be addressed if community is to be achieved."**

From the physical standpoint, he suggests that good communities should adequately provide the means for moving goods, people, and information, allowing for maximum freedom of choice in interaction among residents while providing for their health, safety, and comfort.

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<sup>(2)</sup> Merriam – Webster's collegiate dictionary, tenth edition.

<sup>(3)</sup> Gerald A. Penterfield & Kenneth B. Hall, Jr.: 1995, " A concise guide to community planning "P.8

<sup>(4)</sup> George Tobey, " A history of landscape architecture: the relationship of people to the environment "

He further states that good communities are adaptable to future modification, and their image to be maintained as a unified whole.

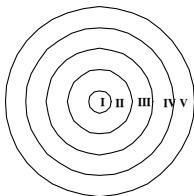
More over, we may add further goals that are tailored to our community's specific circumstances. The list is flexible and may change but the end result should be the same: **a methodology of workable parameters from which to approach the healthy growth of our communities.**

### 1-2-1) CONCEPTS OF CITY STRUCTURE

Four different descriptions of landuse patterns have been invented to describe resulting spatial organization of urban areas. Each theory sets certain general tendencies of arrangement, which will prevail unless modified by topographical or other disturbing influences. These descriptions indicate that urban land uses are distributed within concentric zones, sectors, multiple nuclei, linear, or iron-grid system.<sup>(5)</sup>

#### 1-2-1-1) Concentric Zone Concept

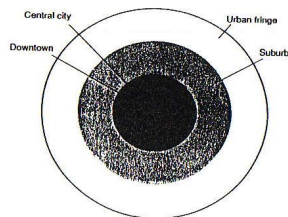
This theory assumes that the modern city would take the form of five concentric urban zones ... see figure (1-2). In out line, the zones are:<sup>(6)</sup>



- I. The central business district.
- II. Zone in transition.
- III. Zone of independent workingmen's homes.
- IV. Zone of better residences.
- V. The commuters' zone.

figure (1-2) the assumed theory for modern city

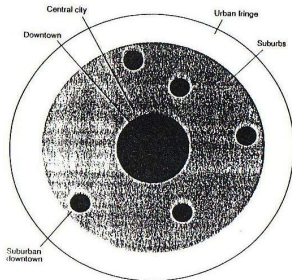
This structure represents the mono-centric city with suburbs, i.e. Pre-World War II ... see figure (1-3). The relative simple structure of the Pre-



<sup>(5)</sup> Dr. Shafek El-Wakeel, lectures on "City Planning"-1995-1996 figure (1-3) mono-centric city with

<sup>(6)</sup> Joseph De Chiara /Lee Keppelman, 1975. "Urban planning and design pre-world war II" P.495

World War II city contrasts sharply with the Post-World War II polycentric city ... see figure (1-4).



The automobile has created a city with several downtowns that each emulates the business mix associated with traditional downtown. This changing in the urban morphology takes place through many phases as shown in figure (1-5).

figure (1-4) polycentric city post-world war II

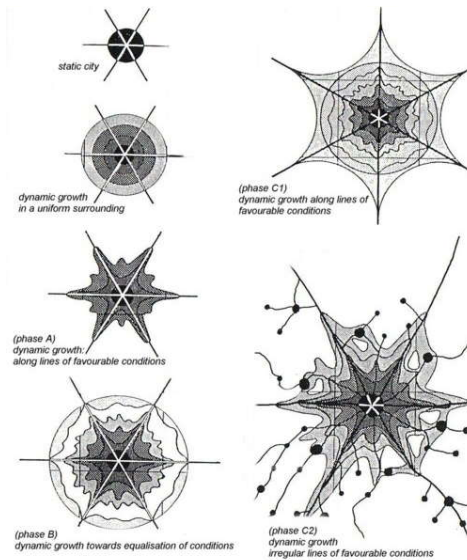


figure (1-5) phases of changing in urban morphology

### 1-2-1-2) Sector Concept

This theory holds that residential landuses tend to be arranged in sectors or wedges radiating from the centre of a city ... see figure (1-6). While each community has a different pattern, rent areas tend to conform to a pattern of sectors rather than to concentric circles.<sup>(7)</sup>

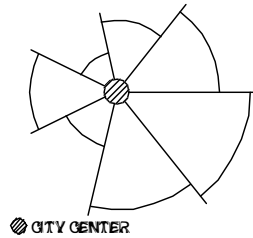


figure (1-6) residential land-uses in sectors

### 1-2-1-3) Multiple Nuclei Concept

A combination was made from the concentric zone and sector theory to explain the arrangement of landuses.

In many cities the land use pattern is not built around a single centre but around several discrete nuclei ... see figure (1-7). In some cities these nuclei have existed from the very origins of the city; in others they have developed as the growth of the city stimulated migration and specialization.... The initial nucleus of the city stimulated may be the retail district in a centre place city, the port or rail facilities in a break off city, or the factory, mine, or beach in a specialized function city.

The rise of separate nuclei and differentiated districts reflects a combination of four factors, as follows:<sup>(8)</sup>

- 1) Certain activities require specialized facilities.
- 2) Certain like activities group together because they profit from cohesion.
- 3) Certain different activities are harmful to each other.
- 4) Certain activities are unable to afford the rents of the most desirable sites.

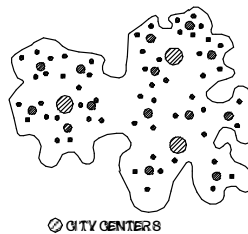


figure (1-7) cities landuse pattern built around several discrete nuclei

<sup>(7)</sup> Dr. Shafek El-Wakeel, lectures on "City Planning", 1995-1996.

<sup>(8)</sup> Truman Asa Hartshorn, Georgia State University, "Interpreting The City: An urban geography", 2<sup>nd</sup> edition, 1992.

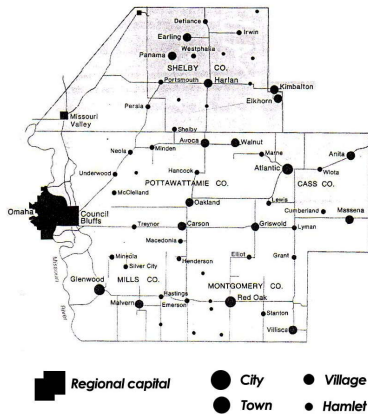


figure (1-8) central places in southwest Iowa, a five level central place hierarchy occurs in this market area

The residents patronize all central place levels for lower-order goods such as groceries. By comparing shopping preferences for a variety of goods or services (groceries, lawyers, hospitals... etc.), it is possible to see how large centres gradually emerge as the dominant places for the more specialized goods and services. ... see figure (1-9).

The number of nuclei, which result from historical development and the operation of localization forces, vary greatly from city to city. The larger the city is the more numerous and specialized the nuclei are.

Example: The region of Southwest Iowa, USA<sup>(9)</sup>

Here a five level hierarchy of central places are present in southwestern Iowa ... see figure (1-8). The Council Bluffs-Omaha area is indicated as a regional capital (the highest order). Atlantic, Red oak, and Glenwood represent the

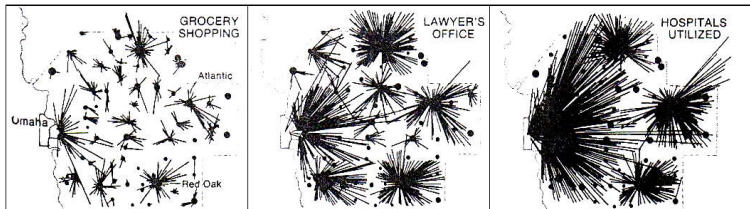


figure (1-9) consumer shopping preferences in southwest Iowa. the desire lines shown here for three different functions show increasing trip lengths for successively more specialized goods or services

<sup>(9)</sup> Truman Ase Hartshorn, Georgia State University, "Interpreting The City: An urban geography", 2<sup>nd</sup> edition, 1992, P.142-143.

#### 1-2-1-4) Linear Concept

Some cities were forced to take a linear form due to some barriers like land form, like seas, rivers and mountains. This system use different ways of handling the area served by each service, e.g. New Menia City, Egypt.<sup>(10)</sup> ... see figure (1-10), where the Nile River bound the city from the east and some serious landform from the east. Here, linear city form was a must and so the city centre.

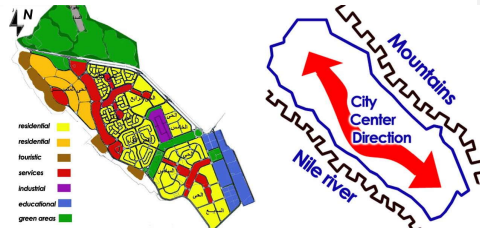


figure (1-10) new menia city: linear form of service center is forced by the Nile river and some serious land form

#### 1-2-1-5) Iron-Grid Concept

This was the basic concept for most roman cities as well as the colonial cities. This system has the advantages of easy communication, the ability to expand and easy supplied with utilities. But this system can't suit all land forms as well as being boring and need special treatment for most cross roads, e.g. New York City.<sup>(11)</sup> ... see figure (1-11), The iron grid

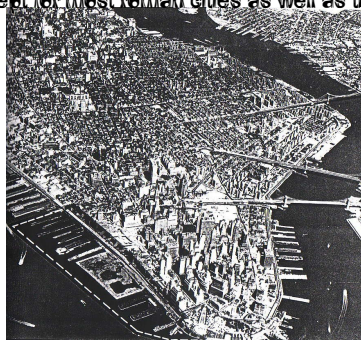


figure (1-11) ariel view of New York

pattern of New York City

is shown in figure (1-12), where the services are located along some specific avenues with high traffic. Here no service centre can be bounded.

<sup>(10)</sup> Final Report Of New Menia City Master Plan, 1997

<sup>(11)</sup> Lewis G. Redstone, Faia. "The New Downtown: Rebuilding Business Districts", 1976. P.113,116,117.



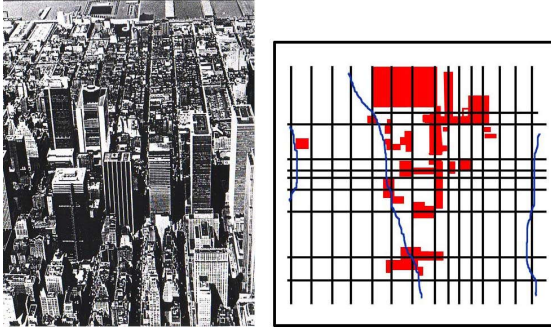


figure (1-12) the iron grid pattern of New York city, service grow along some specific avenues

### **1-3) The Principles Of Community Structure**

The structure of a town is based on a grouping of communities, each with a local centre. Because of the extent of the town, local centres are essential to cater for the every day social and shopping needs of the population within a reasonable walking distance.

The size of the communities in terms of population and area has to be determined by:

- The economic provision of social facilities related to population.
- Acceptable walking distance to:
  - .. The local centres.
  - .. The picking up points of the rapid transit system.
- Residential density, which gives satisfactory housing standards.

To determine the size of a residential unit or a neighbourhood or else, some controlling elements may be used to achieve such calculations, e.g. schools, parks, ...etc.

### 1-3-1) SYSTEM OF UNITS, SIZES AND CONTROLLING ELEMENTS

This system of units is mainly based on the relation between the population and a certain service element that they can support. So, this service element act as a controlling element that determine the number of inhabitants of a residential unit of neighbourhood or... else ... see table (1-1).<sup>(12)</sup> \*\*

	Division and sub-division	Elements controlling	Size
1	The residential unit	Play-let contact zone	400-600 inhabitants
2	● The neighbourhood "The basic unit", 6-10 residential units	Elementary education school, shopping centre, daily and weekly demand, workshops.	5000 to 8000 inhabitants
2'	● The vertical unit (1500 inhabitants)		
4	● The community, '8 neighbourhood units and 3 vertical units '	Schools centre, culture centre, main shopping centre, Periodical demand, light industry.	15000 inhabitants or more

Table (1-1) " Other service facilities as a controlling element "<sup>(13)</sup>

Educational services can act as size controlling element, putting into consideration the ratio of school children to the total number of inhabitants, the relation between education services and size of the community can be analysed as follows:

- a) For 3000inhabitants: one kindergarten class, 35children and a play-let (6m<sup>2</sup> per child =210 m<sup>2</sup>).

This means that one kindergarten of 35 children (1.15%) represents 3000 inhabitants who support the kindergarten and compose the residential unit population.

- b) For 5000 to 8000 inhabitants: an elementary education school, average 12 to 20 classes, 35 to 40 pupils per class and a playground (total area = 10000 – 12000 m2).

<sup>(12)</sup> Dr. Abd-elia Abd-el eziz, "The neighborhood as a unit, Master study", P.13

\*\* Remark:

- Numbers and ratios are estimated and not based on any local statistics.  
- This classification of the residential area into units according to the size of population that can support the different school divisions, although it cannot be taken as a definite scale to determine the size of the units, gives basic data to start with in planning according to a certain system.

<sup>(13)</sup> Dr. Abd-elia Abd-el eziz, "The neighborhood as a unit, Master study", P.29

The elementary education school pupils (9% - 10%) represent 5000 to 8000 inhabitants who support about 12 classes of the school and compose the neighbourhood unit population.

- c) For 8000 inhabitants: a secondary school, average 9 to 12 classes and a playground (total area = 10000 – 12000 m<sup>2</sup>).

The secondary school pupils represent 8000 to 12000 inhabitants who support 9 to 12 classes of such school and compose the secondary school neighbourhood population. Again, let's quote Webster's. It defines neighbourhood as

**“A section lived in by neighbours and usually having distinguishing characteristics.”<sup>(14)</sup>**

- d) For 15000 inhabitants: one public building with restaurant, cinema, and meeting halls (area 20000 – 30000 m<sup>2</sup>).

This number of inhabitants also supports a sport field (30000 m<sup>2</sup>) and the public building and composes a community population. ... see table (1-2)

	Division and sub-division	Elements controlling	Size
1	● The residential unit	Kindergarten 1 class, play-let	3000 inhabitants
2	● The neighbourhood "The basic unit"	Elementary education school, playground	5000 to 8000 inhabitants
3	● The secondary school neighbourhood	Secondary school, playground	8000 to 12000 inhabitants
4	The community	○ Sports field, Public building	15000 inhabitants

Table (1-2) "Education facilities as a controlling element"<sup>(15)</sup>

#### Example: Setting The Residential Unit In Sadat City<sup>(16)</sup>

A series of population ranges had been established to describe the minimum thresholds at which specific set of community services are provided for the residents of Sadat city.

The estimated population of the city, when completed, is 500'780 people. According to the demographic studies, the educational age

<sup>(14)</sup> Merriam – Webster's collegiate dictionary, tenth edition.

<sup>(15)</sup> Dr. Abd-ellia Abd-el aziz, "The neighbourhood as a unit, Master study", P.14

<sup>(16)</sup> The planning of Sadat city, final report:: volume 3, elements of the plan, September 1977.

category (5 to 24 years old) represents about 40% of the total population, ... see table (1-3).

Age group	Year 5	Year 10	Year 15	Year 20	Target (Year 25)
0-4	9'290	25'400	40'960	50'480	65'550
5-24	26'640	58'170	100'420	148'070	208'230
25-64	25'390	62'760	108'370	159'370	219'500
66 and over	0	430	1'310	2'660	4'500
<b>Total</b>	<b>61'320</b> <b>500'780</b>	<b>146'760</b>	<b>251'060</b>	<b>360'580</b>	

Table (1-3), The four major age categories over five year increments.

The primary school age category (6 to 12 years old) represent about 15% of the total population, ... see table (1-4), i.e., 79'830 pupils.

Age group	Year 5	Year 10	Year 15	Year 20	Target (Year 25)
6-12	8'790	20'910	40'420	62'140	79'830
13-15	3'990	8'080	13'470	22'460	32'450
16-18	4'480	8'360	13'180	19'190	30'210
19-24	7'940	17'060	26'060	34'260	53'760
<b>Total</b>	<b>25'200</b>	<b>54'410</b>	<b>93'130</b>	<b>138'050</b>	<b>196'250</b>

Table (1-4), Four subcategories corresponding to the primary, preparatory, secondary and higher level education projected in five increments.

Since 30 to 35 pupils can support a class, therefore 2281 classrooms were needed, distributed over 96 schools, (24 classrooms each). That's to say, each school contains about 832 pupils representing 5550 people, putting into consideration the optimum residential densities, as well as, the maximum walking distance for a primary school (500 meters), then the minimum residential unit that can support a primary school is a neighbourhood (4000 to 6000 people).

These thresholds are based primarily upon the educational, health care, social services, public safety, and public service facilities system.

- **Neighbourhood:** 4'000 to 6'000 people is the minimum threshold at which the smallest community services are provided.

- **District (residential quarter):** 24'000 to 36'000 people or six neighbourhood units.
- **Sector:** 200'000 to 300'000 people or eight district units (residential quarters).
- **City:** by current definition of the scale of Sadat city, it includes at least two sectors encompassing a population ranging from 400'000 to 600'000 people. This population range is capable of supporting those special service functions that would make Sadat city a balance and independent urban entity within both the regional and national context.

It should be made clear that service thresholds must not be equated to social structure. Social groups are defined by a complex set of social factors including interfamilial relationships, environment, cultural heritage, income, ... etc. Social structure, then, is defined not only by district and neighbourhood threshold, but also by streets, blocks, apartment clusters, and finally the home. The plan for social facilities is sufficiently flexible to accommodate a wide range of social opportunities.

### 1-3-2) HIERARACHY OF RESIDENTIAL UNITS

The size of the basic residential unit was determined offering this unit the basic daily needs within a walking distance. Residences of these basic units need a higher level of services that are supported by a greater number of inhabitants. So basic units group together around higher level service centres forming bigger communities which in turn group around higher centres forming bigger communities and so on.

Grouping of residential communities different levels from a hierarchal system of communities that can be applies as follows:

**First:** Each two residential units as well as each two-neighbourhood units being

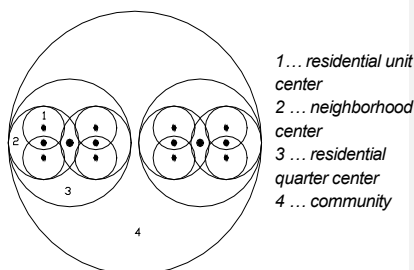


figure (1-13) urban communities share their facilities by locating them in between each two communities

integrated with each other ...  
see figure (1-13).

This conception makes it possible to:<sup>(17)</sup>

- 1) Increase density within the units.
- 2) Give more chance for the inhabitants to benefit from a number of neighbourhood service facilities of the same kind within walking distance, i.e. providing freedom in choice and circulation which is a basic instinctive need of the free human-being.

**Example: Shared Service Centres In 6<sup>th</sup> Of October City** <sup>(18)</sup>

The original master plan of 6<sup>th</sup> of October city contains 12 residential quarters, every two quarters share a service centre, ... see figure (1-14).

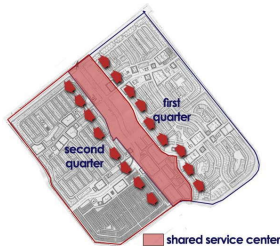


Figure (1-14), the shared service center between the first and second residential quarter

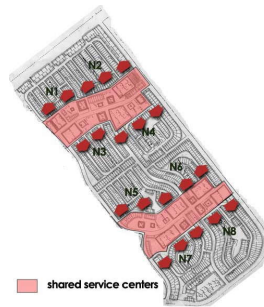
Neighbourhoods also share service centres, ... see figure (1-15). The eight neighbourhoods composing the first quarter are divided into two groups each of four neighbourhoods, sharing the same service centre.

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<sup>(17)</sup> Dr. Abd-alla Abd-el aziz, "The neighbourhood as a unit, Master study", P.14

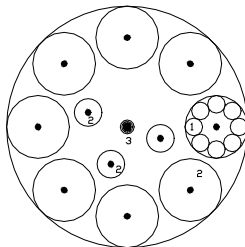
<sup>(18)</sup> 6<sup>th</sup> of October general structure plan, third report, volume one, may 1980.

Figure (1-15), the shared service center between each four residential neighborhoods in the first quarter



**Second: Using independent communities ... see figure (1-16):** <sup>(19)</sup>

- 1) Each neighbourhood is divided into 6 to 10 smaller units of 400 to 600 inhabitants, to the residential unit are related its garden and a play-lot for children.
- 2) The neighbourhood units are clearly separated from each other, i.e. not integrated.
- 3) Such separation was meant to give a definite neighbourhood having a defined boundary. Besides the neighbourhood centres are laid out in such a way that they could be integrated with each other.



- 1 ... residential unit center
- 2 ... neighborhood center
- 3 ... residential quarter center
- 4 ... community

figure (1-16) each urban community has its own integrated facilities according to its degree

**Example: Sadat City independent communities** <sup>(20)</sup>

In Sadat city services are provided for each residential unit at different scales,

<sup>(19)</sup> Dr. Abd-ellia Abd-el aziz, "The neighbourhood as a unit, Master study", P 29

<sup>(20)</sup> The planning of Sadat city, final report:: volume 3, elements of the plan, September 1977.

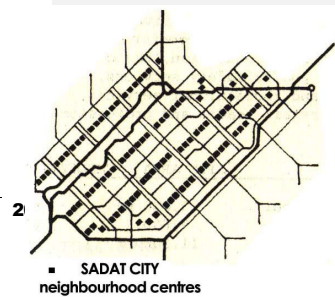


Figure (1-17), neighbourhood centers are distributed through the Sadat city, each in an independent residential unit

forming a system of independent communities within their level at the city. E.g., services provided at the neighbourhood scale are dispersed throughout the general residential fabric as small multi-service centres. ... see figure (1-17). Since the centre programs are repetitive, their interrelationship is not critical. More important, is the equitable distribution of these service centres within residential areas.

Similar to the neighbourhood center, at the level of district (quarter) center to provide a complete spectrum of community services, hence a repetition of general programs for the districts. ... see figure (1-18). As for the central main spine, it is characterized by unique large scale and specialized services provided for all the residents of the city, owing to these large service threshold (500'000 people) and specific program. ... see figure (1-19).

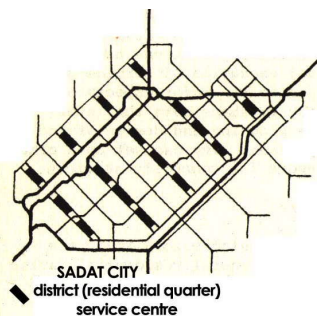


Figure (1-18), service centers of residential quarters form independent self sufficient quarter

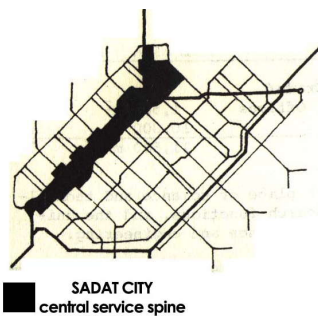


Figure (1-19), the main service center of the whole city

One further problem is that population change with change in public policy and changes in birth rates. A given amount of housing may produce enough children in 1980 to fill a primary school comfortably, yet by 1990 the same housing may either provide only enough children for two-third of a school population or may, alternatively, overcrowd it. Education policy too may change, so that in one decade primary schools for 750 children may be favoured, while in the next schools with 500 are preferred.



So , a range is to be given to assure that the meant facility is economically feasible with the minimum population and fulfil its role in the community with the maximum population.

## **1-4) Classifying Service Facilities of Urban Community**

The residential urban community consists of three main items:<sup>(21)</sup> ...  
see figure (1-20)

Residential  
Services  
Public Utilities

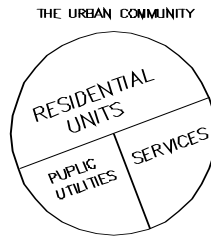


figure (1-20) elements of urban community

Service facilities of urban communities can be classified according to the purpose of this classification:

### **1-4-1) CLASSIFICATION ACCORDING TO SIZE AND LOCATION**

These are services of residential group, residential unit, residential neighbourhood etc. .... till the city level and the regional level.

Most community services and facilities are grouped together in centres of the complex, ever changing organism known as the city.

"Town centres are parts of the city characterized by its central locations, variety of function, and maximum intensity of land use: the functional and spiritual centre of the city. Its boundaries may or may not be well defined."<sup>(22)</sup>

Over time, service centres evolved into the three basic types we are familiar with today:

- Neighbourhood centres
- Community /city centres
- Regional centres

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<sup>(21)</sup> Dr. Maysa Abd-Alaziz Khalil, Master Study – April 1983, "Services of residential areas in new communities" p.50

<sup>(22)</sup> Robert S. Cook, Jr. "Zoning for downtown urban design"

Each centre is called after its location by how far we are willing to travel for an increasingly larger selection of goods or services and the standing population in the immediate area.

the proper location is perhaps the element that is most closely associated with a centre's success or failure. It must be easy, convenient, and quickly recognizable. However, the drawing power of a centre is not due only to the distance of the next centre but also to the convenience it offers its potential customer and the availability of desired merchandise or services.

"People typically will travel one and a half miles for food, 3-5 miles (4.8-8 km) for apparel and house hold items, and 8-10 miles (12.8-16 km) when price and selection are the primary consideration."<sup>(23)</sup>

It is also recommended that too much emphasis is to be put on visibility as a determinant of success and not enough on prior knowledge of a centre's location, although most shopping or service trips are destination-oriented.

#### 1-4-1-1) Neighbourhood Centres

- They are smaller centres designed to meet the day-to-day or immediate needs of a limited residential area.
- They are generally located at the intersection of a collector street and the entrance to the predominating area, but since they serve the local clientele, it stands to reason that the centres would not necessarily have to be so located; those who depend on these smaller centres for their immediate needs already know where they are located and what services available.
- They usually contain a grocery store and sometimes accompanied by a drug store and several smaller retail stores and restaurants.
- average around 50,000sq. feet (4645 m<sup>2</sup>), but can range in size from 30,000 to 100,000 sq. feet (2787 to 9290 m<sup>2</sup>) of gross leas-able space, depending on the

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<sup>(23)</sup> Gerald A. Perterfield and Kenneth B. Hall, Jr. -1995. "Acencise to community planning" p.125-130

size of the local population and the demand for services.

- normally require 3 to 10 acres (2.89 to 9.6 feddans) of land area.

#### 1-4-1-2) Community/Town Centres

- They almost contain all the services offered by the neighbourhood centre, plus a junior department store, discount store, and usually several more out-parcels, than the smaller neighbourhood centres.
- serve a trade area of 40,000 to 150,000 people and are located at the signalised intersection of two collector streets, or a major road ways, because they depend on a larger service area and thus requires more convenient access directly to the site.
- site areas range from 10 to 30 acres (9.6 to 28.9 feddans) and provide from 100,000 to 300,000 sq. ft. (9290 m<sup>2</sup> to 27870 m<sup>2</sup>) of gross leas-able area. However, most provide at least 150,000 sq. ft. (13935 m<sup>2</sup>).

#### 1-4-1-3) Regional Centres

- Regional centres offer a full complement of goods and services, including mega department stores.
- They typically contain 400,000 to over 1,000,000 sq. ft. (37160 to over 92900m<sup>2</sup>) of gross leas-able area on 30 to over 50 acres (28.9 to over 48.2 feddans) sites.
- They serve a trade area of over 150,000 people within a range of 10 to 15 miles (16 to 24 km), these sites have become the new downtown of suburbia.
- the larger of these have enclosed malls and are located at the intersection of a regional express way system and a community arterial collector street.

**Example: Hatfield New Town, United Kingdom  
Locating The Town Centre**



Figure (1-21), Hatfield New Town is 29 km north of London

**Hatfield New Town is 29 km north of London ... see figure (1-21).<sup>(24)</sup>**

**The town was developed in a traditional form in that the highest density development was at the centre of the town. This related not only to commercial development but also to the town centre residential neighbourhood. ... see figure (1-22)**

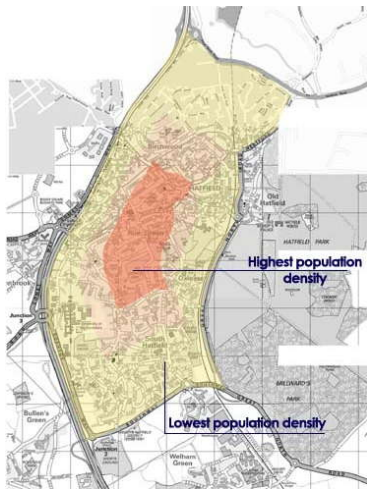


Figure (1-22), population densities in Hatfield New Town, UK

<sup>(24)</sup> "The New Town Record - G2-rem, New Towns in UK, 1948-1996", chapter two.

The direction in which Hatfield should expand depended on two main factors:

- (a) Natural and artificial barriers.
- (b) The location of the town centre.

Main motorways to the north and west therefore rigidly set limits of expansion. There was comparative freedom of expansion to the south and some limited possibility to the east. Within these limits the town's precise boundaries seemed best decided by working from the inside outwards, i.e. by establishing a centre of gravity, in which to locate the town centre.

In locating the town centre there were three possibilities: - ... see figure (1-23).

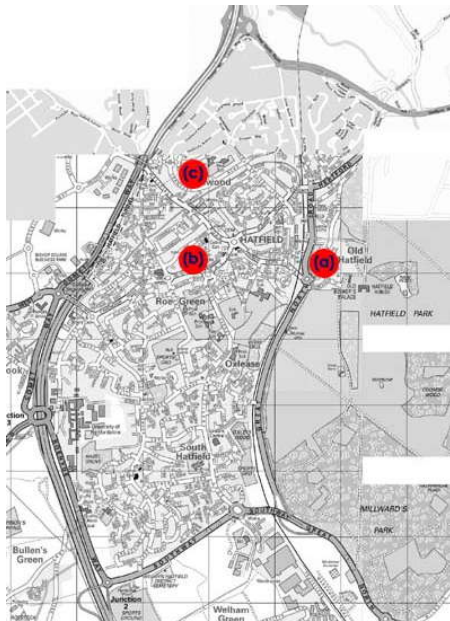


Figure (1-23), Three possibilities for locating Hatfield town centre

(a) In Old Hatfield, the first nucleus of a town should be its centre. Unfortunately Old Hatfield could not be so used. It is on the wrong side of the railway, in relation to the rest of the potential building area, and, lacking space for expansion, it is above all of an intimate village character, out of scale with the town it would have to serve.

(b) St Albans Road. Where shops, inns, and houses lies on the existing east west bus route. It is easily reached from original and new housing areas, and it has room for expansion.

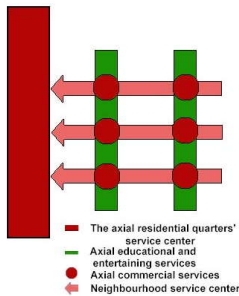
(c) A new centre on the flat hilltop east of the waterworks. This site, dominating the existing town was far enough away from St Albans Road to allow the latter to survive as a minor shopping centre. It would have given the possibility of a fresh start. It would have been the geographical centre of a town extending from Birchwood Farm in the north to Parsonage Farm in the south, but it would have been a long climb uphill from Birchwood and from the estate beyond the Bypass, and its buildings might have presented hazards to the use of the nearby airfield. The choice in favour of (b). ...see figure(1-24).



Figure (1-24) aerial view of the town centre

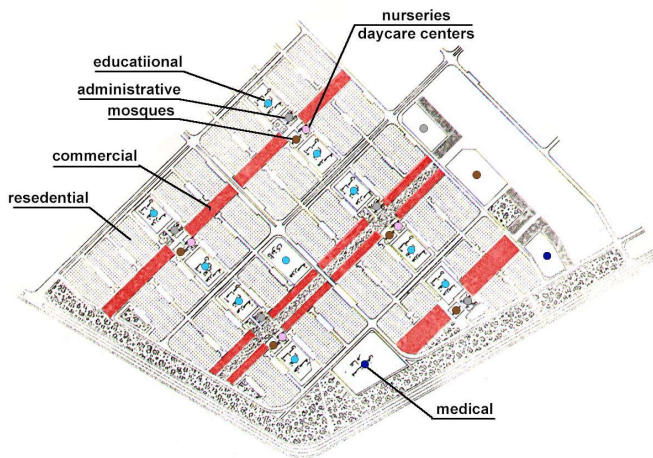
**Example: The Urban Community No. One, In New Cairo City  
Locating Service Centers In The First Quarter <sup>(26)</sup>**

In the urban community no. one, in New Cairo City, services of residential quarters were distributed in a linear form aiming to connect all residential quarters of the community. Inside each quarter, axial commercial services and axial entertaining and educational services were planned to intersect each other at the neighbourhood service centers. ... see figure (1-25).



Left, figure (1-25), neighbourhood service center are formed at the intersection of axial commercial service and axial educational and entertaining services.

Below, figure (1-26), the first residential quarter in the urban community no. one



<sup>(26)</sup> OPAS, detailed plan for top priority area no.1 for settlement no.1, February 1989.



This can be illustrated in the first quarter. ... see figure (1-26), where elementary schools and public gardens located along the educational and entertaining axis, residential commercial buildings, i.e., residential buildings with commercial activities in the ground floor, these buildings were located along commercial axis. At the intersection, a nursery / daycare center, a mosque and an administrative activity were located forming the neighbourhood centers. ... see figure (1-27).

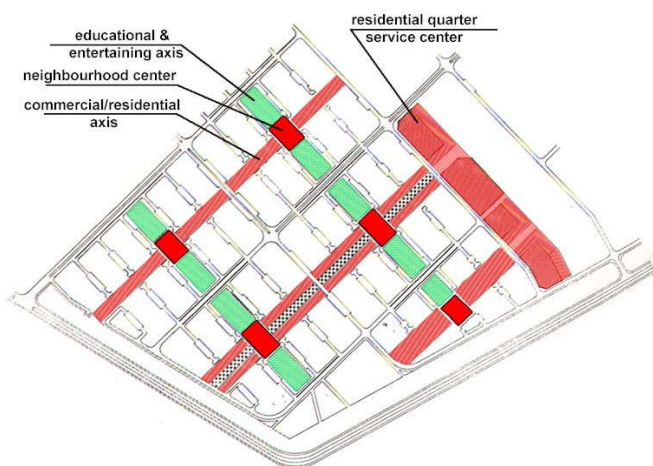


Figure (1-27), different service axis in the first quarter, in the urban community no. one, New Cairo City.

### 1-4-2) CLASSIFICATION ACCORDING TO FORM

Service facilities can also be classified into two major groups: punctiform (block-form) and linear facilities. ... see table (1-5), punctiform (block-form) facilities, such as a fire station, school, and park, and linear facilities, such as subways, highways, and power lines.

	Type of facility	Example
Block-form (Punctiform):	Emergency services	Fire station, Police station, Ambulance depot
	Social services	Hospital, Clinic, Social centre, School
	Industrial	Factory, Processing plant, Warehouse, Extraction site, Mine, Industrial park
	Utilities	Waterworks, Power plant, Sewage plant
	Leisure and Recreation	Park, Playground
Linear:	Below ground	Subway, Utility lines (gas, water, etc. ...) Pipeline
	Surface	Highways Railways Utility corridor
	Elevated	Power lines

Table (1-5) classification of urban facilities according to form<sup>(27)</sup> \*\*

### 1-4-3) CLASSIFICATION ACCORDING TO OWNER-SHIP

Elements of service facilities are classified according to how they can be financed, by the private sector, the public sector, or part of a joint public-private organization. Whether a particular type of service is furnished by the public or private sector depends on economic, political, and historical factors. Although certain types of services are most efficiently supplied by the free market system.

Using the definition of community presented above and the different sources of community services, we may create a matrix for classifying community service facilities. ... see Table (1-6). Alternatively,

<sup>(27)</sup> ) ASCE Manual and Reports on Engineering Practice no. 49. "Urban planning guide", 1986. P.254

\*\* Same classification of facilities

community service facilities can be classified by their method of delivery.

Community unit	Sector Providing Services		
	Private	Joint public-private	Public
Block	Corner grocery		Mailbox
Neighbourhood	Movie theatre, Grocery	Neighbourhood social centre	Post office, School, Fire station
Municipality	Department store	Municipal day care run by private agency and funded by the public sector	Hospital, Municipal park
Metropolitan region	Regional shopping centre	Metropolitan emergency shelter run jointly by the public and private sectors	Regional hospital, Water system, Power plant, Regional park

Table (1-6) classifying urban services according to their ownership<sup>(28)</sup> \*\*

#### 1-4-4) CLASSIFICATION ACCORDING TO FUNCTION

This classification depends on the nature of the facility offered, e.g., medical facilities, educational facilities, transportation, electrical power... etc. These facilities can be grouped in two groups: ... see figure (1-28)

##### First: Public Facilities:

They represent networks of roads water supply, waste water disposal, electrical power and communications where each network works in an integrating system no residential unit can work separately without being connected to the higher level of the net work.

##### Second: Residential Urban Services

Residential services are the most important element in any residential area \_ after housing of course \_ as these areas acquire their importance and their efficiency from the degree their services fulfil their residents needs. The needs of the residents differ due to their different income rates, different social traditions, habits and level of civilization. Also the service differ according to the size of the community as the services needed by a residential group differ from that of a neighbourhood and that of a city, but they all need basic

<sup>(28)</sup> ASCE Manual and Reports on Engineering Practice no. 49. " Urban planning guide ", 1986, P.252-253

\*\* A matrix to classify service facilities according to size, financing and administration.

services as the definition of a neighbourhood depends on the services it offers.

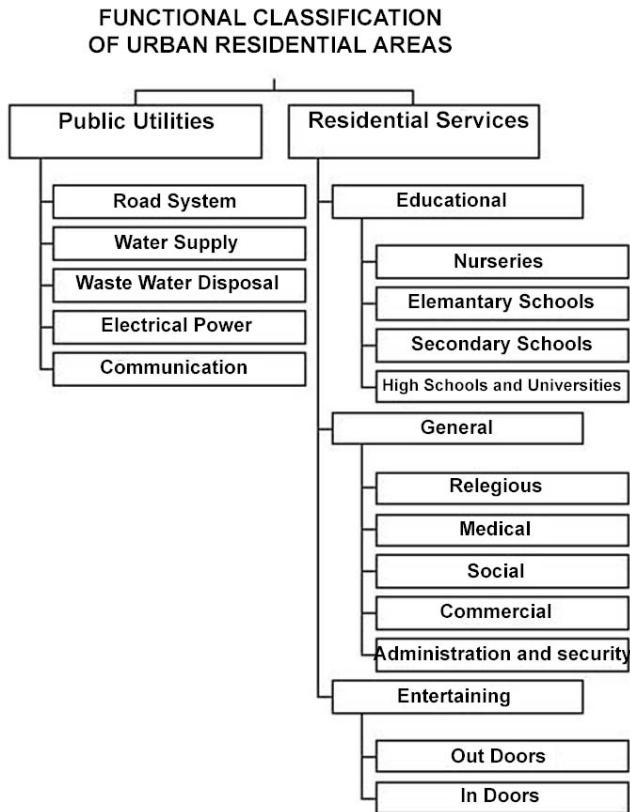


Figure (1-28) functional classification of urban residential areas. <sup>(29)</sup>

Most of the community services and facilities can be included under these headlines: <sup>(30)</sup>

<sup>(29)</sup> Dr. Maysa Abd-Alezziz Khalil, Master Study – April 1983, "Services of residential areas in new communities"

### 1. Open Areas

- Parks, golf courses, fairgrounds, ...etc.
- Play grounds and recreational facilities, including swimming pools and gymnasiums.
- Large scale spectator sport locations.

### 2. Educational And Cultural Facilities

- Schools.
- Colleges and universities.
- Libraries.
- Other educational and cultural facilities, e.g.: cultural centres, theatres, museums, zoos, ...etc.

### 3. Medical Facilities

- Medical centres, hospitals, nursing homes and clinics.

### 4. Religious And Other Institutions

- Mosques, churches, community centres and local institutions.

### 5. Public Buildings

- Government buildings: e.g. municipal offices, county buildings and post offices.
- Public safety buildings and facilities, fire and police stations, control centres, defence control centres and jails.
- Other public buildings and facilities such as public markets, civic auditoriums and group-care facilities for the children or the aged.

### 6. Environmental Health Facilities

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<sup>(30)</sup> Joseph De Chiara /Lee Koppelman, 1975. "Urban planning and design criteria", 2<sup>nd</sup> edition, P.5

- **Water supply.**
- **Water pollution control.**
- **Solid waste disposal control.**

**7. Commercial And Business Facilities**

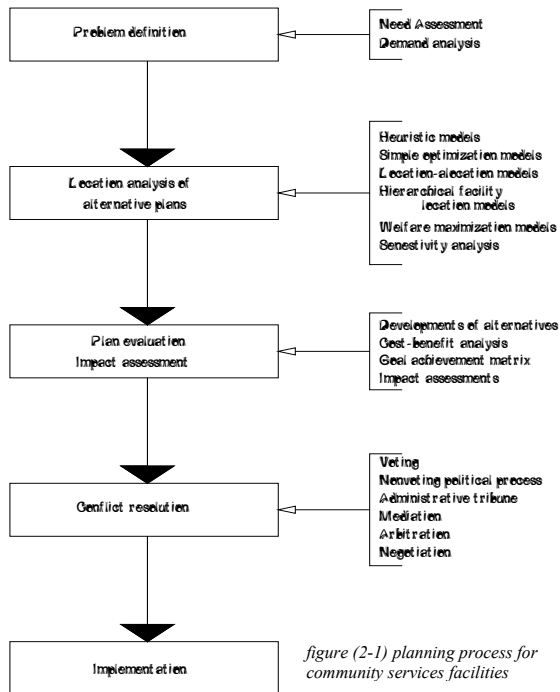
- **Central business area.**
- **Outlying or neighbourhood centres.**
- **High way oriented commercial areas.**

### **1-5) Conclusion:**

- **The neighbourhood is the basic urban unit, free of through traffic, its basic services are available within suitable walking distances, and its children's ages can support a primary school, which is considered the base for deciding the size of a neighbourhood unit.**
- **Defining the hierarchy of residential areas depends on the hierarchy and kind of the services offered, their needs, potentialities and the suitable walking distance for the residents.**
- **The size of the services is directly related to the size of the community, in order to achieve optimum efficiency.**
- **Service facilities of urban communities can be classified according to size and location, form, ownership, or function.**

## Chapter Two: Planning For Urban Communities Service Facilities

This unit will deal with the process of planning for community service facilities. The central function of service facilities is to provide services to their users. Therefore, community service facilities can be defined as, "A system of service delivery for neighbouring geographical units whose members share a major portion of daily transactions of sustenance need." <sup>(31)</sup>



<sup>(31)</sup> ASCE Manual and Reports on Engineering Practice no. 49. "Urban planning guide", 1986. P.252-253



"In traditional analysis of service facility planning, problems are usually defined in terms of service needs and the single objective of efficiently providing services. Efficiency is defined as either minimizing costs or the number of facilities, or maximizing the use of facilities or user access. Through a revised version of a typical planning process, the new model is intended to make the planning process more relevant and useful in addressing the special characteristics of the community facilities." ... see figure (2-1) <sup>(32)</sup>

Yet the most difficult problem arise from the very nature of community service facilities themselves:

- Selectivity of service beneficiaries, as many service facilities are not used by the entire community.
- Geographical differentiation in the external effect of community service facilities on individuals. For example, a distance – decay function, may represent the effect of undesirable facilities on property values.

"Further complications in planning community service facilities arise from the various regulations existing in local communities. The primary source of local regulations is zoning and land-use control. The most desirable location for particular service facility may be zoned for residential use and therefore unavailable. Local regulations such as zoning serve the purpose of reducing impacts of certain types of land use on the community but could complicate the planning and implementation processes." <sup>(33)</sup>

Community needs for services, however, vary over space, and the location of facilities also affects the level of satisfaction of service recipients.

"Therefore, two planning concepts should be included in the conventional analyses of location decisions:

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<sup>(32)</sup> ASCE Manual and Reports on Engineering Practice no. 49. "Urban planning guide", 1986. P.254-256

<sup>(33)</sup> ASCE Manual and Reports on Engineering Practice no. 49. "Urban planning guide", 1986. P.255

1- Careful plan evaluation procedure which study thoroughly the goals, impacts, and costs of community service facilities on various members of the community.

2- Conflict resolution. To successfully plan and implement a project, planners should have a clear understanding early in the planning process of the nature of the conflicts over facility planning that may arise between different groups of the community. Planners should be familiar with various methods of dealing with disagreements.”<sup>(34)</sup>

The planning process is a tool to provide decision makers with adequate analyses and up-to-date information. As such, planners must remain aware of the limitations of the technical aspects of planning and of potential conflicts which might arise.

It is also essential for facility planners to understand the political power structure in their community, as well as, being familiar with litigation procedures, and a knowledge of the techniques of arbitration and negotiation.

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<sup>(34)</sup> ASCE Manual and Reports on Engineering Practice no. 49. "Urban planning guide", 1986. P.268

## **2-1) Planning Trends For Community Service Facilities**

### **2-1-1) INTRODUCTION**

Community service facilities deliver goods and services to community through a system of facility networks. The traditional models of planning for community services facilities relied mainly on analyses of optimum location and capacity based on the concept of minimum travel distance for the delivery of services to the target population. The environment for planning in general, and community service facilities in particular, has substantially changed over the last few decades. Accessibility is no longer the single most important criteria in planning community services facilities. There have been many changes, which necessitate a careful analysis of new quantitative and qualitative aspects of facilities planning.

**“First, a significant number of communities have been transformed into heterogeneous entities, economically, politically, and socially. This change has resulted in an increase in the level of conflicts over community decision-making, and strongly sudden alteration of the concept of community needs.**

**Second, the planning process has become more complicated than ever due to the increased level of public participation and regulatory procedures mandated by the government.**

**Third, the qualitative characteristics of many community services facilities have become more complex. For example, many facilities once considered as having neutral impacts are now perceived by community residents as undesirable.**

**Fourth, scarcity of funds and increasingly higher costs of labour and capital have made it difficult for communities to provide an adequate level of services.”<sup>(35)</sup>**

These circumstances call for a thorough evaluation of traditional models of planning for community service facilities, and for the development of a more relevant framework of plan making for community based services facilities. Recent developments in

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<sup>(35)</sup> ASCE Manual and Reports on Engineering Practice no. 49. "Urban planning guide", 1986. P.251

community service facilities planning clearly note the changing environment of decision-making and argue for a reorganization of facilities location theories. This section of the study is intended to provide a framework of planning policies for community service facilities according to different planning methodologies regarding different aspects: "planning and design aspect", and "social and economic aspect".

## **2-1-2) PLANNING AND DESIGN ASPECT**

As a very broad generalization, systems of planning throughout the developed world can be divided into two concepts:

- Zoning Planning Concept
- Authority Decision Planning Concept

### **2-1-2-1) Zoning As A Planning Concept**

At the end of the 19th century, zoning systems were derived from the pioneering work, first in Germany and then in the USA beginning with Frankfurt in 1891, German planning began to develop a concept of setting specific regulations to be applied to defined zones with in an over all plan. The advantages of such a system quickly spread.<sup>(36)</sup>

- The system provide clear basis for future development that leaves little to chance as possible.
- The system is scientific and rational in the way landuses are located.
- The system guarantee the rights of land owner as well as neighbours, in keeping landuses of the site they choose to own or live in.
- With the zoning system landowner and administration have no doubt about the nature of the decision to

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<sup>(36)</sup> Barry Cullingworth, " British planning - 50 years of urban and regional policy "

be taken concerning a certain piece of land.

- The system represents a powerful mechanism for stabilizing the land market as well as protecting property rights and values.
- The system minimizes the tension in decision-making as the parameters of decisions are articulated and defined.
- It provides protection from unwanted intrusion.

But such system has also some disadvantages as:

- Zoning system, which relies on a series of rules, operates well in an environment of identified fixed limits, or where the issue is on a simple axis. But it copes badly with the multi-polar problems, which often characterize town planning.
- The application of generalized rules of zoning systems to a specific place at a specific time requires an act of interpretation on the part of the decision makers.

#### Zoning system inside service centres.<sup>(37)</sup>

Inside service centres, there are two schools of applying, zoning system concept:

The first school considers the central area as a zone mixture of uses, in most cases in capable of being separated. According to this school, uses will not locate in town centres unless they need to be there. So, activities inside town centres are left to be located

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<sup>(37)</sup> Barry Gullingworth, "British planning – 50 years of urban and regional policy"

according to their economical strength although some other activities may have the priority socially.

The second school steps forward and studies more details about activities located in central areas, their relations with each other and with their road system spatially and economically.

As the immediate surroundings suitable for a lawyer office are very different from those suitable for a supermarket. Selective zoning within a town centre therefore promotes good neighbour lines between uses and permits effective and economical planning of roads, intersections and parking provision.

#### 2-1-2-2) Authority Decision (Discretionary) as a planning Concept

The Authority Decision (Discretionary) means, offering the decision maker the power of deciding the right thing to do concerning community planning. This concept is represented by Britain and a very small number of systems that claim a British inheritance. Yet, the system has some advantages and disadvantages.<sup>(38)</sup>

- It provides responses to development proposals to reflect the circumstances that exist at the point at which the development is proposed.
- Change can be rapidly absorbed into the system, i.e., flexibility seems to be achieved.
- It allows the control of development to take place in the absence of formally approved plans or when a plan has become out of date.

But this concept also:

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<sup>(38)</sup> Barry Gullingworth, "British planning – 50 years of urban and regional policy"

- It creates uncertainty for developers. As planning suppose to be about removing future uncertainty about the form and location of urban development.
- It allows the focus on development control to be on efficiency of process rather than quality of decision.
- It may arise speculative dealing in land.
- Through this concept, development may be delayed or unplanned development may take place, due to the unprofessionally of the decision maker concerning the urban planning issues.

"So, the planning profession has been called on to use its judgement in advising elected representatives how to exercise their discretionary powers. In this way, decision making reflects professional values and influence which are not fully expressed." <sup>(39)</sup>

2-1-2-3) Authority decision (discretionary) planning versus zoning:

In learning and practicing the arguments for and against both kinds of planning systems there is sometimes a pardonable tendency to conclude that if only the British system of planning came a little bit closer to the zoning systems of continental Europe and the USA or if only regulatory systems could behave rather more flexibly, both types of system could be improved. Yet such a conclusion would be nonsense. Zoning and authority decision (discretionary) systems of planning do not exist, as independent phenomena to be changed at will by planners. They are creatures of the constitution and cultures, which give rise to them. The significant strengths of an authority decision (discretionary) and zoning systems carry with them weaknesses, which have to be resolved within the context of the system itself. It is in resolving these weaknesses that the real test of any planning system lies.

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<sup>(39)</sup> Barry Gullingworth, " British planning – 50 years of urban and regional policy "

### 2-1-3) SOCIAL AND ECONOMIC ASPECTS

**GENERALLY** there are social and economic factors affecting the kind of community services offered:<sup>(40)</sup>

- a. The social and demographic features of the residents.
- b. The economic features of the residents.

As well as social and economic factors affecting the size of the community services:

- a. Residents' densities, distribution and rate of crowdingness.
- b. Rates of increase and decrease in the number of residents and their impact on areas required for future growth.
- c. Age and kind distribution in order to offer suitable services.
- d. The size and composition of the family unit.
- e. The community careers.
- f. Income rates and degree of urbanism.

Here are social and economic indicators for the town centre success:

**Social indicators for a town centre:**

- Frequency of trips to the centre.
- Socio-demographic composition of visitors.
- Activities of the central area.
- Motives for visiting the central area.

**Economic indicators for a town centre:**

- Total central city jobs.

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<sup>(40)</sup> Dr. Maysa Abd-Alaziz Khalil, Master Study – April 1983, "Services of residential areas in new communities" p.58-60

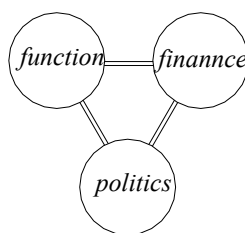


- Retail sales.
- Retail space.
- Office space.

These centres are subjected to the push and pull of economic and social forces that have produced rapid change in our cities.

So a plan designed for town or community service centre should be feasible and socially attractive in order to acquire success and sustainability.

Feasibility can only happen, if we can present a convincing demonstration of the project's feasibility, at three main levels: ... see figure (2-2) <sup>(41)</sup>



**Functional feasibility.**

**Political feasibility.**

**Economic feasibility.**

That's to say uniting those of power over the scheme "developers and local authorities".

figure (2-2) A service facility project can be feasible by uniting those of power over the scheme

**Example: San Diego, California\_ 1991<sup>(42)</sup>**

**An experience for different interest groups to take part in designing guidelines for redevelopment**

The City of San Diego is one of the fastest growing urban areas in California. The project was held to Design guidelines for directing new housing and jobs into mixed-use transit-oriented neighbourhoods.

<sup>(41)</sup> "Responsive Environment". P.30-32

<sup>(42)</sup> Peter Galtherpe, "The Next American Metropolis - ecology, community, and the American dream", 1993, page 130-133.

The project aimed to Design Guidelines as a key component in their Land Guidance and Urban Form programs. In-order to help the city reduce urban sprawl, plan the urbanized area efficiently, encourage infill and redevelopment, and support the trolley and bus transit system. A particular focus of the guidelines is encouraging infill and redevelopment in existing neighbourhoods. In addition to providing design guidelines for site selection, development patterns, and transit integration, the work includes an Implementation Strategy that outlines the steps necessary to fully adopt the principles and specific recommendations of the design guidelines into citywide zoning, street standards, and other policies.

The process of preparation and adoption of the guidelines was inclusive and very effective, including a broad range of public and private interests, they set the overall direction and then reviewed each guideline individually, giving input and suggesting modifications. The draft guidelines were then tested on three sites by a workshop of citizens, professionals, and City staff. They used the guidelines to design the future development and redevelopment of an existing suburban station area, an industrial zone, and a shopping mall.

Plans of two neighbourhoods will be illustrated.

First:

An existing trolley stop is south of the city near the US/Mexico border. Note that parking surrounds the stop and even residents of the adjacent trailer park have to walk out onto the major arterial and back through the parking lot to get to the station. The lands to the north are designated for regional open space. ...see figure (2-3).

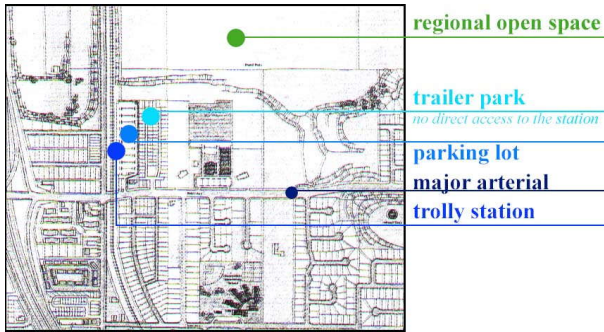


figure (2-3) the existing condition on the area around a trolley stop in san Diego , California

The redeveloped site shows a suburban station area with green, small shops, and a reconfiguration of the trailer park. A new local street network provides direct pedestrian connections to the station north of the major east-west arterial and for Local Street crossing to the south. The park-and-ride lot is relocated to the west of the tracks. ...see figure (2-4).

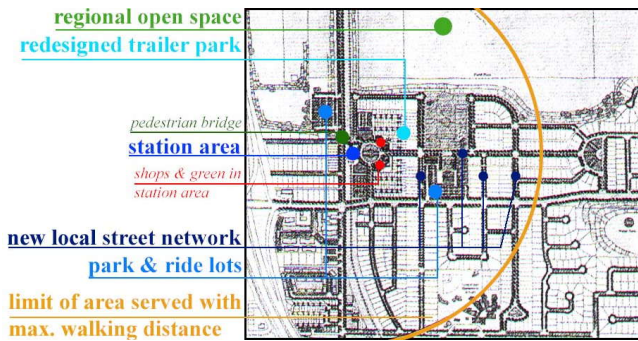


figure (2-4) small shops and green area added to the station area , parking and local street network were redesigned to allow direct accessibility to the station

Second:

The University City area of San Diego was planned in the seventies and built over the last twenty years. It is mixed-use and fairly dense, but has no pedestrian quality. This map of an existing area shows how apartments, a major shopping centre, hotel, and offices can add up to congestion rather than community. ...see figure (2-5).

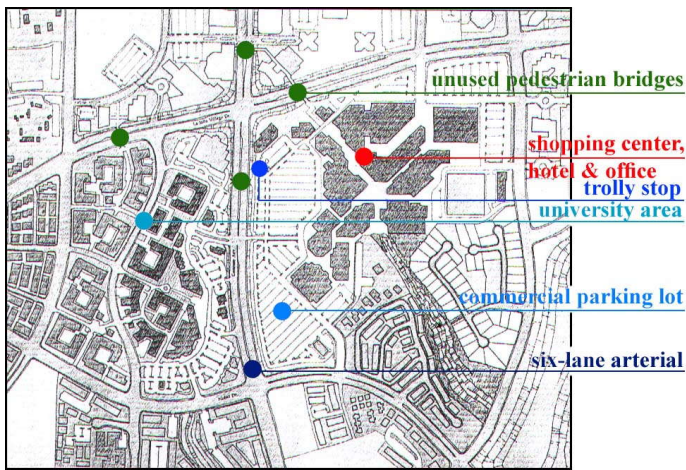


figure (2-5) accessing urban service from oriental roads only may add up to congestion

Each land use connects to the six-lane arterial system rather than to one another. Several unused pedestrian bridges fruitlessly span the arterials, connecting one parking lot with another.

This site represents one of the most interesting opportunities the suburbs have to offer: conversion of commercial parking lots into mixed-use developments with parking structures. In this case a regional shopping centre's parking lot is in filled with a "Main Street" which has housing over shops on one side and shops on the ground floor of parking structures on the other. This Main Street leads to a new trolley stop at one end and a residential development with a pedestrian bridge and mini-park at the other. ...see figure (2-6).

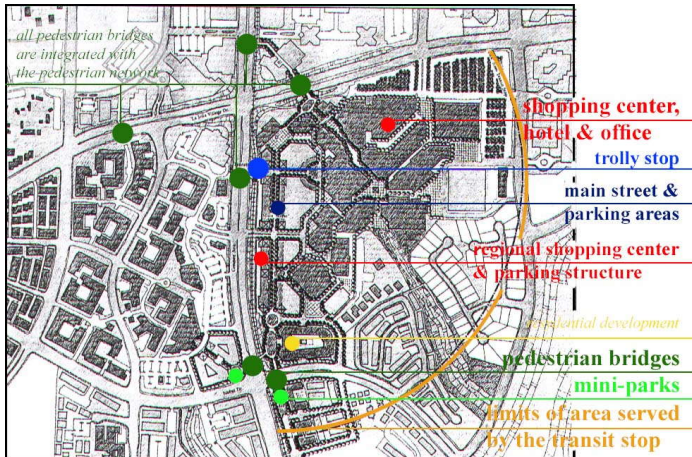


figure (2-6) the station and the regional shopping centre were located to be accessible from the whole zone through pedestrian routs, bridges and parking structures

**Conclusion:**

Including a broad range of public and private interests in tailoring and designing the redevelopment guidelines, allows people to understand the changes that were proposed.

The street network where transit stops located is a major factor in activating the stop and the area around it.

Major facilities like Universities attract many facilities to locate themselves in adjacent areas. This process needs special care in dealing with street network and parking areas.

### Functional feasibility

Some uses are incompatible because of factors like noise or traffic generation. These cannot be located close together. Other uses, however, are incompatible only because people see them as different in status. This problem can often be overcome by careful detailed design.

### Political feasibility

Whenever the pattern of uses proposed departs either from accepted norms or from local planning policy, agreement from the local authority will depend at least partly on evidence of public support for the uses put forward. It is important to demonstrate, as strongly as possible, the support of the local interests, which make up this demand.

### Economic feasibility

To be economically viable, a project must fulfil one basic condition: its economic value when completed must be greater than or equal to the cost of producing it, plus any profit required by the developers concerned. But establishing economic feasibility is not merely a matter of juggling figures until they balance on paper. It is crucially to identify actual development agencies willing and able to implement the scheme. There is a limited range of development agencies in existence, each with its preferred type of project and method of operation. These must be taken into account in the scheme.

In order to achieve feasibility at those main levels, it is useful to produce a checklist of all the uses that can be thought of for the site and then answer the following questions:

- Which uses are likely to be attracted to the scheme?
- Which development agencies are likely to build space for each use?
- Could any of the uses be accommodated in existing buildings, if there are any on the site?
- What support does each use require? (E.g. car parking)

- What are the maximum and minimum areas of space likely to be demanded for each use?
- How much money can the space for each use be sold or let for?
- If the space is to be let, what yield will it realize in investment terms? (Yield is a measure of the annual return on money invested in the project)
- Are any of the uses likely to be supported or inhibited by the presence of any of the other uses?

"Efforts have developed a growing sophistication about the qualities that attract people to town centres. Many of these qualities result from the random interaction of the economic and social forces and from the accidental factors of a geographical location. Other qualities result from deliberate choices and policies that help to shape – design – the urban environment."<sup>(43)</sup>

## 2-1-4) FEASIBILITY ANALYSIS

To determine whether a service facility can be developed successfully, feasibility study must be carried out. This study analyses all the factors – cultural, natural, socio-economic, funding, political, and legal – that influence the development of a kind of service for a particular city or town.

Without a high-quality feasibility analysis, there are insufficient data on which to base a sound decision about locating a service. Upon completion of the feasibility study, the question of whether to locate a service is answered on the basis of the factual information contained in the analysis. Those reviewing the feasibility report, including the public, whose reactions may influence the outcome of the project, should easily understand the information inventoried and analysed.

The following checklist of factors contains many of the items that should be reviewed to determine the feasibility of a proposed service.<sup>(44)</sup>

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<sup>(43)</sup> Robert S. Geok, Jr. "Zoning for downtown urban design"

<sup>(44)</sup> Harvey M. Rubenstein, "Pedestrian Malls, Street Spaces and Urban Spaces", p.30-42.

### PLANNING FACTORS

1. Traffic.
2. Transit.
3. Parking.
4. Service—trucks, emergency vehicles,
5. Pedestrian circulation—safety, security, origin and destination.
6. Utilities— drainage, sewage disposal, electricity, gas, water, telephone.
7. Existing buildings—condition, height, architectural character, vaults.
8. Zoning regulations.
9. Furnishings—signs, lights, street furniture.
10. Maintenance.

### NATURAL FACTORS

1. Soils.
2. Climate.
3. Topography.
4. Water table.
5. Vegetation.

*Note: natural factors will not be illustrated through this study.*

### SOCIO-ECONOMIC FACTORS

1. Market analysis.
2. Cost-benefit.

### POLITICAL, FUNDING, AND LEGAL FACTORS

1. Approvals.
2. Governmental and local funding.
3. Country and city laws.

#### 2-1-4-1) PLANNING FACTORS

##### TRAFFIC

When a service facility is proposed, the first question that usually arises is whether adjacent streets can handle the additional traffic. In



some downtown areas these streets may already be overloaded with traffic. To determine the viability of placing a facility in a specific block or blocks, it is necessary to measure the actual traffic volumes already utilizing the street or streets involved.

The matter of developing a service facility often raises further questions about the overall service centre circulation plan. Some services may therefore act as a catalyst to improve the overall service centre traffic pattern.

In some communities closing a block to traffic has been attempted as a test to see whether the adjacent blocks can handle additional traffic. This trial procedure has sometimes had positive results. It does not work as well, however, if no other changes have been made to the block for improving traffic flow, and no amenities have been added.

#### PUBLIC TRANSIT

Bus routes are another important area for study. Developing a full service centre on a major block or blocks presupposes moving bus stops to other streets. Changing a two-way street system to a one way system may mean moving bus stops to the other side of the street. It may also involve relocating bus shelters or developing new ones.

Taxi service will also be affected if a full centre is developed. Taxi stands or drop-off areas may have to be developed on adjacent streets. The impact of the services facility terms of traffic and transit must therefore be studied in its overall context, with consideration given to other streets in the area. These streets should be reviewed for parking, bus stops, taxi stands, and truck loading zones.

#### PARKING

When a full service centre is constructed, parking spaces must be relocated or added in areas within convenient walking distance of each service. A service may generate a need for additional parking.

One of the reasons for the success of the suburban shopping service is the convenient free parking. If a downtown service is to compete, convenient low cost parking is essential.

The city of Ithaca, New York, provides 45 minutes of free parking adjacent to the Ithaca Commons, Eugene, Oregon, provides unlimited free parking for shoppers.

If, in the downtown plan, it is determined that surface parking and curb parking are not adequate, multilevel parking structures should be considered. The economic feasibility of a parking structure is based on how much of the construction cost must be allocated for amortization and interest. This means that the space may not carry itself on in some cases. Revenue projections should carefully consider parking rate structure to obtain a realistic picture of income. All factors related to the design of the parking facilities, such as capacity, access, and layout, should be reviewed before financing is arranged. To help pay for a parking structure, and to keep parking rates in the new structure low, a form of financial assistance such as rental income from shops at street level, or balancing expenses by means of surface lots or curb meters already in existence, may be necessary. Parking should be located in such a way as to minimize walking distance to the service. Sometimes parking is also located behind existing stores or services, and may be connected to other services by walkways between buildings.

#### SERVICE AND EMERGENCY ACCESS

In the development of a service facility, accessibility for service is a major functional consideration. Service vehicles include trucks for deliveries, shipments, and trash removal, and emergency vehicles such as ambulances, police cars, and fire trucks. When a block is closed to cars and buses, trucks are also barred. Is there an alternative means of access so that buildings can be served from alleys, back streets, or special loading zones?

A building-by-building survey of how services are currently handled must be made in order to review the feasibility of servicing the businesses. If the survey shows that servicing the buildings from service cores or alleys is not practical, it may be necessary to allow service vehicles for specified periods, such as 7:00 P.M. to 10:00 AM. An alternative method may be to develop a service lane.

Room must also be provided for emergency vehicles such as police cars, ambulances, and fire fighting equipment. Usually a 15 foot-wide (4.572m) open space or lane that is part of the pedestrian area will be adequate.

### PEDESTRIAN CIRCULATION

The primary objectives of improved pedestrian circulation are safety, security, convenience, continuity, coherence, comfort, and aesthetics. Fulfilling one of these objectives generally increases the opportunities for meeting or improving the others. Ease of pedestrian circulation with safety from vehicular conflict is one of the primary purposes and benefits of developing central city areas.

Two methods of reducing conflicts between pedestrians and vehicles are time separation and space separation. Traffic signals are a mechanism for providing time separation. There are still conflicts, however because of vehicular turning movements. In some cities an "all walk" sequence where pedestrians have exclusive crossing rights is used at busy down- town intersections. This system generally produces greater numbers of people waiting at corners to cross the street than would otherwise be the case.

Space separation is achieved by closing streets to vehicles, and creating services, where the full service acts as a pedestrian plaza, and people may walk freely between the two sides of the space. Space separation can also be achieved by the use of under-passes or over-passes. If these are not within the direct line of pedestrian traffic, however, they may not be fully used because of the inconvenience of a longer walking distance. (E.g., the location of the pedestrian bridge at Ain Shams University).

The inventory of the proposed service area should include the dimensions of each street and sidewalk. Also included should be information on all traffic regulations, signs, signal locations, signal cycle length, and traffic volumes from the traffic survey. The sidewalk survey should show the locations and dimensions of buildings and the transit system locations or entrances.

The inventory should also examine pedestrian trips, including their trip Purpose and Characteristics; most pedestrian trips are relatively short, only a few blocks, because pedestrians seek parking spaces within 600 feet (183 m) of their destinations. If the purposes and types of pedestrian trips are understood, better pedestrian facilities can be developed. Pedestrian trip purpose is closely related to the type of land use associated with trip origin or destination. The number of trips attracted or generated by an activity depends on its size and type. For example, large retail stores will attract more trips than small retail stores.

Pedestrian trips are categorized into three major types: (1) terminal trips, (2) functional trips, and (3) recreational trips.

Terminal trips are made to and from home or points associated with transportation mode areas: parking lots, bus stops, and transportation stations.

Functional trips are made to carry out a specific function, such as business trips related to work or personal business trips involving shopping, dining, or going to a doctor's office.

Recreational trips are made for purposes related to leisure time. These include going to the theatre, concerts, and sporting events, as well as social activities in which walking is one of the primary purposes.

## NODES

In the pedestrian network there are two basic types of nodes. One is the origin and destination (node) of the walking trip. Nodes are centres of pedestrian activity or points of concentration. These are classified as primary or terminal nodes and secondary or activity nodes.

Primary nodes are associated with mode transfer where walking trips begin and end, such as parking areas and transit stops.

Secondary nodes are other locations that attract trips from primary nodes as well as from other secondary nodes, such as offices, stores, and restaurants.

In summary, various types of studies must be carried out to determine whether there are problems related to pedestrian circulation in a given area. For example, the analysis may show that large numbers of pedestrians use the particular area designated for a service, and that certain sidewalk areas must be significantly widened to accommodate the pedestrian traffic. The study may also demonstrate that space separation is needed to solve problems of pedestrian-vehicular conflict. This is an important consideration in determining the overall existing building feasibility of a service facility.

#### UTILITIES

In considering services facilities development, it is necessary to review the existing utilities and to plan for upgrading the systems when necessary.

The costs for improving the utility system must be carefully evaluated because a major share of the project cost may be absorbed by these lines, which are invisible on the surface. Even if existing utilities are in good condition, their locations must be carefully considered so that the lines can be maintained when necessary with as little disruption as possible.

#### EXISTING BUILDINGS

Existing buildings in the area of the proposed services must be carefully surveyed as to their condition, height, front footage, and architectural character. Architectural character includes the building facade, colour, texture materials, window type, and roof style.

#### STREET FURNISHINGS

Elements on existing sidewalks or overhanging sidewalks are called street furnishings. These include signs, lights, traffic signals, parking meters, fire hydrants, benches, and flower pots.

These elements must be inventoried in the overall street context. A new sign ordinance may be necessary to improve the aesthetics of the downtown. Elements such as fire hydrants or light poles may have to be relocated if a service is developed.

### Example: Hatfield New Town, UK Hatfield town centre redevelopment <sup>(45)</sup>

Hatfield currently has many basic ingredients to make a successful town centre. There are already some reasonable quality buildings and mixed use developments in the heart of the town. There are a number of established attractions such as Asda, the Swim Centre, and the highly successful and popular monthly Farmers Market that can be used to promote the town and generate more footfalls in the Town Centre. Furthermore the Galleria and station are only ten minutes on foot from the town centre, and offer the opportunity of encouraging linked trips. The new University Campus on the Hatfield Aerodrome site will also introduce a large number of students within 15 minutes of the town centre. A new transport interchange will improve accessibility into the town centre day and night, establish an evening economy and create a gateway to the town centre. ... see figure (2-7).<sup>(46)</sup>

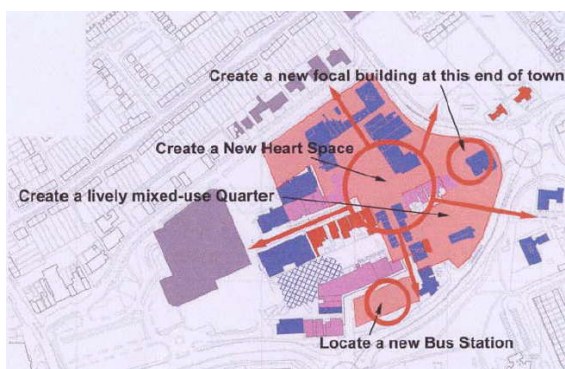


Figure (2-7), development opportunities in Hatfield town centre

The development concept focuses on creating a vibrant heart for Hatfield. It proposes that routes throughout the town would converge at the centre in order to knit the development together. A heart could be reinforced by creating a new market place and pedestrian spine that connects the town centre to the interchange, car parks and existing Asda store. These extend to include existing routes to the

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<sup>(45)</sup> "The New Town Record - CD-rom, New Towns in UK, 1948-1996"

<sup>(46)</sup> "Hatfield Town Centre Redevelopment, a development brief for town centre east", November 2001, p.11-15

Galleria and station; it proposes a development of mixed uses that provide activity, vitality, visual interest, surveillance and vibrancy throughout the town centre. ... see figure (2-8).

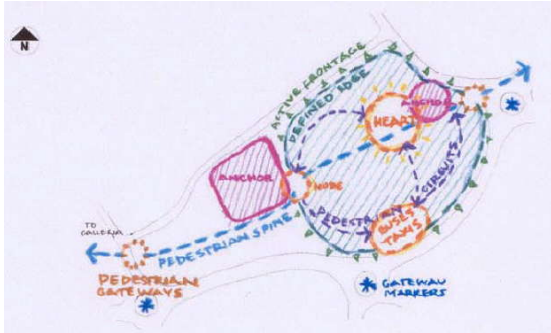


Figure (2-8), the redevelopment concept

In line with the development concept for the town centre east site, ... see figure (2-9)<sup>(47)</sup>, a high density mixed use scheme, focused around a new market square is considered to be the most appropriate solution to the redevelopment, it is envisaged both in terms of value and design quality that the following approaches and components should be incorporated into any proposal in order to create a more sustainable town centre with an extended evening economy and longer hours of activity, By achieving this, a more vital, Successful and commercially viable scheme will be produced.



figure (2-9), the town centre east site.

<sup>(47)</sup> [www.multimap.com](http://www.multimap.com), February 2001

### Retail & Leisure:

It is considered that the Town Centre East site could accommodate in the region of 11'000 sq m (120'000 sq ft) net of retail and leisure development. However, this figure should be treated as a guide, rather than a fixed maximum or minimum. Within this a wide range of unit sites should be included to reflect the needs of town centre retailers and shoppers. The provision of a significant proportion of smaller units will be important to enable existing town centre traders. Who want to relocate within the redevelopment area, to have an opportunity to do so? ... see figure (2-10).



figure (2-10). A mix of retail, residential and leisure development provides a fundamental base for town centre redevelopment

It is envisaged that redevelopment will make provision for at least one large retail unit capable of accommodating a retailer of sufficient note to successfully anchor the eastern end of the Town Centre East site. This will balance the strength and high customer turnover of the present Asda store and help to benefit new and existing shops by generating an increased footfall.

In addition to traditional retail uses, it is recognized that increasingly, leisure forms part of town centre development schemes. Therefore mixed retail and leisure proposals are welcomed for the redevelopment site. There is a desire that proposals should



encourage activity beyond conventional shopping hours and this could be achieved in the inclusion of, in particular, restaurants, but also other uses such as public houses, cafes and other leisure related uses.

To demonstrate flexibility and to encourage innovative proposals, the Council will not prescribe the precise nature or proportion of retail and leisure services to be provided on the redevelopment site. The Council will treat all proposals on their merit, although it wishes to emphasise that the main objective of the redevelopment is the provision of retail and will, therefore, expect to see a predominance of retail uses within the proposals.

It will be important to demonstrate as part of any proposals for the site that, as far as is practically possible, the disruption to trade in the town centre will be kept to a minimum. The phasing of development to permit traders within the redevelopment area to maintain a presence throughout the redevelopment period will be sought by the Council.

#### Office:

New small business occupiers are encouraged in the town centre. The town currently benefits from a variety of small Local businesses occupying accommodation on, mainly, the upper floors of retail floor space.

The focus for new office provision in the area is however, at the Hatfield Aerodrome site currently being developed by Arington, it is considered therefore that office floor space should not form a major component of the redevelopment.

An appropriate provision, however, of small Office suites at first or second floor level would be acceptable as part of a mixed use scheme, particularly where residential development may not be appropriate.

#### Housing:

The Council recognises the benefit of providing housing within the town centre and is actively encouraging the provision of new housing in the town centre as a means of bringing back life into the heart of Hatfield. Housing can support an after hours economy, improve

safety within the town, add to the mix of uses and provide accommodation for a range of households.

Although the redevelopment site is unlikely to be suitable for traditional family housing, it is considered that the redevelopment offers a major opportunity to provide a variety of dwellings that are fully integrated within the redevelopment scheme and with the rest of the town centre.

Any residential elements to the redevelopment should where possible be located on the upper floors overlooking the town centre. It is the Council's intention to encourage housing that addresses the street thereby creating a new active face to the town centre. Design issues such as this are of critical importance in securing the long-term success of the town centre, and the Council will require any redevelopment scheme to achieve high architectural and urban design standards.

#### Community facilities:

As part of the development, consideration should be given to the feasibility of the co-location to one site of those public service facilities currently located within the Town Centre,

In addition, other facilities which are an important part of community life but which are currently deficient in the town centre, Such as Post Office facilities, will be encouraged to be provided and at a high standard to meet the expectations of the community,

#### Market Place:

It is, considered that any development proposals should be focused around a new market square, to which the twice weekly market would be relocated in order to create a focus and encourage a synergy of uses that can feed off one another. The possibility of a permanent structure for the market is considered appropriate, constructed to provide a town centre landmark, help to contain space, create enclosure and provide shelter for traders. Ideally, both the local and farmers market would be co-located, though with a clearly identifiable boundary between them.

Contact at an early stage with the District Council regarding space requirements for each market (approximately 6'500 people visited

around 50 stalls at a recent farmers market) and any development proposals should look to provide currently lacking facilities for the traders, such as water, electricity and toilet facilities. New development should front on to the new market square, maximise retail frontage and provide an active facade. ... see figure (2-11)



figure (2-11). A market place located centrally could provide a focus for the town centre as well as encourage a synergy of uses between existing and new retail

#### Bus interchange:

The bus Interchange is intended to be a landmark facility that helps to integrate town centre activities and create an arrival space. It should provide a public amenity that helps to overcome present negative perceptions of public transport services; it is proposed that a structure be created within the space to accommodate public facilities and an information point. The existing trees within the interchange space should provide a nature and attractive setting. Materials within the space should be robust and of a high quality that complements the palette of those used in the construction of the rest of the development. Street furniture and signage provide Interest and Identity for the street, Lighting should be positioned strategically in order to maximise security and surveillance with 'feature' lighting in key spaces. ... see figure (2-12).



*Figure (2-12), A new bus interchange will challenge perceptions of public transport and provide an amenity for passengers.*

The Council's most favoured location is on the site of the existing Market Place. This location provides convenient vehicular access from Queensway and encourages strong pedestrian links to the town centre from the south. The design and layout of the bus Interchange will need to carefully take into account surrounding land and property uses, in particular the Market Place shop units.

#### Density, height and scale

In order to justify the capacity of the proposed development and provide a sustainable solution to the redevelopment of the town centre, high density will be appropriate. This can be achieved through efficient space planning, robust building typologies and an increase in height. Development around the town centre should relate in scale to the public realm. In response to this building of 4-5 storeys in height around the central square may be the most appropriate solution. ... see figure (2-13)



Figure (2-13), Applying the appropriate density height and scale to Hatfield town centre will provide more robust and sustainable redevelopment

### Public Realm Improvements

The town centre currently possesses a generous arrangement of public open space, but much is in need of upgrading. It is envisaged that as well as a new market place, new development should consider the enhancement and management of other public spaces outside of the redevelopment area in particular the route between Asda and the new development. High quality street furniture will be vital in ensuring a quality public realm throughout the town centre. Any prospective developer is advised to discuss this matter with the Council,

Art can play a valuable role in improving the quality of the built environment. Accordingly, it is considered that the redevelopment of the Town centre east site offers an opportunity to introduce an element of public art into the town. ... see figure (2-14)

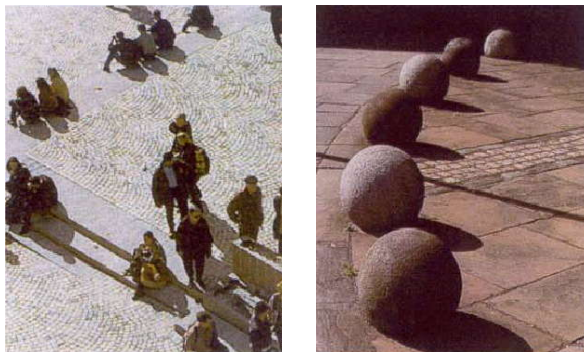


figure (2-14), Public realm improvements will help to focus activity and improve the vitality of areas within the town centre

### Car parking:

In order to accommodate the amount of car parking generated by a regenerated town centre, the Commons car park is likely to be in need of readjustment and enlargement, possibly as far East as Wellfield Road. This area should not be seen as a 'sea of cars' but as an extension to the public realm and will need careful consideration as part of any development proposals, the potential for residential developments fronting on to this space should be explored. ... see figure (2-15)



Figure (2-15), Car parking should be considered as an extension to other areas of public realm, as illustrated at Stanborough Park

Private car parking and designated parking should be provided for residencies within the town centre.

### Town Centre loop

The potential for a new limited vehicular access route through the town centre has been explored, the most likely route being from Commons Road to the new market place and onto Wellfield Road. Development proposals should investigate this potential further, it should be made clear that access along this route would be limited to, for example, disabled people, taxis in the evenings and out of hours servicing.

## 2-1-4-2) SOCIOECONOMIC FACTORS

A study of the community and its social and economic structure is important in determining the feasibility of a service. Demand in the proposed area must be of sufficient regional potential to justify the cost of a service centre. The level of business should be projected to increase or at least hold the line. If this is not the case, the feasibility of these services is in doubt.

The size and costs of the service must be realistic in relation to the volume of business taking place on it and also in relation to the property values on or near it.

### MARKET ANALYSIS

Socio-economic feasibility is based on a market analysis and projection. The analysis should cover the urban area, population characteristics, buying power, and competition.

### TRADE AREA

The trade area is the region that supplies major continuing patronage for a business area. It includes the primary trade area, within a 5-minute drive or a radius of about 1.5 miles (2.4 km); the secondary trade area, within a 15- to 20-minute drive or 3- to 5-mile radius (4.8- to 8 km); and the tertiary trade area, within a 25-minute drive or 7- to 8- miles radius. The survey of the trade area should consider traffic modes, access to the service centre, and location of competitive facilities.

### POPULATION

The population characteristics within the trade area must be studied to identify the potential user of the service. These characteristics include population number, population growth, and factors such as income level, age, and family size.

## SOCIAL CONCERNS

Other social factors to be identified, in addition to who the user or urban consumer is, are the activities, events, and programs that he or she desires to be programmed into the design and operation of a service. Downtown areas are busy places providing a variety of activities, features, and functions. These elements, properly located, will help to generate an improved social environment in the downtown, which in turn will lead to improved economic patterns. Public opinion surveys can establish what new activities, uses, and features would be desirable. Objectives can then be established for space requirements for these elements when the service centre is designed. Uses relate to vendors, outdoor restaurants, information booths, or related items add to the particular sense of a place can be added. Feature elements include items such as fountains, sculpture, children's play-grounds, and clock towers.

## PURCHASING POWER

Income levels within the trade area are important in showing, how much is available in relation to expenditures for categories of goods and services such as food, should be formulated so that benefits can be measured. Economic benefits can be projected from the market analysis data. Enough data are generally available to determine factors such as projected increase in retail sales, tax revenue, and property taxes, increase in the market value of improvements, and increase in the number of jobs. Other potential benefits are higher land values, greater numbers of customers, and heavier use of public transit. Social and community benefits may be evaluated by means of opinion surveys with such questions as, "Will this service help to upgrade existing community?" Functional benefits include such things as improving downtown traffic, service, safety, and security.

Some examples of environmental benefits are control of air pollution, improvement of aesthetic quality, and preservation of historic buildings.

A cost-benefit analysis can bring many favourable factors to the public attention and be instrumental in arousing community support for building a service.



### 2-1-4-3) POLITICAL, FUNDING, AND LEGAL FACTORS

A feasibility study is more than a review of traffic, parking, and market analysis; it is a public relations document. It must be a sound document that it can be used as a selling tool.

#### POLITICAL FACTORS

An important question is whether a service is politically feasible. Can the votes and approvals needed to make the service a reality be obtained? Who has the final decision-making power on closing a street or reducing the number of parking spaces? Those who advocate building a service facility should find out which groups or individuals may present problems and then meet with them to discuss the benefits of this service and at least to neutralize their doubts so that they will not hinder the project. The feasibility study should help answer all the questions that may arise about this service facility and should be made available to the public. Parts of the study may be published in the local newspapers, and copies placed in the library.

Obtaining an early commitment to the project and support from the business community, property owners, newspapers, politicians, and municipal administrators is helpful, as establishing a downtown study committee with representatives from all the above groups will keep the project moving and to act as spokes-men for it

#### FUNDING

If the feasibility analysis demonstrates that the project is viable, funding can be obtained. Funding from as many sources as possible is desirable, so that each can make a contribution to the overall project. Several types of funding are available for services. The government gives Community Development program grants to many cities.

Funds make money available to provide jobs in project areas under its public Works Program. The Transportation Authority makes grants for projects related a coordinated transportation system. The private sector may contribute.

Contributions to the development should be mandatory rather than voluntary. The assessment district may be based on front footage or gross square footage. A percentage of construction cost and

maintenance can be financed by this method. Cities issue bonds, and properties in the assessment district pay off the interest and principal. Assessments can also be used to match funds from outside sources.

#### **Example: Hatfield New Town, UK** **The town centre redevelopment**

##### **Funding and public consultation<sup>(48)</sup>**

In response to the declining role of the town centre, Welwyn Hatfield Council has been drawing up a regeneration strategy for Hatfield. It has set up a partnership to work with public, private and Voluntary sector agencies in the town on employment, training, community development, education, and physical infrastructure projects (partnership known as Welwyn Hatfield Area Regeneration Partnership - WHARP). A key part of this is a strategy for the redevelopment of the town centre.

##### Partnership<sup>(49)</sup>

Welwyn Hatfield council and English Partnerships are the principle parties aiming to secure the regeneration of the Town Centre East site. Invaluable assistance has also been gained from a wide range of public and private organizations.

Taking the lead role, the district Council's key responsibilities lie in the facilitation of the development and advice on planning; property; transport and environmental issues.

English Partnerships is the national organisation delivering regeneration and development. It works in partnership to create new jobs and investment through sustainable economic regeneration and development in the English regions. It also helps to provide quality places for people to live and work, to the highest standards of design, sustainability and environmental benefit.

A suitable private sector developer will be nominated by the two parties to bring together the funding and expertise to complete the land assembly, development and operation of the facilities. The most

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<sup>(48)</sup> "Hatfield Town Centre Redevelopment, A development brief for town centre east", November 2001

<sup>(49)</sup> [www.cemmanigate.com](http://www.cemmanigate.com), March 2001

appropriate mechanisms to achieve these objectives are to be established in due course.

### Land Ownership

Whilst the Council has limited ownership in the redevelopment area, the land ownership pattern in the town centre is fragmented. The land is held by a variety of local and national owner occupiers, institutional and smaller scale individual investors. English Partnerships also has a limited land interest in the town centre.

The Council and English Partnerships anticipate working closely with its partners to assemble all the land required to bring forward the redevelopment

### Public Consultation<sup>(50)</sup>,<sup>(51)</sup>

An integral part of the Council's consideration of the redevelopment area has been its commitment to inform and consult with the public. Some of the Key stages in the consultation process to date have been:

....1) WHARP\* awareness event in Hatfield town centre on 10/11 March 2000, which attracted over 1500 people, produced 160 written comment slips and 60 volunteers. Regular meetings with the resultant Community Panel have followed.

....2) Working with young people on a regular basis to gain young peoples views.

....3) Meeting with traders, residents etc of Hatfield town centre on 23 January - approx 70 attended.

....4) District Plan Review placed on deposit at the end of January 2001, with considerable direct communication with interested bodies, plus further press coverage about the plan including a strong element relating to the redevelopment proposals for Hatfield town centre.

....5) Regular letters sent to all known residents / landowners / business in the town centre.

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<sup>(50)</sup> [www.HRAG.com](http://www.HRAG.com), march 2001

<sup>(51)</sup> [www.HertsInternet.com](http://www.HertsInternet.com), march 2001

\* Welwyn Hatfield Area Regeneration Partnership - WHARP

....6) Publication of a leaflet at the end of May 2001, posted direct to all those with a legal interest in the town centre as a whole, plus placed in a variety of locations throughout the town for the public to take a free copy.

.... 7) General press coverage throughout.

the draft brief has been published widely for consultation, and is accompanied by a summary leaflet. There was an exhibition of the proposals in Hatfield town centre on 1 December 2001, where assistance was at hand to explain the proposals.

#### LEGAL FACTORS

State law must be researched to see what is possible under the laws on assessment. The state highway department can advise whether there are legal problems in closing or modifying a city street that is also a state route. In most cities, an ordinance must be passed by the city council in order to narrow an existing city street or to close a street completely to create a service centre.

## 2-2) Nature Of Planning For Community Service Facilities

### 2-2-1) THE PROCESS OF COMPREHENSIVE COMMUNITY PLANNING

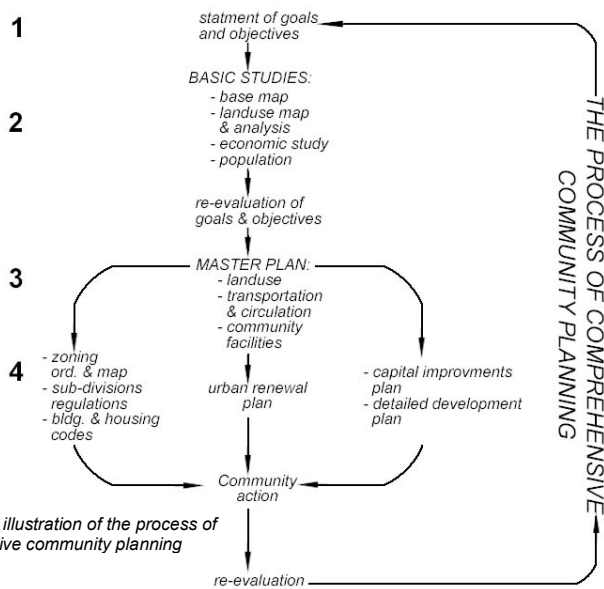


figure (2-16) illustration of the process of comprehensive community planning

### Example: Hatfield New Town, UK The town centre redevelopment

#### The Redevelopment Process

The following flow diagram, which is both historical and projected, indicates the process towards redevelopment.<sup>(52)</sup>

<sup>(52)</sup> "Hatfield Town Centre Redevelopment, A development brief for town centre east", November 2001

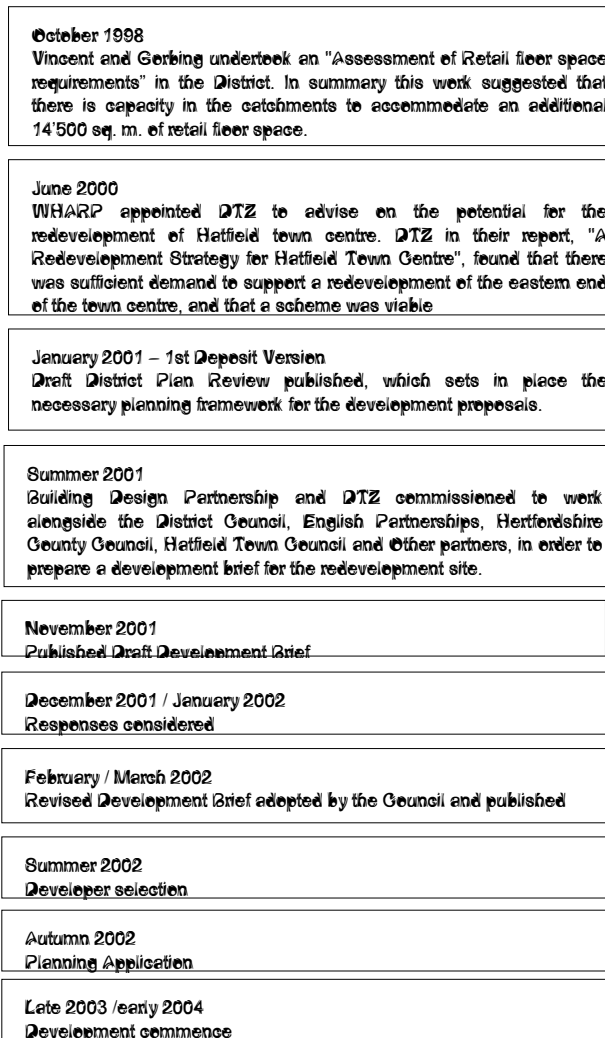


figure (2-17) the process of redevelopment of Hatfield town centre, east site

### 2-2-1-1) Land Use Planning

A planning program has four basic stages:<sup>(53)</sup> ... see figure (2-16).

1. A statement of goals and objectives.
  2. Basic research.
  3. Plan preparation.
  4. Plan implementation.
- A general statement of community goals and objectives, allows a planning agency to express the general values and goals of the citizen in regard to future development.
  - Once the goals and objectives have been stated the research can be accomplished.
  - A plan can be prepared. This plan tries to indicate how private and public action can achieve certain community goals and policies in the next 10 to 20 years.
  - One way a plan can be put into operation is by public action. If a community builds its public buildings and its civic developments in accordance with the plan, much can be done to carry out the proposals of the plan.
  - Private action is also important in effectuating the plan. The plan can mould private development in two ways:

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<sup>(53)</sup> Joseph De Chiara /Lee Koppelman, 1975. "Urban planning and design criteria", 2<sup>nd</sup> edition, P.3

- a) By regulations, such as subdivisions regulations and zoning ordinances, requiring minimum standards of development.
- b) By influence on private citizens to develop their land in accordance with broad community objectives, benefiting the developers and the whole community.

To be effective, a plan must be revised periodically. Such updating, to make it compatible with changing conditions. For only planning on a day-by-day basis can give a plan any real effect.<sup>(54)</sup>

#### 2-2-1-2) The community facility plan

A community facility plan describes the general location, character, extent and adequacy of all appropriate public facilities.

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<sup>(54)</sup> Joseph De Chiara /Lee Koppelman, 1975. "Urban planning and design criteria", 2<sup>nd</sup> edition, P.3,13



"In developing a community facilities plan, the planning agency must determine community goals and objectives based on the level of municipal services desired. Such a plan attempt to balance community desires for needed future services." <sup>(55)</sup>

This process follows some actions to produce a final plan for the community and its service facilities. ... see figure (2-18).

### COMMUNITY & PUBLIC FACILITIES

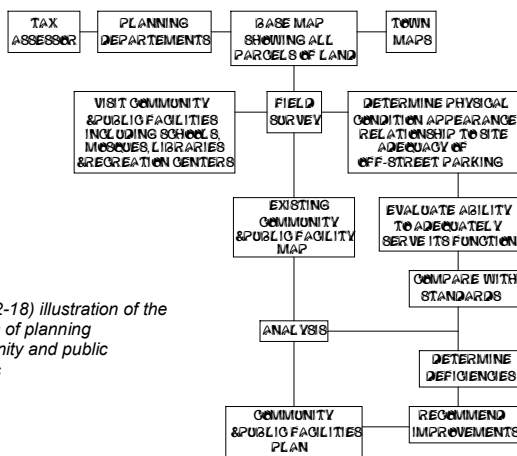


figure (2-18) illustration of the process of planning community and public facilities

The following must be determined:

- The community's future population and its distribution.
- The level and type of services the community desires, expressed as local standards and policies for development.

<sup>(55)</sup> Joseph De Chiara /Lee Koppelman, 1975. "Urban planning and design criteria", 2<sup>nd</sup> edition. P.5,15,17

Such local standards for community facilities, when used with a proposed population level and distribution, are a guide for preparing a plan for the placement of schools, the amount and placement of recreational land, the location and extent of public buildings and the need for such environmental health facilities as a sewage system, water supply and a solid waste disposal system.

It is extremely important to integrate the community facilities plan with the land use and transportation plans; as the location and arrangement of community investment should implement the land use and transportation plans.

### 2-2-1-3) Transportation Planning

Transportation should be carefully interrelated with the landuse. A major determinant of how much traffic a particular street will carry is the development and arrangement of the land uses in its vicinity. Conversely, the land use arrangement in an area is determined to an extent by the traffic patterns. Therefore, integration of the transportation plan and the landuse plan is essential.

In planning for a fully integrated transportation system plan, two networks must be studied carefully, putting into consideration their impact on other landuses: - transit network, - roadway network.

#### 2-2-1-3-1) TRANSIT NETWORK

The transit network includes the bus and high speed transit network in relation to the employment, shopping, residential and recreational areas they serve; and in relation to time – distance zones of service. The network includes express routes and terminal exchange facilities (bus and trucks depots, major transfer and connection points). The transit network should also be related to any railroad network.<sup>(56)</sup>

#### 2-2-1-3-2) ROADWAY NETWORK

Roads are the facility that provide access to each piece of land as well as connecting landuses with each other, they are classified according to purpose that reflect their size, speed, and design specifications. There are a lot of classifications around the world, but the most fundamental classification is:

- a) Arterial highways are a community's major transportation highways. Their use for primarily inter- city or cross - city traffic depends upon the size of the community. Because they are to carry the most traffic without conflicting with adjacent landuses, they are usually limited - access or controlled - access highways.
- b) Collector streets are highways that carry traffic from minor streets to arterial highways. They gather traffic from local or major highways.

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<sup>(56)</sup> Joseph De Chiara /Lee Koppelman, 1975. "Urban planning and design criteria", 2<sup>nd</sup> edition, P.6,14

- c) Minor streets are mainly to provide access to individual properties.

By designing each specific street to handle a particular type of traffic, the network achieves the least interference with landuse and the greatest efficiency in traffic circulation.

In order to achieve a successful urban transportation system the following basic elements should be fully considered in the urban planning transportation process:<sup>(57)</sup>

- a. Economic factors affecting development.
- b. Population.
- c. Landuse.
- d. Transportation facilities including those for mass transportation.
- e. Travel patterns.
- f. Terminal and transfer facilities.
- g. Traffic control features.
- h. Zoning ordinance, subdivision regulation, building codes, .....etc.
- i. Financial resources.
- j. Social and community value factors.

#### Example: Hatfield New Town, UK

The Transportation System that serve the town centre<sup>(58)</sup>

##### Roads

The town centre is well connected in terms of the internal road network. The central shopping area is, in effect, a large traffic island and any destination within the town may be accessed from one of the roads feeding off this roundabout: ...see figure (2-19).<sup>(59)</sup>

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<sup>(57)</sup> Joseph De Góiera /Lee Koppelman, 1975. "Urban planning and design criteria", 2<sup>nd</sup> edition. P.6,14

<sup>(58)</sup> "The New Town Record, Q2-rem, New Towns in UK, 1948-1996"

<sup>(59)</sup> [www.multimap.com](http://www.multimap.com), February 2001

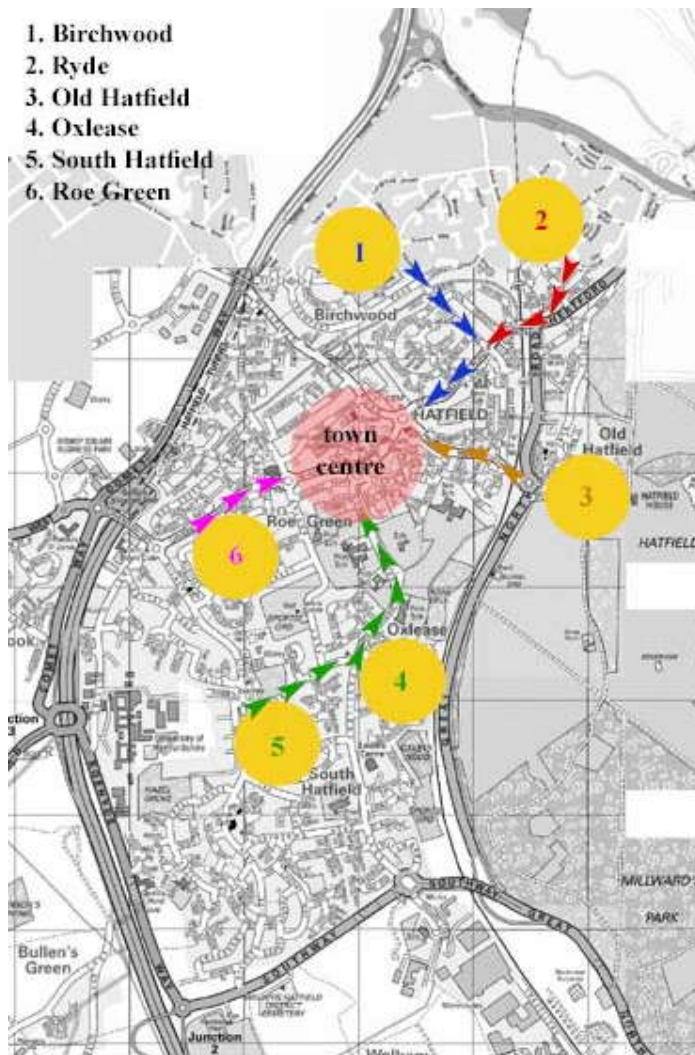


Figure (2-19) Hatfield town centre is directly connected to all the neighbourhoods by its road network

... 1) To the north Birchwood may be accessed via St Albans Road East and then Ground Lane.

... 2) The Ryde neighbourhood may be reached directly via St Albans Road East and Hertford Road and into the Ryde.

... 3) Old Hatfield may be reached directly via French Horn Lane.

... 4) Oxlease may be reached directly via Woods Avenue.

... 5) South Hatfield can be reached by taking a number of routes, the two most direct being via Woods Avenue and Travelers Lane and via Cavendish Way and then Bishops Rise.

... 6) Roe Green is situated just outside the Central area and may be accessed directly via Cavendish Way.

### Rail

Hatfield Railway Station is located in the Old Hatfield neighbourhood. The Station is well situated to serve the town being relatively close to the town centre but yet not in an obstructive location. The town centre is easily reached from the Railway Station via French Horn Lane and the Great North Road. Although situated outside the town centre, the railway station is located on a major road, which allows for easy access to almost any part of Hatfield. The traffic generated by the station is therefore separated from the main town centre traffic, thus avoiding congestion.

### Pedestrians

The town centre is completely pedestrianised and other facilities for the pedestrian, such as street furniture, are generally well provided for.

St Albans Road was closed at Stone house Corner except to pedestrians and cyclists. One of the main reasons for the necessity of stopping up St Albans Road at the Stone house are briefly to prevent the shopping centre being congested by through traffic.

The town centre is a large traffic island with full pedestrianisation in place around the shopping area. Two car parks are situated within the town centre area, which allow shoppers to park their cars and

then to walk around the retail area away from the negative effects of motor traffic. From the car park in the southwest corner of the town centre, pedestrians gain access into the retail area via Dog Kennel Lane. This lane runs through the shopping area to The Arcade, which acts as the main spine route to pedestrian movement within the town centre. Access to other car parks in the east of the town centre, Market Place and White Lion Square, may be gained from The Arcade. ... see figure (2-20).

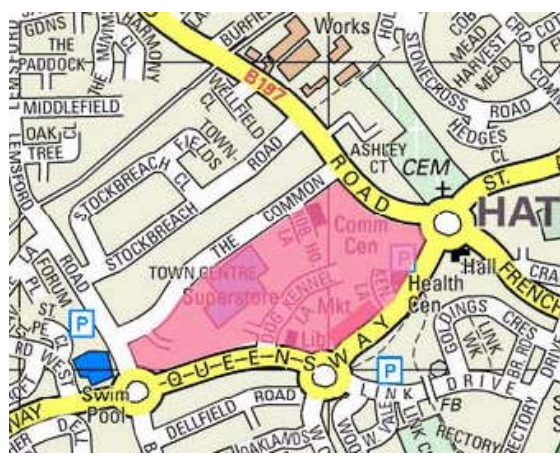


figure (2-20), the town centre is a large traffic island with full pedestrianisation.

The town centre layout takes the form of two main squares linked by a pedestrian shopping arcade. White Lion Square was located to the north of St Albans Road and designed to be surrounded on three sides by the larger stores and contain the new post office. St Albans Road was pedestrianised to be free of through traffic and from White Lion Square, where it was considered that shoppers would walk southwards, there are small one-storey shops on either side. By following this route shoppers would emerge at the market place, which faces southwards towards Queen's way and the main green areas of the town. Plans were made for a spacious piazza, which would be closed to vehicular traffic. The piazza area would have offices, a new health centre and a public house on its eastern side and on its northern and western sides there would be shops and offices at two levels, which would be reached by staircases and

galleries. A slim nine-storey glass fronted office building with the county library at its foot was also proposed.

### Cycles

Hatfield has a generally good road network and provides well for both the car user and the pedestrian, it does not have much in the way of provision for the cyclist. Cycling is often overlooked as a serious method of transport and the result of this is that very little consideration or funding is given to developing cycle-ways.

Cycle routes serve to separate bicycles from all other road traffic in order to provide as safe an environment as possible for all involved.

... see figure (2-21).



Figure (2-21). A cycle lane at the Ryde neighbourhood

Of all journeys to work in Hertfordshire, 60% are five miles or less and so the potential exists to considerably increase the number of those cycling to work. It is possible that the lack of connected cycle routes is an influencing factor in persuading those who may otherwise consider using a bicycle to take the car instead.

At present Hatfield does have some cycle routes. The most substantial of these enters the town from the west and travels through Roe Green and skirts the town centre, terminating at Homestead Road in the Birchwood neighbourhood. Other existing cycle routes are spread throughout the town in various locations.



All the cycle-ways mentioned do not link with each other or provide a coherent strategic network of cycle routes, which could be used to travel any great distance without the use of roads. The cycle-ways have not been strategically planned or co-ordinated but appear to have developed in a somewhat haphazard manner.

Welwyn Hatfield District Council has proposed additional cycle routes for Hatfield New Town. These proposed cycle routes do not link with each other or with any of the existing routes. The proposals do not, therefore, substantially progress the development of the comprehensive strategic network for travel by bicycle.

### 2.2.1.3.3) ROLE OF THE TRANSIT AND PEDESTRIANS SYSTEMS IN THE PLANNING PROCESS

"A simple expression of this imbalance between urbanism and environmentalism was in the treatment of the street. Separating the pedestrian onto "greenways" and careless paths was a flawed strategy from the Radburn experiment of the 1930s, ... see figure (2-22), - a neighbourhood design which, in attempting to control the car, sacrificed the street to it. Likewise the Modernist's "building in the park" approach to town planning ultimately helped



figure (2-22) example of Radburn, Nj experiment 1930s

killing the life of the street by separating it from the activities of the buildings that lined it. Both of these approaches were incorrectly adopted into Sustainable Communities and the models it presented. Environmentally sound communities need parks, regional greenbelts, and high-quality open space, but they also need density and street-life. Isolated from a larger concept of human habitat, the environmental movement could be in danger of becoming another "special interest group" which can optimise its goals while losing sight of a larger purpose." (60)

(60) Peter Galthorpe, "The Next American Metropolis", 1993, p. 44-49.

The concept that resulted used walk-able, mixed-use neighbourhoods to reinforce transit, preserve open space, and make a more compact metropolitan form. These places, called Pedestrian Pockets, ... see figure (2-23), were meant to form a regional network

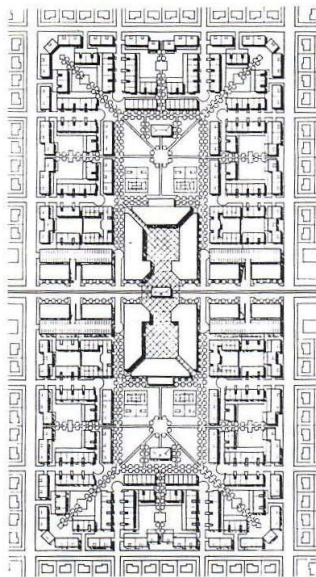


figure (2-23) the pedestrian pocket: it was set by the comfortable walking distance of one quarter

spanning infill and green-field sites, inner-city and suburban locations. They were built on the notion that retail, employment, and transit were nodal and decentralizing at a rapid rate. The diagram for the Pedestrian Pocket mixed several mid- to high-density housing types with jobs over shops at a transit stop. The size of the Pocket was set by the comfortable walking distance of one quarter mile. Although a grid, it was still based on the Radburn model; cul-de-sac streets with segregated pedestrian paths leading to the centre.

## Travel Behaviour

Central to the planning concepts is their implications on travel behaviour: the way we choose to get around, the frequency of trips, and the distance of each journey. ... see figure (2-24). Though many factors other than land use configurations affect our travel behaviour - such as the cost of gas, auto ownership,

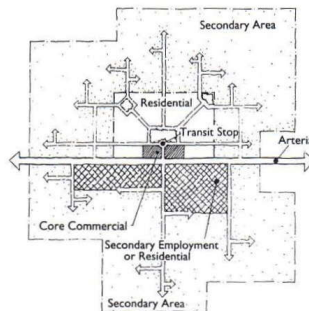


figure (2-24) locating transit stop and implications on travel behaviour

parking expenses, the amount of time lost to congestion, and the quality of transit - the effects of land use on travel behaviour are formative. In fact, land use patterns are the foundation upon which the viability of travel cost, time, and investment factors depend. If land use primarily supports the auto, then increasing the costs of operating cars and allowing congestion to grow will only result in pain, not a fundamental reorientation of travel behaviour. Without coordinated land use policies, increasing transit investments will only lead to under-utilised facilities. On the other hand, if land use configurations support alternatives to the car, then many results are possible: people may choose to walk, bike, and use transit more often; they can combine trips more easily; there may be shorter, more direct routes to local destinations; they may actually be able to reduce the number of cars they own; and because of these changes, reduced congestion on highways and arterial roadways is possible.

In order to fully understand the dynamic of land-use and travel behaviour, and be able to use it in the design of communities, the components of traffic analysis must be understood. There are several critical factors used in traffic analysis, each with special implications. Auto ownership per household is a fundamental measure of the travel bias of a region. And it affects the household budget directly.

Vehicle Miles Travelled per household is another significant milestone. VMT directly affects the amount of road usage and therefore maintenance and construction costs. The number of trips per household per day is another factor on the rise.

Different countries demonstrate significant variations in the relationship between land use, public transportation policies, and travel behaviour. In European communities auto use is generally between 30% and 48% of all trips; transit comprises between 11% and 26% of all trips; and pedestrian/bike trips are from 33% to 50% of the total (transit there is supported with healthy pedestrian environments). In comparison, the U.S. average mode split is 86% via auto, 8% walking, 3% bike, and 3% by transit. Canada has a similar walk/bike mode split but much higher transit utilization - 15% of all trips rather than 3%. ... see figure (2-25).<sup>(61)</sup>

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<sup>(61)</sup> Peter Galloppe, "The Next American Metropolis", 1993.

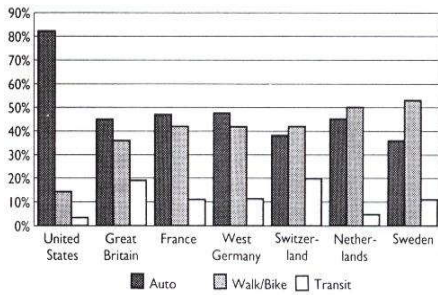


figure (2-25) mode split as percent of total trips

land use configurations inhibiting our ability to set similar public pricing policies? And to what degree would more compact, walk-able, and transit-oriented land use patterns independently change travel behaviour?

There were several factors other than land use configuration, which affected travel behaviour neighbourhoods. Lower average household incomes, better transit service, and closer proximity to the metropolitan centre all characterized the older like neighbourhoods. New neighbourhood may not be able to match the proximity and they may have slightly higher average incomes than the older neighbourhoods, but they should have equivalent transit service and similar land use diversity and density.

It has been shown that a higher percentage of people are likely to use transit if they can walk to the station, rather than get in their cars to drive to a "park-and-ride" lot. As the convenience retail, recreational, civic, and entertainment elements of new transit oriented neighbourhoods develop, modified from the traditional neighbourhood development, ... see figure (2-26). Combined trips would increase as people run errands on foot to and from the transit stop. Park-and-ride

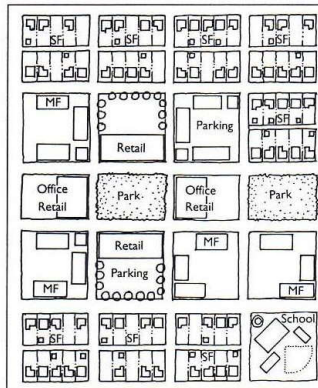


figure (2-26) the traditional neighbourhood development

lots would continue to be a part of any transit system, but should not typically be located within neighbourhoods. Transit utilization in neighbourhoods would increase over time as the mix of uses reaches build-out, as the transit corridor develops, and as residents and employees come to see the convenience of transit service. Simultaneously, the type of transit service coming to neighbourhoods can mature. It may start with local bus service, add express bus service as rider-ship grows, and finally provide fixed rail connections. Understanding this important linkage is fundamental to charting an intelligent and benign version of New Communities.

**Example : LUTRAQ, Portland, Oregon\_1991**

#### **Locating Service Centres And Transit Stop; Their Effect On Travel Behaviour**

LUTRAQ is a USA national demonstration project sponsored by a nationally renowned environmental group that helped create Oregon's state-legislated regional plans and Urban Growth Boundaries.<sup>(62)</sup>

The LUTRAQ land use was reallocated into a mixed-use pattern that supports the planned light rail and bus network extensions. The plan simply reorganized the land uses, which were predicted to develop in the next twenty years; the overall density and proportion of different housing types were not altered. Four new types of development were planned:

- Mixed-use Centres to urbanize existing down- town areas through redevelopment and infill;
- Urban Development at station areas along the planned light rail lines;
- Neighbourhood Transit Oriented Development within a short feeder bus ride of the light rail;
- Secondary Areas within a mile of each centre. ... see figure (2-27)

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<sup>(62)</sup> Peter Galloppe, " The Next American Metropolis", 1993.

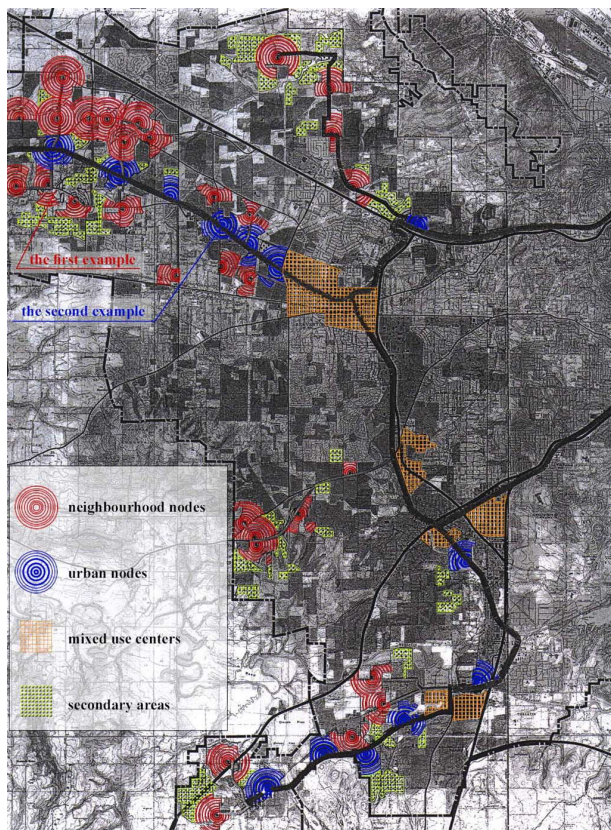


figure (2-27), types of planned development in the project site.

The research will focus on locating two centres only of the whole project, studying the site conditions before and after the project and how travel behaviours were affected.

In the first site:

The existing conditions of an area which is about to experience rapid growth in the western part of the Portland region. ... see figure (2-28). Note, the apartments and shopping centre on the upper right, people

who live there can not walk conveniently to the shops because the retail area is walled-off in the rear and bounded by major roads on the other three sides. In the lower right is a forest which will be preserved.

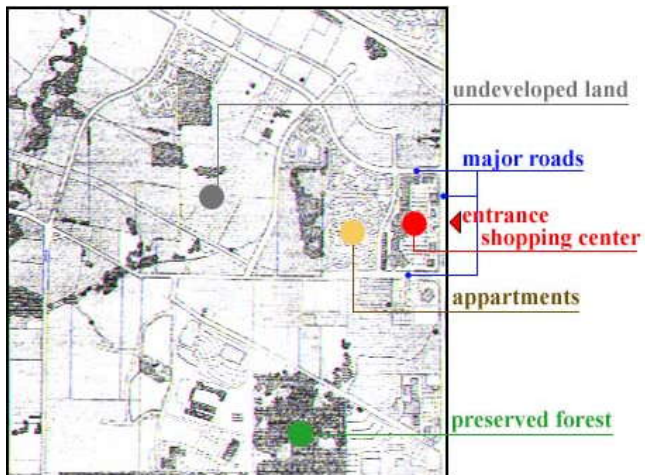


figure (2-28) the existing conditions of part of the western part of Portland region

The site plan locates two potential Neighbourhood centres, each with a retail and civic focus, a local connecting street network, and a variety of housing types. The large industrial and commercial uses shown are unfortunately fixed because of recent project commitments. ...see figure (2-29).

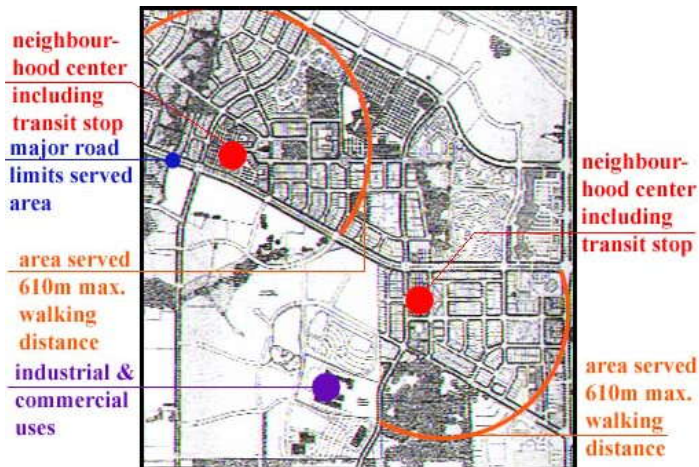


Figure (2-29) two neighbourhood centres were located to serve the area

Each neighbourhood is bounded by a 2'000 ft (610m) walking distance or a major arterial roadway. A feeder bus would stop at each centre and run to the light rail station one and one-half miles away (2.4 km).

In the second site :

The existing conditions around a planned light rail station show the standard sprawl patterns typical in this area. ....see figure (2-30). fortunately, several of the subdivisions have roads stubbing out into undeveloped parcels that can allow local street connections to the potential neighbourhood centre and transit stop.

The land south of the tracks and to the east of the collector road is currently zoned for office, a use which is appropriate for a major transit station.



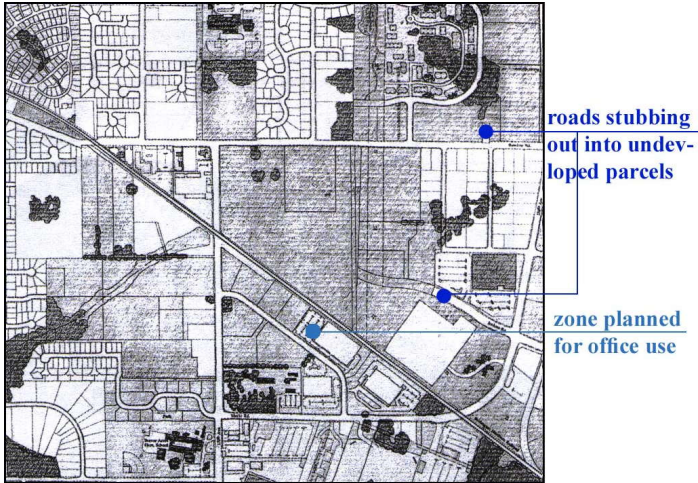


figure (2-30) the existing conditions of the area around a planned light rail station in Lutraq, Portland Oregon

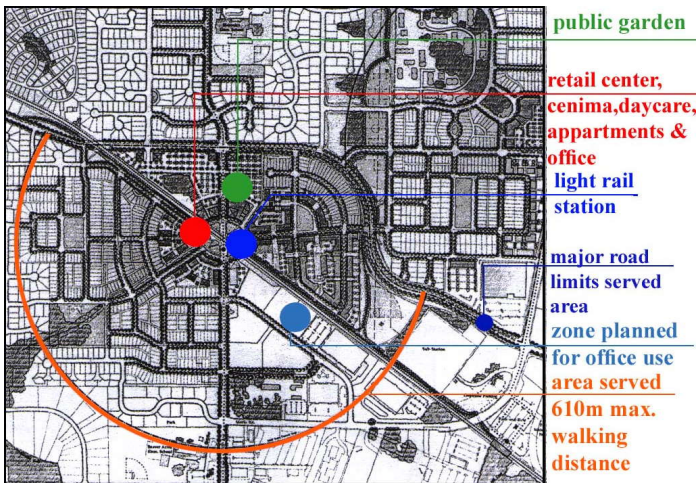


figure (2-31) the light rail station area was converted to a service centre to be used during the residents daily trips

The plan of the second site represents an example of the type of development, which is proposed for a light rail station area. At the station is a public gardens surrounded by a retail centre, cinema, day-care, apartments, and offices.

Radial streets connect to neighbourhoods of town house, small-let single-family, and traditional single-family lots. Neighbourhood parks are within two blocks of each house and an existing elementary school is located at the southern edge of the site. At the upper right is a Neighbourhood, which is separated from the station area by a six lane arterial, but will be connected by a feeder bus. ...See figure (2-31).

#### Conclusion:

- The project had supported a study of alternative land use and transit options to demonstrate more freeways are not the only solution to increasing traffic. This Development patterns were used to show that, choosing the right location for service centres, could effectively reduce auto dependence, increase mobility, minimize air quality impacts, and create more affordable communities.

- After locating the mixed use centres within a walk-able distance of the residents, considering the impact of transit stations, A traffic prediction computer model was set: enhancing the standard traffic prediction using current travel behaviour into the future, and a "Pedestrian Friendliness factor to simulate the impact of neighbourhoods that were walk-able.

- The computer mode results show a four times increase in walking and two and one-half times more transit use.

#### **Transit Stop Location**

Trunk line transit stops should, whenever possible, be centrally located and adjacent to the core commercial area. Commercial uses should be directly visible and accessible from the transit stop. Feeder bus stops may be located in Secondary Areas along connector streets and adjacent to parks and public facilities.

Accessibility is the key to successful transit rider-ship. A centrally located transit stop is closest to the greatest number of neighbourhood residents and employees. Transit stops should

provide pleasant and convenient access to residential and commercial areas. In the best of all possible worlds the transit station would be in the middle of a neighbourhood, providing the shortest walking distances for all users.

Ideally, the transit stop should be centrally located, away from the arterial, and bus routes should loop through the community to the transit stop. If the community is to be served by light rail, the line should either feed directly into the heart of the community and its core commercial area, or may be located along the arterial street. The core commercial area should be located so that at least a portion of the retail is along the arterial and directly accessible from the transit stop via sidewalks and clear pedestrian connections. ... see figure (2-32).<sup>(63)</sup>

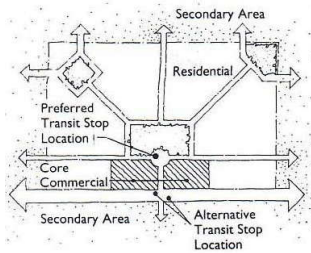


figure (2-32) the transit stops should be centrally located

Communities along express and feeder bus routes should respond to the linear nature of the transit line by forming a series of transit-oriented nodes, rather than perpetuating current strip commercial patterns. Where possible, bus routes should follow parallel connector streets that feed directly into the core commercial area, thus helping to separate through traffic and transit operations. Where bus stops must be located along arterials, the neighbourhood should be located on one side with crosswalk improvements to facilitate frequent pedestrian crossings.

### Access to Transit Stops

Streets must be designed to facilitate safe and comfortable pedestrian crossings to the transit stop. Park-and-ride lots, "drop-n-ride" and major bus drop-off areas should not isolate the station from local pedestrians. ... see figure (2-33).

Most people will use transit only if it is fast, safe, and very convenient. Accessibility to transit stops must be given high priority in the design.

<sup>(63)</sup> Peter Caliper, "The Next American Metropolis", 1993.

of streets in order to promote transit rider-ship. Street crossing placement, design, and markings should recognize the need for fast and flexible access to the stop.

One of the greatest design flaws of station configuration is to surround it with parking and noisy bus areas. This separates the station from the pedestrian and effectively makes the station a detriment to any mixed-use development. Residents rarely enjoy a view of a park-and-ride lot or the noise of a bus zone these all-too-common configurations destroy the opportunity for an urban environment to evolve in a station area. Often these undesirable facilities can be placed on one side of the station, leaving the other for pedestrian-oriented environments to develop.

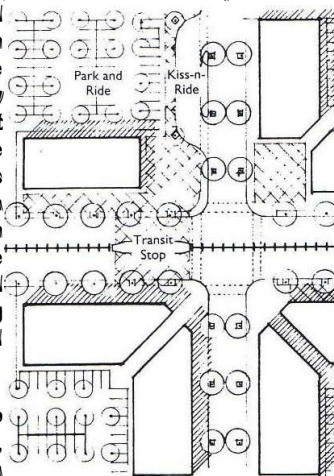


figure (2-33) "park-n-ride lot" and "drop-n-ride" major bus drop-off areas should not isolate the station from local pedestrians

Transit passengers are likely to make frequent street crossings, some at mid-block, depending on the location and design of the transit stop. Adjacent street design must recognize the need for easy, safe, and fast pedestrian access, by providing sufficient auto and pedestrian visibility distances, stop signs or manually operated traffic signals, handicapped access, and clearly marked pedestrian crossings at signalised intersections.<sup>(64)</sup>

### Parking Requirements And Configuration

Park-and-ride lots are not appropriate for all trunk transit line stops. Surface parking lots specifically devoted to park-and-ride should not be provided in neighbourhoods. Rather, they should be located at the ends of trunk lines, at stations with little possibility for mixed-use development, or in Secondary Areas adjacent to the boundaries of

<sup>(64)</sup> Peter Galloppe, "The Next American Metropolis", 1993.

neighbourhoods. Alternately, park-and-ride lots may be provided within structured parking lots located close to the transit stop.

While park-and-ride lots are extremely important components to building the rider-ship of the overall transit system, they do not necessarily augment the uses, activities, and densities of a mixed-use, transit-oriented neighbourhood. The location and type of park-and-ride lots should be considered in terms of the goals and function of the entire transit system.

Recognizing the need for parking facilities within urban neighbourhoods to serve both the core commercial area and the transit stop, structured parking lots available to the public may be provided. The size of the structured parking facility should be based on projected station and commercial area needs. These parking structures should be financed and constructed in conjunction with other public improvements.

### Parking Standards

Reduced parking standards should be applied to urban neighbourhood in recognition of their proximity to high frequency transit service, their walk-able environment, and mix of uses. Standard parking ratios are recommended for Neighbourhoods and Secondary Areas.

Limited, rather than ample, parking supplies encourage commuter use of transit service. Minimum requirements help to avoid "spill over" parking in retail areas or nearby neighbourhoods; maximums guard against overly generous parking supplies that discourage transit use and contribute to construction of large surface parking lots. The most effective location for implementing reduced parking standards is in Urban neighbourhoods located along the trunk transit line network.

For residential development, parking standards vary based upon community characteristics such as pedestrian orientation and transit availability. The highest minimum parking requirements are generally found in the newer, more suburban communities as follows:<sup>(65)</sup>

Office	3.3 spaces/1'000 sq-ft ~92.9 m <sup>2</sup>
Retail	5.0 spaces/1'000 sq-ft ~92.9 m <sup>2</sup>
Light Industrial	2.5 spaces/1'000 sq-ft ~92.9 m <sup>2</sup>

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<sup>(65)</sup> Peter Galloppe, "The Next American Metropolis", 1993.

Based upon site-specific study, parking requirements should be set approximately within the following ranges:

Office	2-4 spaces/1'000 sq-ft ~92.9 m <sup>2</sup>
Retail	3-5 spaces/1'000 sq-ft ~92.9 m <sup>2</sup>
Light Industrial	1-3 spaces/1'000 sq-ft ~92.9 m <sup>2</sup>

In preparing and implementing a parking ordinance, the following should be taken into consideration:

1. Communities using parking standards, which differ from the typical suburban requirements, described above should be reviewed to determine the appropriate minimum and maximum standards.
2. Bike parking standards should be established for non-residential uses.
3. Parking studies should be conducted as necessary to evaluate projects that have been granted parking reductions. If recommended by such studies, feasible reductions should be implemented and included as features in future projects.

### Joint Use Parking

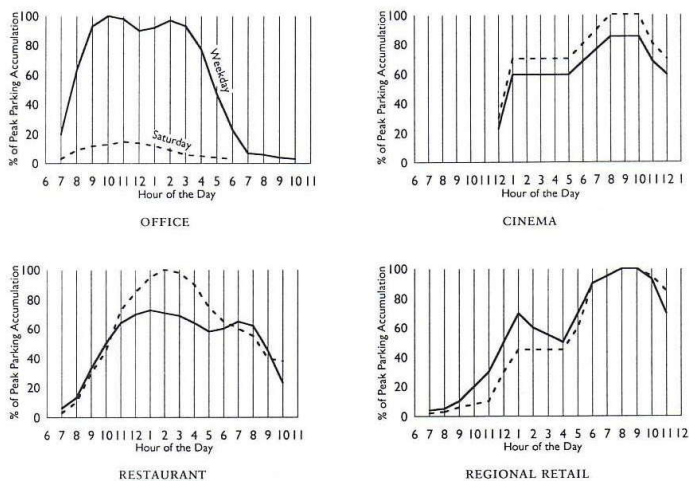


figure (2-34) peak parking accumulation along the day

Joint parking allowances are recommended for adjacent uses with staggered peak periods of demand. Retail, office, and entertainment uses should share parking areas and quantities. A portion of any project's parking requirements may be satisfied by on-street parking.

Projects with a mix of uses should seek to reduce the total number of parking spaces by comparing peak demand of each use by time of day, day of the week, and season. Where the varied parking demand for proximate uses allows joint use of a single parking facility, a reduced number of spaces is strongly encouraged. Shared parking areas should be conveniently located to all uses, but do not need to be located on the same parcel as the use.

The complementary relationship between land uses in a mixed-use area encourages multipurpose trips. ... see figure (2-34). Thus, a single parking space can serve several land uses. Additionally, peak-parking demand for different land uses is often generated at different times during the day, week, or season. This also allows joint use of the same parking spaces for several uses. Reducing the amount of land devoted to parking allows more efficient use of land closest to transit.

Utilizing on-street parking spaces to fulfil a portion of the total parking requirement will also help reduce the amount of land devoted to parking, while continuing to provide the necessary amount of parking spaces. The number of on-street parking spaces available on the contiguous street frontage of retail, office, or public use sites, may count against the total required number of parking spaces. To ease parking problems, on-site tandem parking is strongly encouraged.

#### Parking Lot Landscaping

All parking lots should be planted with sufficient trees so that within ten years 70 percent of the surface area of the lot is shaded. Additionally, parking lots should be screened from streets by

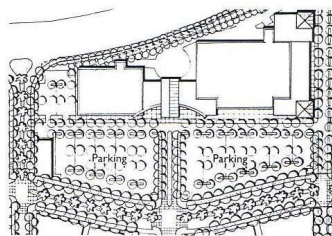


figure (2-35) parking lots landscaping shade 70percent of the area in 10 years

non-bermed landscape treatments. Where possible, overflow parking areas should be developed with a permeable surface. ... see figure (2-35).

This guideline is intended to achieve an environment that is comfortable to pedestrians. Trees should be located along walkways; perimeter landscaping should screen views of cars, but not block views of retail facades. Tree canopies should be trimmed to provide shade, but should allow building visibility. Asphalt area can be limited by converting the peak parking areas to permeable surfaces such as gravel. This will allow water to percolate into the water table and will visually limit the "sea of asphalt" atmosphere many major shopping areas develop.

Trees and other landscaping are particularly important for surface parking lots, which absorb significant amounts of solar heat and create uncomfortable places for pedestrians. Landscaping along parking lot perimeters should also be provided to soften the visual impact of rows of parked cars and define the edge of the sidewalk.

#### Example: Hatfield New Town, UK The Town Centre Redevelopment

##### The Role Of Transportation And Parking In The Redevelopment Process <sup>(66)</sup>

###### Existing Situation

Hatfield town centre has been pedestrianised since the 1960's. The pedestrian area, as well as the most convenient car parks is on an isolated island within a ring of over designed carriageways.

Pedestrian and cycle access to the town centre, from outside the ring of carriageways formed by Queensway, Wellfield Road, The Commons and Lemsford road, is difficult. Access by car is easy, but convenient parking close to the shops, is hard to find, due to the predominance of long stay parking in the best locations.

Bus services for the town centre are less than ideal, as the stops are not centralised in one location. A considerable walk can be required,

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<sup>(66)</sup> - Hatfield Town Centre Redevelopment, A development brief for the town centre east', November 2001.



including crossing Queensway, to find the appropriate stop. Identifying the appropriate stop in the first place can be difficult.

Servicing of the majority of the retail and office units, takes place from car parks, resulting in an undesirable mix of heavy traffic and pedestrians.

The redevelopment of Hatfield Town Centre East site offers an opportunity to positively tackle some of the above issues.

### Bus Interchange

A new bus interchange is required as an integral part of the scheme. The preferred location is in the position of the existing Market Place. ... see figure (2-36).



To the right, Figure (2-36), a new bus interchange will help to integrate town centre activities and provide a gateway to Hatfield.

The following specific requirements need to be accommodated:-

- .... i) Provision for at least 4 stops, with space for a minimum of two additional buses (either as layover space or as double stop lengths).
- .... ii) Design to be high quality, including surfacing / choice of materials / types of shelter. ... see figure (2-37).
- .... iii) Design to meet Disability needs.
- .... iv) Covered passenger area or bus shelters that are highly visible
- .... v) seating areas.
- .... vi) Provision for paper and electronic information systems.
- .... vii) Public telephone and nearby toilet facilities.
- .... viii) Ease of operational access to and from Queensway.
- .... ix) Integration with main pedestrian routes and safe management of pedestrian crossing movements.



Figure (2-37), new facilities should provide passengers with facilities and response to the microclimate.

It is likely that the exit from the bus interchange will require signal control, with bus priority, to facilitate the right turn out of the station. This is likely to necessitate the alteration and incorporation of the existing pedestrian crossing facility, between Link Drive car park and the Market Square, in the new arrangements.

### Pedestrian and Cycle Facilities

Pedestrian and cycle links to the town centre must be improved. This will involve specific proposals to be implemented in conjunction with the development and contributions for improvements to further links.

Specific pedestrian / cycle crossing locations was provided in conjunction with the development. Contributions towards the improvement of pedestrian and cycle links for the town centre should cover links to / from, the Railway Station, University Campuses. The overall aim will be to try and establish a full network of routes. Any amendments / alterations to the crossing by Market Place in conjunction with bus priority proposals will have to include provisions for pedestrians and cyclists. ... see figure (2-38).



Figure (2-38), crossing facilities should be improved to increase ease of movements. Location of these should be along pedestrian desire lines

## Parking

Cycle parking in the town centre also needs to be considered in the light of the proposed cycle routes. ... see figure (2-39).



figure (2-39), cycle facilities should be located within the town centre to encourage healthy living

As for car parking an assessment was required for the redevelopment area will need to be carried out as part of any development proposals. The actual figure appropriate will vary dependant upon the gross floor area and the use mix finally agreed, taking into account the both loss of existing floor space and the remaining floor-space in the town centre. ... see figure (2-40).



figure (2-40), original treatment of surfacing, planting and lighting in car parks should be encouraged

To aid the creation of development proposals, the following information is supplied:

#### Parking standards

New Food Store	1:18 sq. m.gfa.
Other new retail units	1:40 sq. m.gfa
Remaining existing retail	1:40 sq. m.gfa
Office	1:40 sq. m.gfa

\* gfa ~ ground floor area

A discount of 25% for a town centre location can be applied to the total figure arrived at using the above standards (excluding residential parking). This is in accordance with Hertfordshire Structure Plan policy, and is due to the central location of the development site

Additionally, a discount of 15% is to be applied to take account of more efficient parking (due to the introduction of management of the car parking in the town centre where no management exists at present), improved public transport. This calculation will then provide a base figure.

#### Estimated Requirements/Provision

As stated above, the actual requirement and distribution will be dependent on the amount and type of floor-space mix actually proposed. The following indicates existing provision:

(a). The Commons Car Park	187 public spaces
(b). Dog Kennel Lane Car Park	64 public spaces
(c). Link Drive Car Park	149 public spaces
(d). Kennelwood Car Park	58 public spaces
(e). Wellfield Road /The Gun Car Park	27 public spaces

Residential Parking: parking for residential property in the town centre (both new and existing within the redevelopment area) is not to be provided in the public car parks. Residential parking for 2 bed (or smaller) properties should be provided close to the dwellings they serve, on the basis of 1 space per unit.

**Community Buildings:** The provision of Community Building(s) is likely to require a limited number of dedicated, managed car parking spaces. This provision will depend on the nature and scale of the community buildings provided.... see figures (2-41), (2-42).

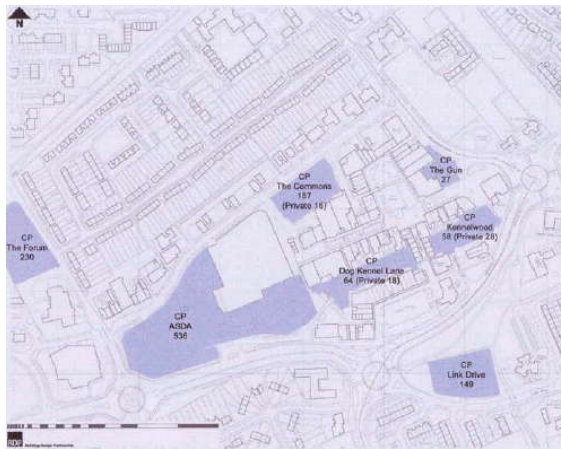


figure (2-41), existing town centre car parking

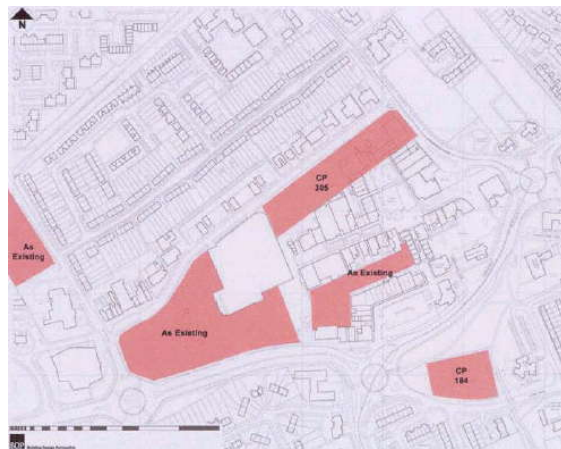


figure (2-42), Proposed town centre car parking

## **2-2-2) NEED ASSESSMENT AND DEMAND ANALYSIS IN DEFINING NEEDED SERVICES**

If a community's current needs for services are enough met by the current level of service provided, the community may claim that it is free from problems regarding community services. However changes in population structure and service provision may indicate a significant gap between needs and services in the future. In that case, the community will face a problem of community services. Therefore, the most important element of defining the problem of community service facilities relates to judgment of community needs for various services. Broadly, there are two approaches of determining a desirable quantity of such facilities.<sup>(67)</sup>

- The per capita requirement approach.
- the demand approach.

### **2-2-2-1) Per Capita Requirement Approach**

This approach uses a predetermined value as an amount of community services required 'per capita', or for each person in the population. To calculate the over-all size of a community facility, it relies on a projection of community's population. It usually involves the following steps:

1. Projection or estimation of population to be served for a target year.
2. Selection for a per capita requirement for service facilities in question
3. Calculation of over-all size of facilities by multiplication of target population and per capita requirement.
4. Comparison of existing service facilities and needs.
5. Consideration of available resources and other constraints.

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<sup>(67)</sup> ASCE Manual and Reports on Engineering Practice no. 49. "Urban planning guide", 1986. P.255-258

Various cities, counties and regions have established per capita requirements for different community service facilities. Organizations such as The National Recreation and Parks Association (USA) have also suggested standards for service provision. ... see table (2-1). Since there is no absolute standard norm in selecting per capita requirements, community service facilities planners are advised to consult the information provided by these agencies, and to determine per capita requirements by examining the economic, demographic, social and other characteristics of their community.

Type of Area	Acres per 1000 population (feddans)	Size of Site, acres <sup>a</sup> (feddans)		Radius of Area Served, in miles
		Ideal	Minimum	
Playgrounds	1.5 (1.44)	4 (3.85)	2 (1.9)	0.5 (800 m)
Neighbourhood parks	2.0 (1.9)	10 (9.5)	5 (4.8)	0.5 (800 m)
Play-fields	1.5 (1.44)	15 (14.45)	10 (9.5)	1.5 (2.4 km)
Community parks	3.5 (3.37)	100 (96.35)	40 (38.5)	2.0 (3.2 km)
District parks	2.0 (1.9)	200 (192.7)	100 (96.35)	3.0 (4.8 km)
Regional parks and reservations	15.0 (14.45)	500-1000 (481.8-963.6)	varies	10.0 (16 km)

Table (2-1) standards for various recreational area per 1000 population

(a) acre=0.405 hectare=4050m<sup>2</sup>, (b) mile=1.61km.

according to The National Recreation and Park Association, USA.

#### 2-2-2-2) Demand Approach

While the per capita requirement approach applies a simple rule of thumb to calculate the needed quantity of community service facilities, the demand approach is based on the concept of how much people want to consume in association with the cost of services. Given the scarcity of land and the fact that community members must pay for certain facilities through taxes or user fees, the demand approach is a more realistic way of determining the desirable quantity of community service facilities.

If there is reliable price information for the provision of community service facilities, the demand for service equation can be estimated. In the absence of reliable price signals, a proxy for price is used. For example, the demand for a regional health facility can be estimated by using the travel distance from home to hospital as a proxy for price.

Economists have produced a number of studies on demand for community services such as police, fire, recreation, and cultural

services. These studies do not provide a simple rule of thumb to estimate a community's demand for services, but they do provide a useful guide-line to examine whether typical need calculations using per capita requirements are realistic from the viewpoint of willingness to pay and affordability.

### **2-3) The Internal Structure Of The Centre Of Service Facilities**

Knowledge of the internal structure of the centre of service is necessary for studies of the customer use of their facilities. Facilities vary in the degree to which they share customers on scale ranging from independence to intense association, with the linked facility being found in spatial nearness.

On studying spatial relationships of facilities, tendencies towards two main groupings were found:

"- A daily shopping group, consisting of grocers, butchers, greengrocers and fishmongers, within which these establishments are basically complementary. Certain higher order establishments, such as chemists, hardware stores, bakers, and dry cleaners, also tends to locate in such clusters.

- An occasional shopping group, which had two sub-categories:-

- Establishments oriented to a particular sector of the market, such as coffee bar, and record shops.
- Establishments which compete with each other through consumer comparison of their goods (as with dress and shoe shops). In addition, certain uses where rarely found together, where as others clustered



because of benefits in similar trading hours.”<sup>(68)</sup>

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<sup>(68)</sup> Ronald J. Johnston and Christopher G. Kissing, "Internal Structure of the City, readings on urban forms, growth, and policy: Establishment use patterns within central places", 2<sup>nd</sup> edition 1982, P.345

## **2-4) Locating Urban Service Facilities**

"Facilities planning are related to population, services include such diverse entities as offices, health and social work clinics, employment agencies, day care centres, nursery schools, and adult education or retraining centres. Despite their varied nature, these facilities all involve wide spreading of either information or services (or both), largely through personal contact with the target population. the location question is therefore important.

Since population services typically operate under budget, manpower, and other constraints that restrict the number and size of facilities and prevent serving the entire population, particular attention is given to applying the location strategy to that situation."<sup>(69)</sup>

### **2-4-1) LOCATION STRATEGY FOR POPULATION SERVICE FACILITIES**

"The general problem is to locate, within an area a given number of population service facilities, that number being determined by resources available for construction, maintenance, and related costs. Although there exist a large number of possible locations, ideally those chosen will maximize either service to the population at large, profit to the locating agency, or some similar criteria. The specific criteria depend upon the dominant motivation of the decision-making body."<sup>(70)</sup>

"Locating service facilities has two facts:

1. A pattern distribution of establishments in various functions.
2. A pattern of consumer behaviour among these various establishments.

These two patterns are causally interrelated: the distribution of establishments in part determines consumer behaviour. Hence, for example, the considerable research by large stores on where to

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<sup>(69)</sup> Lawrence A. Brown, Forrest B. Williams, Carl E. Yeungman, John Helmes, and Karen Walby, "Internal Structure of the City, readings on urban forms, growth, and policy : The location of urban population services facilities, A strategy and its application", 2<sup>nd</sup> edition 1982, P.370

<sup>(70)</sup> Lawrence A. Brown, Forrest B. Williams, Carl E. Yeungman, John Helmes, and Karen Walby, "Internal Structure of the City, readings on urban forms, growth, and policy : The location of urban population services facilities, A strategy and its application", 2<sup>nd</sup> edition 1982, P.370

locate their various departments in order to maximize customer exposure and spending. On the other hand, consumer patterns, especially with regard to the least-cost principle in shopping and the minimization of the distance travelled, influence the producer's location decisions." <sup>(71)</sup>

## **2-4-2) MODELS OF LOCATION ANALYSIS FOR COMMUNITY SERVICE FACILITIES**

Several models of location decisions for community facilities have been developed over the years. They can be broadly classified as: <sup>(72)</sup>

1. Heuristic models.
2. Simple allocation models.
3. Location-allocation models.
4. Hierarchical facility location models.
5. Welfare maximization models.

A great deal of thought has been given to their theoretical construct and efficiency. However, relatively less attention has been given to the analysis of their practical aspects.

The purpose of this section is to:

- Briefly review the various types of public facility location analysis models.
- Evaluate their relevance to the planning of community facilities.

### **2-4-2-1) Heuristic Models**

Heuristic models are those models developed through experience. They were developed to locate public community facilities at a general level. Such models impose several restrictive assumptions, and they lead to a good, if not optimal, solution, if properly employed. They are basically analytic attempts to use the given theory. One of the more commonly used theories is the central place concept.

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<sup>(71)</sup> Ronald J. Johnston and Christopher G. Kissling, "Internal Structure of the City, readings on urban forms, growth, and policy: Establishment use patterns within central places", 2<sup>nd</sup> edition 1982. P.344

<sup>(72)</sup> ASCE Manual and Reports on Engineering Practice no. 49. "Urban planning guide", 1986. P.258-262

Memill and Kelley <sup>(73)</sup> developed a model of this type which includes such variables as the number, size, and location of public facilities. Their model minimizes the distance between services and users, but subjected to two constraints:

1. Minimum thresholds of population must be nearer to a possible activity location than to any other such location.
2. Larger communities have a better chance to support an activity than smaller ones, so the priority of possible areas to be the location of an activity is a function of community size.

Using this model, facilities of the proper size can be allocated to zones in a community according to their priority. Unserved areas can then be combined with adjacent areas until the minimum population level is met, and a facility can be allocated. The minimum population level thus obtained is called the threshold population level. If no further combinations can be made, the remaining areas should be allocated to the nearest facility after appropriately adjusting the size of that facility.

Since heuristic models are based on limited assumptions, they can be applied only to a small number of cases. The models can be used when planners have a limited amount of time, resources, and information. The following problems, however, must be clearly understood:

- The lack of a test of efficiency. Although it is true that they will allocate a sufficient service level, there are many other possible distributions which can satisfy an area's needs. Heuristic models lack the ability to compare different alternatives in order to determine the optimal (or even comparatively better) solution.

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<sup>(73)</sup> Optimum Allocation of Service (Annals of Regional Science) vol.3 no.1, 1969 – p.55-66

- Threshold population levels should be allowed to change from site to site. It is unrealistic to apply the same criteria to both the central city and its suburban ring. Heuristic models make no allowances for this problem.
- The treatment of the area as plane: By using distance instead of time, they implicitly assume equal access in all directions. This assumption clearly ignores many aspects of locating service facilities which are essential to the proper formulation of problem solving.
- Assignment of communities. Heuristic models fail to recognize the possibility of splitting a community between two facilities.

Finally, heuristic models include only demand (obtained from population levels) and distance. Other factors such as rent, competitive uses, heterogeneity of services, adjacent uses, and physical constraints (including the size of the facility) must also be included in order to serve a useful purpose in planning community facilities.

#### 2-4-2-2) Simple Optimisation Models

Simple optimisation models are a more useful group. They incorporate various measures of accessibility, including distance, time, and travel cost. The basis of these models is the problem of minimizing (or maximizing) the objective function subject to various constraints. In the most basic example this can be seen as a problem of assigning a given number of facilities to the same number of sites while minimizing the cost of assignment.

One of the more specific problems is the optimisation of the pattern of flows between sites where each site has a given supply and demand. The objective of this type of model is to minimize the cost of the flow.

The model can be further extended to include minimizing initial costs as well as transportation costs. In addition, it can be modified so that the optimal solution will include a facility at each site where any demand exists. This model need not to be restricted by threshold population levels.

It should also be noted that simple optimisation models can overcome the heuristic models' assumptions of equal access. By including a matrix of either time or cost between facilities and sites, they can be made much more realistic than the heuristic models. However, in doing so they are restricted to a predetermined number of facilities. Simple optimisation models merely allocate a given number of facilities among several locations without considering whether the number of facilities is optimal.

#### 2-4-2-3) Location – Allocation Models

Location-allocation models attempt to both locate community service facilities and allocate demand to those facilities. They are considered separate space models if there is a given set of potential locations to choose from, and continuous space models.

Location-allocation models still do not account for economic rents or existing surrounding uses. In addition, they ignore the problems of a time horizon, of whether accessibility is an accurate measure of welfare, the less, they provide a convenient scheme to determine the location and allocation of demand at the same time.

#### 2-4-2-4) Hierarchical Facility Location Systems

Banerji and Fisher<sup>(74)</sup> studied the location of service hierarchies in areas where infra-structural relationships exist. Their objective was to find both an efficient and equitable spatial organization, in which efficiency is defined as minimizing travel distance between sites and

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<sup>(74)</sup> Hierarchical Location Analysis for Integrated Area Planning in Rural India – paper of regional science assoc. , vol.33 p.177-194, 1974.

facilities, and equity is defined in terms of a maximum allowable travel distance. Levels in the hierarchy are defined by the relative allowable travel distances associated with a group of services, starting with those services which occur most infrequently. Optimal location patterns are determined in the model in two separate steps.

First step: an algorithm is used to determine the optimal number of facilities.

Second step: involves locating these facilities in such a way as to minimize user cost.

The model works from the highest level of the hierarchy downward and treats the location of facilities already determined as constraints at subsequent levels. When the number of facilities is too few to meet demand satisfactorily, an additional facility is added.

"Dokmeci developed a similar type of model to find the optimal number, size, and location of hierarchically coordinated facilities in an area so that the total cost of the system is minimized, and the demand in the area is fully met. The model is solved using a step-by-step heuristic approach beginning at the lowest level of the hierarchy."<sup>(75)</sup>

These models are extremely useful for practical purposes, because they deal with the determination of the number, size and location of community service facilities within a single framework.

#### 2-4-2-5) Welfare Maximization Models

"Welfare maximization models can be employed to find a better measure of social welfare than the community used variable of accessibility such as a distance-cost relationship. The two models described here were developed by Wagner and Falkson. They operate in separate space and attempt to choose socially optimal levels of service for each community, and to locate these service facilities by maximizing consumer and producer surplus.

The first model, known as a public order model, assumes that consumers can be assigned inconsiderably to facilities.

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<sup>(75)</sup> An Optimization Model for a Hierarchical Spatial System – Journal of regional science, vol.13, no.3, p.429 – 451, 1973.

The second model is a modification of the first. It assumes that consumers are free to choose any facility. This is called "serve-all-comers" model. In order to transform the model, two sets of constraints must be added:

- *set one* is added to assure that consumers are assigned to the closest facility in terms of travel cost.
- *Set two* of constraints must be added to guarantee that all consumers who present themselves for service are served." <sup>(76)</sup>

It is important to point out that welfare maximization models require a few basic assumptions:

- A production function must be available for a given facility.
- There must be an estimable willingness-to-pay function for all consumers.
- All assumptions for consumer and producer additional theory must hold.

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<sup>(76)</sup> The Optimal Nodal Location of public Facilities With Price – sensitive demand – Geographical analysis, vol.7, no.1, p.69 – 83, 1975.



### 2-4-3) SENSITIVITY ANALYSIS AND PHYSICAL ENVIRONMENT

Before concluding the section on models of location analysis, it is important to mention two additional issues: sensitivity analysis and physical environment.<sup>(77)</sup>

#### 2-4-3-1) Sensitivity analysis

is a technique used to determine the stability of location models. It should be applied to:

1. determine if small changes in how the services is offered, result in large changes in the outcome.
2. test the relationship between the number of supply points and the average distance. It is important to look at the marginal gain or loss which can be obtained by adding and subtracting sites.

#### 2-4-3-2) Physical environment

The issue to be considered here is the difference between absolute and relative locations. People's perception of the physical environment often diverge from actual environment. This divergence questions the nature of the objective function: what should these models minimize?

For example, many factors, including stress, risk, environmental concerns, and social biases, might lead an individual to perceive incorrectly the distance between sites and facilities. If so, using cost functions based on map distances will not correctly state the cost involved.

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<sup>(77)</sup> ASCE Manual and Reports on Engineering Practice no. 49. "Urban planning guide", 1986. P.263

### Example: Hatfield New Town, UK

Location of the town centre in relation the town  
different residential area, (distance and accessibility) <sup>(78)</sup>

Hatfield's town centre is situated in the centre of the curving strip which is Hatfield New Town and which is the approximate centre of the original Designated Area. The Town centre was located at "St Albans Road", on grounds of economics and of accessibility. ...see figure (2-43).

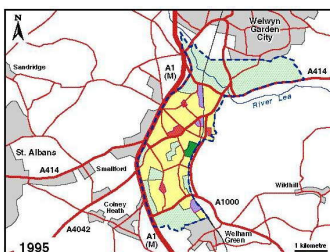


figure (2-43) Hatfield new town master plan 1995

**Economically**, the creation of a new shopping centre in competition with existing ones is always hazardous, particularly if it must for some time remain on the fringe of new development. It is always better in principle to improve what exists than to write it off and start again. Its new status as main shopping centre encourages redevelopment without which it would have remained unworthy of the New Town.

**Accessibility**, it is easy to reach this centre on level roads from nearly all directions, was the decisive factor.

A town of 25,000 people should be within easy daily reach of its centre. So, The radius from the centre, in spite of the necessarily elongated shape of the town, is no more than 2,400 yards (about 2.2km).

The town centre lies between the seven residential areas of Hatfield New Town (Old Hatfield, Birchwood, Roe Green, South Hatfield, Oxlease, The Ryde and Town Centre): - .... See figure (2-44).

- Old Hatfield is situated approximately 800 meters (half a mile) directly east of the town centre.
- Birchwood is located approximately 1.2 kilometres (three quarters of a mile) to the north of the town centre.

<sup>(78)</sup> "The new town record, ed.rem, new towns in UK, 1948-1996"

○ The Roe Green neighbourhood is approximately 800 meters (half a mile) to the south west of the central area.

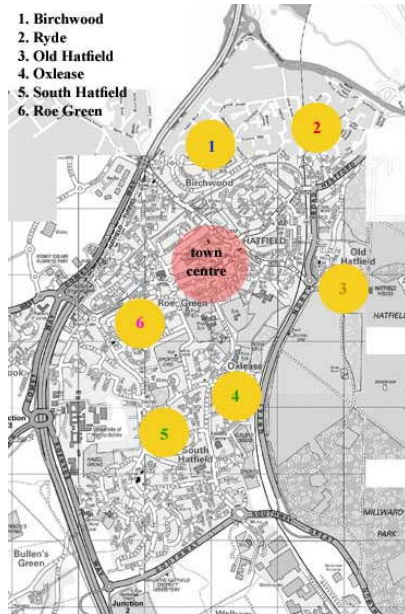


figure (2-44), Hatfield town centre is no more than 2.2km away from any residential area of the town

○ South Hatfield is approximately 2 kilometres (one and a quarter miles) south of the town centre.

○ The Oxlease neighbourhood is approximately 1.2 kilometres (three quarters of a mile) to the south east of the town centre. This neighbourhood is located approximately 800 meters (half a mile) to the north east of South Hatfield, the neighbourhood with which it shares a local shopping centre.

○ The Ryde neighbourhood is situated approximately 1.6 kilometres (one mile) north east of the town centre.

○ The Town Centre contains residential development and was considered to be a residential neighbourhood, although its primary role was as a shopping and commercial centre. The Town Centre was regarded as serving both a commercial and residential function.

## **2-5) Conflict Resolution In Community Service Facilities Planning**

the planning process is a very dynamic process that has a lot of schools to follow. It also aims to satisfy members of the community. Naturally, members of any community have different opinions concerning any planning decision due to conflicts that may arise between their benefits. Planners are usually called for this conflict resolution. <sup>(79)</sup>

### **2-5-1) CONFLICT IN COMMUNITY FACILITIES PLANNING**

Conflicts over facilities planning arise mainly because of the selectivity of service beneficiaries and the geographical variations in the external effects. Even in a homogeneous community where all residents receive the benefits of certain facilities, the differential external effects on individuals can lead to conflicts over facility sitting decisions. A classification of community facilities may be developed according to the varying levels of conflicts ... see table (2-2).

External effects (1)	Beneficiaries of service facilities	
	Entire community (2)	Part of community (3)
Minimal	I lowest level of conflict	II higher level of conflict
Substantial	III higher level of conflict	IV highest level of conflict

*Table (2-2) levels of conflicts between beneficiaries of service facilities*

It is important that planners have information about the factors affecting the level of conflicts and consider their effects at the initial stage of the planning process. When the necessary technical analyses and the specific plans for the community facilities are completed, planners should be prepared to deal with the conflicts which always happen.

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<sup>(79)</sup> ASCE Manual and Reports on Engineering Practice no. 49. "Urban planning guide", 1986, P.266-268

## 2-5-2) MODELS OF CONFLICT RESOLUTION

There are several approaches to resolve conflict in planning community service facilities. They include:

- |                                  |                  |
|----------------------------------|------------------|
| I. Voting.                       | IV. Arbitration. |
| II. Nonvoting political process. | V. Negotiation.  |
| III. Administrative courts.      | VI. Mediation.   |

### 2-5-2-1) Voting

Voting is based on the concept of majority rule. A direct vote on a particular community facility may result in a decision. Usually a referendum will show only a positive or negative decision about the establishment of a specific facility. Such delicate issues as compensation and agreements within the context of multiple facilities are easily ignored. It is possible to influence the outcome of the voting by spreading relevant information through public hearing or other channels.

### 2-5-2-2) Nonvoting political processes

They are often more influential than direct vote. The result of political processes depends on political strategies, which deal with the demands of interest groups either opposing or supporting specific aspects of a community service facility. The conventional political strategies, which distinguish between the groups to be calmed down and those, which can be ignored, become explicit in the political process. This process may lead to a failure to compensate those groups which are severely affected by the negative aspects of a sitting decision but which are politically ineffective. Planners may understand benefit distribution and the effects of a facility upon different subgroups in a community, but the final outcome may be considerably different from what was initially thought to be optimal.

### 2-5-2-3) Administrative courts system

In some countries, court systems play a key role: in Britain, for example, an argument over land development may be brought to an administrative court. Court systems work well in areas characterized by central control but are not popular in communities where power is diffused and decentralized. In a decentralized political environment, the settlement of dispute is frequently referred to the courts.

#### 2-5-2-4) Arbitration

Arbitration is a process by which an argument is submitted for settlement to a fair party selected by mutual agreement or by voting.

#### 2-5-2-5) Negotiation

Negotiation, in a broad sense, is a means of getting something accomplished when the parties involved must deal with each other in order to reach an objective. Community facility planners should face various community groups and must deal frequently with bargaining, compensation, and agreements. The negotiation process does not necessarily involve a third party.

#### 2-5-2-6) Mediation

Mediation refers to a particular type of negotiation in which a third party, a mediator, plays a key role in resolving the conflict. Mediation is playing an increasingly important role in resolving the conflicts that arise as attempts are made to reach equitable decisions about community facilities.

## **2-6) Conclusion:**

- The planning process of community service facilities must put into consideration the different groups of the community as well as the service beneficiaries
- Each community service facility should be evaluated by studying its goals, impacts and costs.
- Both planning concepts, zoning and authority decision (discretionary) planning have advantages and disadvantages. Although, mixing the two concepts will produce the optimum system. Yet, they are part of the system in their countries.
- In order to produce a feasible and socially attractive town centre, feasibility should be achieved at three levels: functional, political and economic, feasibility, i.e. uniting those power over the scheme.
- Social and economic qualification of the society affect the size and kind of service offered.
- Integration of the transportation plan and landuse plan is essential.
- Though many factors other than landuse configurations affect travel behaviour \_ such as the cost of gas, auto ownership, parking expenses, the amount of time lost to congestion, and the quality of transit \_ the effect of landuse on travel behaviour is formative.
- Accessibility is the key to successful transit rider ship.

- Joint use parking for adjacent uses reduce the total number of parking space needed, i.e., land lost to parking.
- There are two approaches of determining a desirable quantity of service facilities:
  - i. the per capita requirement approach
  - ii. the demand approach
- Different models were produced to locate service facilities to satisfy the community members.
- Planners should be aware of conflicts that may arise over a facility planning and various methods of dealing with disagreements.



### **Chapter Three:**

## **Community Services In Residential Urban Communities**

Traditionally, market places represented very important economical and social activity centres; so, must urban services located themselves within the market place.

Each service is presented in different levels that occur in the proper level of service centres, which are now a precise order of types: residential group centre, Neighbourhood centre, residential quarter centre, and regional centre. Each targets a specialized sector of the community and comes complete with a generic template. The guiding principles of service are value and convenience.<sup>(80)</sup>

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<sup>(80)</sup> Peter Gallop, "The Next American Metropolis", 1993, p. 23-24.

### **3-1) Planning Rates:**

Planning rates are defined as the criteria used for all scales of planning operations, aiming to define the specifications for different planning parameters as either quantitative or qualitative or both.

According to this definition, planning rates represent an extremely efficient tool in many parameters that are mutually related and which affect the urban structure as a whole. Since they are indicators for the user demands and have direct effect on residents' satisfaction about their urban environment beside their impact on costs whether those related to personal affordability or governmental budgets.

So analysing the current rates used for planning urban communities will help.

### 3-1-1) PLANNING RATES FOR NEW COMMUNITIES IN UK:

The beginnings of the New Towns program essentially date from the mid 1930s. In 1946 the New Towns Act was passed by Parliament. New Towns policy planned decentralization from congested urban areas; and in accordance therewith to suggest guiding principles in which such towns should be established and developed as self-contained and balanced communities for work and living. ...see figure (3-1).<sup>(81)</sup>



figure (3-1), new towns in UK

The new towns are referred to as first, second and third generation new towns, falling respectively in the periods 1946-1950, 1961-1964 and 1966-1970.

<sup>(81)</sup> "The new town record. C&E, new towns in UK, 1948-1996"

community	designation date	windup date	total area		population		Designed population density	
			(hectares)	(feddans)	(designated)	(in 1991)	(per hectare)	(per feddan)
<b>FIRST GENERATION</b>								
Stevenage <sub>(E)</sub>	1946	1980	2,532	6,029	80,000	75,000	31.6	13.3
Aycliffe <sub>(E)</sub>	1947	1988	1,254	2,986	45,000	24,700	35.9	15.1
Crawley <sub>(E)</sub>	1947	1962	2,396	5,705	70,000	87,200	29.2	12.3
East Kilbride <sub>(S)</sub>	1947	1994	4,150	9,881	82,500	69,800	19.9	8.3
Harlow <sub>(E)</sub>	1947	1980	2,558	6,090	90,000	73,800	35.2	14.8
Hemel Hempstead <sub>(E)</sub>	1947	1962	2,391	5,693	80,000	79,040	33.5	14.1
Glenrothes <sub>(S)</sub>	1948	1994	2,333	5,555	55,000	38,500	23.6	9.9
Hatfield <sub>(E)</sub>	1948	1966	947	2,255	25,000	26,000	26.4	11.1
Peterlee <sub>(E)</sub>	1948	1988	1,205	2,869	30,000	22,200	24.9	10.5
Welwyn Garden City <sub>(E)</sub>	1948	1966	1,747	4,160	50,000	40,500	28.6	12.0
Basildon <sub>(E)</sub>	1949	1985	3,165	7,536	140,000	157,700	44.2	18.6
Bracknell <sub>(E)</sub>	1949	1982	1,337	3,183	60,000	51,340	44.9	18.8
Cwmbran <sub>(W)</sub>	1949	1988	1,420	3,381	55,000	49,286	38.7	16.3
Corby <sub>(E)</sub>	1950	1980	1,791	4,264	80,000	47,139	44.7	18.8
Cumbernauld <sub>(S)</sub>	1955	1996	3,152	7,505	70,000	50,900	22.2	9.3
<b>SECOND GENERATION</b>								
Skelmersdale <sub>(E)</sub>	1961	1985	1,670	3,976	80,000	42,000	47.9	20.1
Livingston <sub>(S)</sub>	1962	1998	2,780	6,619	70,000	43,300	25.2	10.6
Redditch <sub>(E)</sub>	1964	1985	2,906	6,919	90,000	75,000	31.0	13.0
Runcorn <sub>(E)</sub>	1964	1989	2,930	6,976	100,000	64,200	34.1	14.3
Washington <sub>(E)</sub>	1964	1985	2,270	5,405	80,000	61,190	35.2	14.8
<b>THIRD GENERATION</b>								
Irvine <sub>(S)</sub>	1966	1999	5,022	11,957	95,000	55,600	18.9	7.9
Milton Keynes <sub>(E)</sub>	1967	1992	8,900	21,190	250,000	143,100	28.1	11.8
Newtown <sub>(W)</sub>	1967	1977	606	1,443	13,000	11,000	21.5	9.0
Peterborough <sub>(E)</sub>	1967	1988	6,451	15,360	188,000	137,930	29.1	12.2
Northampton <sub>(E)</sub>	1968	1985	8,090	19,262	260,000	184,000	32.1	13.5
Telford <sub>(E)</sub>	1968	1991	7,790	18,548	220,000	120,500	28.2	11.9
Warrington <sub>(E)</sub>	1968	1989	7,535	17,940	210,000	159,000	27.9	11.7
Central Lancashire <sub>(E)</sub>	1970	1985	14,267	33,969	420,000	255,200	29.4	12.4

(E) = England, (W) = Wales, (S) = Scotland

Table (3-1). areas and population of new towns in UK. <sup>(82)</sup>

<sup>(82)</sup> "The new town record. 64-rem, new towns in UK, 1948-1996"

All new towns in UK, their year of designation and windup of their Development Corporations are listed in table (3-1). The table shows the extent of the Designated Areas of each new town in hectares (feddans), their designed populations and populations in 1991. These figures have been converted to show the overall density of each town in persons per hectare (feddans).

The figures are interesting in a number of respects:

1. There is a great variation between the towns population densities, as it reads 8.3 person/feddan in "East Kilbride" and 20.1 persons/feddan in "Skelmersdale".
2. There is a difference between all the Scottish new towns, whether first or second generation, and their English and Welsh counterparts. Perhaps not surprisingly there have been fewer constraints on land take in Scotland than in more heavily urbanized England and industrial Wales.

The figures in Table (3-1) can be compared, to reach the conclusion that pointed to an optimum overall town density of 37 persons per hectare (15.54 persons per feddans), though warning that this should not be regarded as a universal formula where local circumstances call for something different.

### Services And Open Spaces In New Communities (UK)

In terms of the individual land uses within the towns housing naturally took the greater proportion, generally about half of the proposed urban area of each town, with open space taking about 20% and industry and education the next two largest land users with about 8 or 9% each.

In terms of new towns design the most pervasive characteristic has been the application of the neighbourhood principle or a variation of it. The first generation towns were designed mainly on the basis of neighbourhoods of 15,000 populations, appropriate to support a secondary school, sub-divided into smaller units of a size appropriate to support a primary school. The residential areas would have only a

few corner shops plus a primary school and, interestingly, small-scale employment was also located in the housing areas.<sup>(83)</sup>

Thus, studying person's share of service areas (m<sup>2</sup>/person) as well as open spaces and recreation areas will clearly show the wide range they represent.

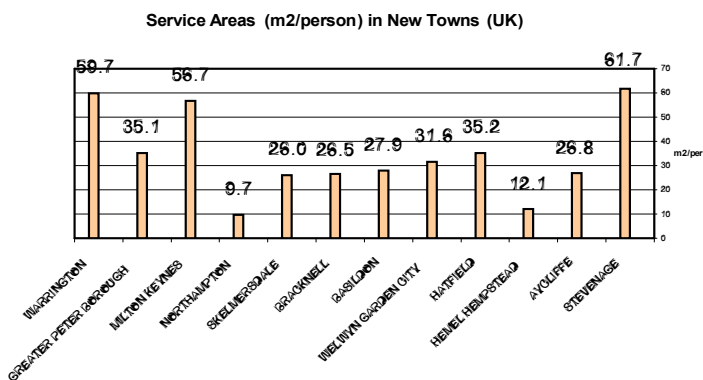


figure (3-2) service areas in new towns in UK

Figure (3-2) represent the wide range in person's share of services, in town like Stevenage (61.7 m<sup>2</sup>/person) while, in town like Northampton it went down to (9.7 m<sup>2</sup>/person). The same goes with open spaces and recreation areas as been illustrated in figure (3-3), a town as Skelmersdale has a person's share of 82.2 m<sup>2</sup> while Bracknell person's share is 7.9 m<sup>2</sup>.

<sup>(83)</sup> "The new town record. 64-rem, new towns in UK, 1948-1996"

Open and Recreation areas (m<sup>2</sup>/person) in new towns (UK)

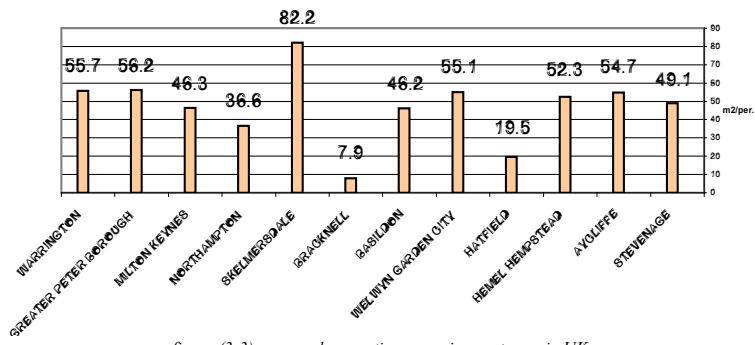


figure (3-3) open and recreation areas in new towns in UK

### 3-1-2) PLANNING RATES FOR NEW COMMUNITIES IN EGYPT:

During the last quarter of the twentieth century, new urban communities were established in Egypt, so much like a lot of countries seeking regional development. Establishing new urban communities in Egypt aims to cure the mass due to over population in the Delta and Nile valley. So, 17 new communities were established between 1977 and 2000, beside other newly planned communities. ... see figure(3-4).<sup>(84)</sup>

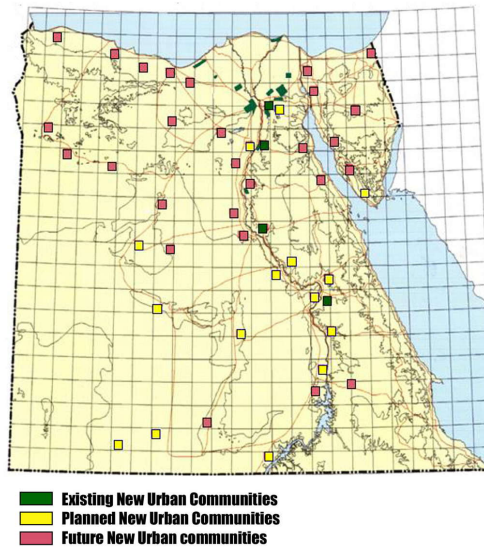


figure (3-4) new communities in Egypt

New communities in Egypt can be classified according to their age into three generations. ...see table (3-2). The first generation started in the seventieth launching seven new communities, The second generation includes six new cities and the third generation had four cities. New communities around Gairo were considered a main part of the Greater Gairo Regional Plan.

<sup>(84)</sup> NUGA



17 new communities in Egypt are listed in table (3-2), the years of designation, areas and designed populations, these figures have been converted to show the overall density of each community in persons per feddan.

community	designation date	last modified date	boundries (feddans)	urban mass (feddans)	(designed) population	population density (per feddan)
FIRST GENERATION						
10th of Ramadan	1977		94761.9	22857.1	500,000	21.9
Sadat	1978	1990	119047.6	15238.1	500,000	32.8
15th of May	1978	1995	8316.7	3238.0	250,000	77.2
6th of October	1979	2000	86403.0	66629.6	2,000,000	30.0
New Borg el Arab	1979		47381.0	25952.4	510,000	19.7
New Dammita	1980		6503.0	6503.0	270,000	41.5
New Salhia	1982	2000	1617.7	1617.7	60,000	37.1
SECOND GENERATION						
Obour	1982	2003	16025.8	12484.7	800,000	64.1
Badr	1982	2001	16717.0	10280.0	430,000	41.8
New Nobarria	1986		1795.5	1795.5	144,000	80.2
New Bani Swief	1986		38713.1	5486.3	245,000	44.7
New Menia	1986		24290.5	4422.6	120,000	27.1
El Shorouk	1995		10810.1	9719.2	500,000	51.4
THIRD GENERATION						
Sheikh Zayed	1995	2003	10369.2	9203.8	430,000	46.7
New Cairo	2000	2002	66915.5	64260.5	1,203,250	18.7
New Asuit	2000		33214.3	2470.5	100,000	40.5
New Tiba	2000		5445.2	579.7	35,000	60.4

- source: NUCA information centre according to the follow-up report 30/6/2003
- urban mass and designed population represent the communities after their latest extensions.

Table (3-2), Areas and densities of new communities in Egypt

The figures are interesting in a number of respects:

There is a great variation between the population densities of the new communities in Egypt, where New Cairo has an overall population density of 18.7 person/feddan, while New Nobarria has a population density of 80.2 person/feddan. Even within each generation of these new communities, there is a great variation, ...see figure (3-5), in the first generation: new Borg El Arab has a population density of 19.7, while

15<sup>th</sup> of May city 77.2, in the second generation: New Menia city has a population density of 27.1, while New nobaria 80.2, and the third generation: New Cairo city has a population density of 18.7 person/feddan, while New Tiba city 60.4 person/feddan. Although most of these communities have common properties to share, like having different housing classes, industrial and employment zones, as well as, having open and recreational areas, only great difference in planning trends could produce such variation.

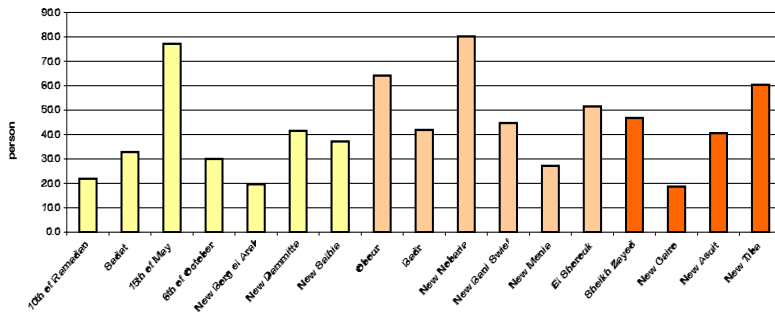


figure (3-5) population densities in new communities in Egypt

Most of the cities around Cairo were included in the Greater Cairo Region development plan, and were extended recently to accommodate more housing and industries.

The figures in Table (3-2) can be compared, to reach the conclusion that no optimum population density could be acquired due to the wide difference between all these communities.

### Services and open spaces

The main function of the new communities in Egypt is to house over population of existing urban communities. So, housing represents the greater proportion of land uses within these communities, ...see table (3-3), usually it represents more than 50%, but for some local reasons of the communities (location and functions) some other uses may take greater portion and visa versa, as for new nobaria where services represent 42.1%, but, El Shorouk and New Cairo housing area represent 94.3% and 94.4% respectively, ...see figure(3-6).

community	urban mass (feddans)	residential		industrial		services	
		area(fed.)	%	area(fed.)	%	area(fed.)	%
<b>FIRST GENERATION</b>							
10th of Ramadan	19666.7	6714.3	34.1	9523.8	48.4	3428.6	17.4
Sadat	15238.1	5204.8	34.2	5535.7	36.3	4497.6	29.5
15th of May	3238.0	1376.8	42.5	370.7	11.4	1490.6	46.0
6th of October	66631.7	34348.0	51.5	6547.8	9.8	25736.0	38.6
New Borg el Arab	25952.4	8567.9	33.0	6540.0	25.2	10844.5	41.8
New Dammita	6503.0	4352.0	66.9	792.0	12.2	1359.0	20.9
New Salhia	1425.7	421.0	29.5	639.3	44.8	365.5	25.6
<b>SECOND GENERATION</b>							
Obour	11439.0	5749.7	50.3	3746.1	32.7	1943.2	17.0
Badr	10279.9	6235.0	60.7	2316.0	22.5	1728.9	16.8
New Noharia	690.4	166.0	24.0	233.7	33.8	290.7	42.1
New Bani Swief	5449.8	1836.5	33.7	1996.5	36.6	1616.7	29.7
New Menia	3467.1	2014.7	58.1	210.0	6.1	1242.4	35.8
El Shorouk	8274.7	7807.2	94.3	0.0	0.0	467.5	5.7
<b>THIRD GENERATION</b>							
Sheikh Zayed	9203.8	7187.5	78.1	0.0	0.0	2016.3	21.9
New Cairo	62470.4	58956.8	94.4	1481.2	2.4	2032.4	3.3
New Asuit	2470.5	1618.2	65.5	180.0	7.3	672.3	27.2
New Tiba	438.4	282.5	64.4	0.0	0.0	155.9	35.6

Figure (3-3). land budget of new communities in Egypt<sup>(85)</sup>

As for the percent of service areas within each new community in Egypt, by analysing their figures, a great variation will be found and no relation could be found between the housing portion and the services portion.

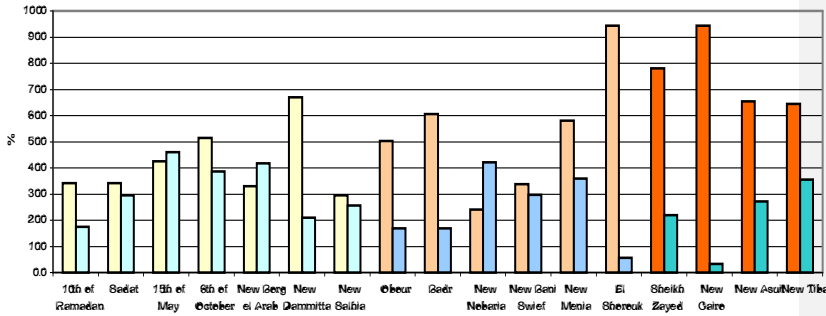


figure (3-6) percent of residential areas & open spaces in new communities in Egypt

figure (3-6) shows the relation between housing areas to that of service areas, it varies from 29:1 in New Gaire city, 16.7:1 in sherouk city, to 0.6:1, 0.8:1, and 0.9:1 in New Nobaria, New Berg Arab, and 15<sup>th</sup> of may cities respectively.

Almost all new communities in Egypt had followed the neighbourhood principle, which succeeded in providing an appropriate amount of service areas and open recreational areas for each person and in different levels (residential unit, neighbourhood, quarter and town or city). Figure (3-7) shows person's share of service areas for new communities in Egypt, where wide variation can be recognized as person's share in New berg Arab city is 82.6m<sup>2</sup>/person, while Sherouk city 3 m<sup>2</sup>/person.

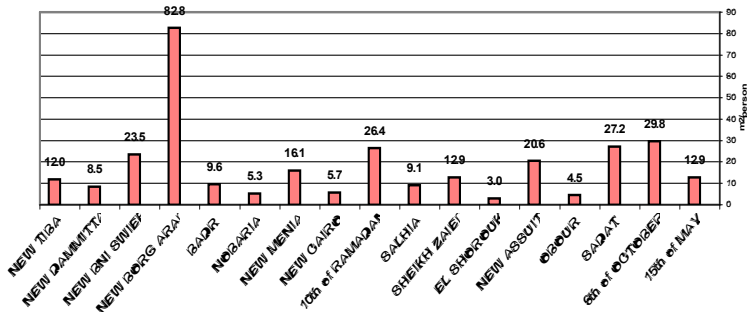


figure (3-7) person's share of service areas in new communities in Egypt

As for open and recreational areas, they represent a wide unexplained variation in new communities in Egypt figure (3-8) shows this wide range between person's share of 2.6 m<sup>2</sup>/person in obour and Nobaria cities and 75.7 m<sup>2</sup>/person in New Menia city.

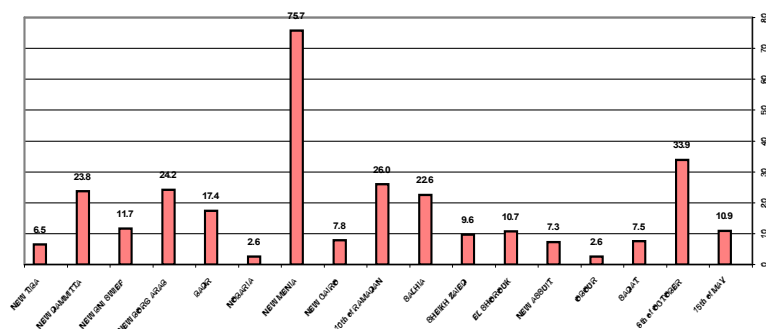


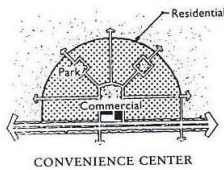
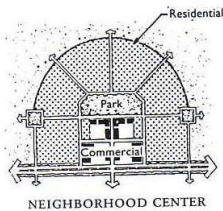
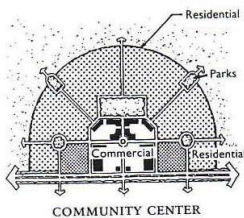
figure (3-8) person's share of open and recreational areas in new communities in Egypt

### 3-2) Commercial services

Commercial services are represented through mixed-use commercial areas. Commercial uses do not need to be concentrated in a single location, "core commercial area", but they should be directly accessible. Sufficient retail and commercial space must be provided to form a useful shop centre and create opportunities for residents.

The size and mix of uses in each core commercial area can vary depending on the size, location, and overall function of the site in the region. It should, at a minimum, serve as a residential group shopping area.

Types of commercial centres include:



- Residential group shopping and services (10,000 to 25,000 sq-ft, 929 to 2322.5 m<sup>2</sup>)
- Neighborhood centres with a supermarket, drugstore, and supporting

uses (80,000 to 140,000 sq-ft, 7432 to 13006 m<sup>2</sup>)

- Specialty retail centres (60,000 to 120,000 sq-ft, 5574 to 11148 m<sup>2</sup>)
- Community centres with convenience shopping and department stores (120,000 sq-ft or greater, 11148 m<sup>2</sup> or greater).

Other employment-generating uses can be located within the core commercial area to provide a balance to shopping and residential uses.

Street-level retail, office, and service commercial space should form a pedestrian-oriented circulation system that is accessible from the surrounding neighbourhood without requiring use of an arterial street. Office and employee-intensive light industrial uses should be located adjacent to the shopping portion of the core commercial area. In re-developable areas where a connecting street is not possible, at least one pedestrian pathway is required from surrounding areas. Core commercial areas should also be designed to encourage shopping during travel to and from the transit stop. ... see figure (3-9).

figure (3-9) the core commercial area is related to the size of community

### 3-2-1) CLASSIFICATION OF CORE COMMERTIAL AREAS <sup>(86)</sup>

Core commercial areas can be classified into:

- o Commercial centre of a neighbourhood.
- o Commercial centre of a group of neighbourhoods (residential district).
- o Commercial and administrative centre at downtown.
- o The regional commercial centre
- o Linear commercial extends at highways.

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<sup>(86)</sup> GCPP

### 3-2-1-1) Commercial centre of a neighbourhood

- Almost flat land with average slope of 5%.
- The site must be directly connected to main roads and transportation system.
- The site must provide enough parking places.
- The commercial centre must be planned so as to separate the circulation of cars, pedestrians, and goods, as much as possible.
- The commercial centre must be close to the other public services of the neighbourhood.

Some trends prefer it to be at the centre of the neighbourhood, while others prefer it at one of the neighbourhood's corners. Each trend has its advantages and disadvantages. In U.S.A., where using private cars is popular, people like their commercial centre at the neighbourhood's corner and not at the centre in order to avoid high traffic at local roads. While in Europe, where people do their daily shopping on foot, they prefer it at the centre of the neighbourhood. While in Egypt, a mixture of both opinions is used, because of different back and daily habits of residents of the same area.

- Commercial services at a neighbourhood level are usually public and commercial stores that families always use, needed to be easily reached daily. The neighbourhood commercial centre must supply a list of goods which are:
  - The nutrition group:  
supermarket,  
grocery, butcher,  
green grocer, etc.



- Drugs store, miscellaneous small articles, stationary, books, magazines and newspapers store, etc.
- Serving group: hairdresser, bakery, tailor, ironer, shoemaker, electrician, and gas station.
- Entertainment.

3-2-1-2) Commercial centre of a group of neighbourhoods (residential quarter).

- Almost flat land with average slope of 5%.
- The site must be directly connected to main roads and transportation system.
- The site must provide enough parking places.
- This centre is likely to be built around big department stores.
- In addition to goods and services offered at the neighbourhood centre, the district centre offer some special stores like fashion stores, electric home equipments, and department stores.

3-2-1-3) Commercial and administrative centre at downtown.

- Almost flat land with average slope of 5%.
- The site must be directly connected to main roads and transportation system.

- The site must provide enough parking places.
- The city centre or downtown should be the centre of the transportation network, where all means of rapid and normal transportation flow. Bus terminals, main serving garages, and railway station are all located in or close to the downtown. That's why downtown should be located where it is easily reached, as it is the centre of the city's social, economic and political lives.
- City centre or downtown is the main administrative, business, entertainment, and cultural city centre, so it contain:
  - As an administrative centre – meeting halls, town council, governmental and administrative offices, and police station.
  - As a business centre – all kinds of stores, big and small, expensive and cheap, as well as, all kinds of office buildings and big warehouses.
  - As entertainment and cultural centre – theatres, cinemas, concert halls, museums, galleries, public libraries,

restaurants,  
coffee shops,  
meeting halls, etc.

**Example: Rio Vista West, San Diego, California \_1992.  
Combining Services With Contradictory Needs <sup>(87)</sup>**

This site is one of the first to be planned using the Development Design Guidelines by the City of San Diego. It is located along the San Diego River on a new extension of the trolley.

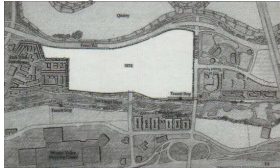


Figure (3-10) Site Plan, Rio Vista West, San Diego

The site is surrounded by typical suburban and freeways... see figure (3-10). The river and trolley line provide an opportunity for a different type of community to evolve on the site.

The plan integrates four primary uses into a new neighbourhood:

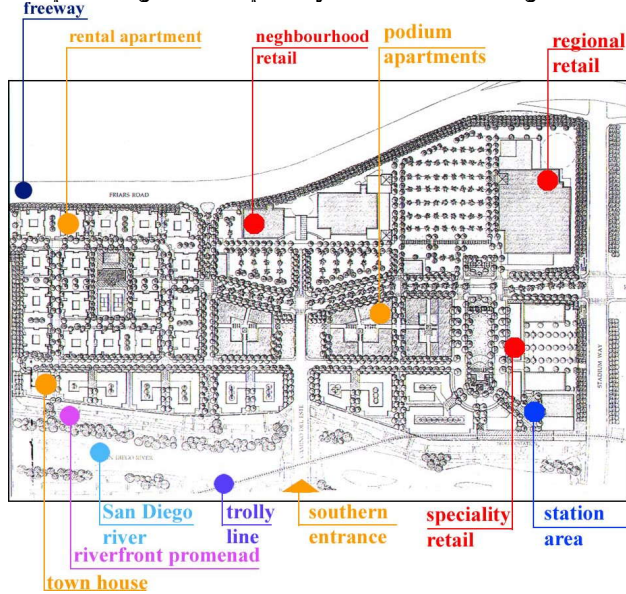


Figure (3-11), integrated uses of the neighbourhood

<sup>(87)</sup> Peter Gethner, "The Next American Metropolis", 1993

- A diverse mix of housing;
  - A variety of retail uses;
  - A mixed-use core area at the trolley stop;
  - An interconnected sequence of public plazas, parks, and paths.
- ... see figure (3-11).

A grid of narrow, tree-lined streets provides direct and pedestrian-friendly connections among the site's various land uses, even extending into areas typically dominated by the car. ... see figure (3-12).

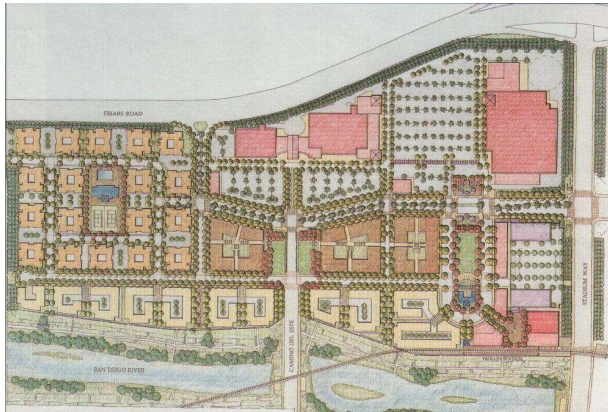


figure (3-12), the neighbourhood layout, showing pedestrian-friendly street, narrow and lined with trees

The project incorporates three types of retail:

- Regional retail,
- Neighbourhood retail,
- Specialty retail.

**The specialty retail:** including restaurants, cinema, major office buildings, and housing over shops - is located at the station.

**The regional retail component:** a 120,000 sq ft (11148 m<sup>2</sup>) superstore complete with 700 parking stalls, is clearly out of scale with the

urban qualities of the neighbourhood and is typically an auto-only destination. This is a good example of planning, which find ways to combine the sometimes-contradictory needs of transit and the pedestrian with the realities of modern auto use and retail development criteria.

Rio Vista West will contain many types of public space. ...see figure (3-13). A trolley plaza will serve transit users and create an active entertainment and office centre. The "Crescent Commons" will provide a park with day-care, an amphitheatre, and rose gardens, while interconnecting the housing, retail, and trolley station. Access was designed to the site from the south that serve the residential and neighbourhood commercial areas. Finally, a series of paths will lead to a Riverfront Promenade that provides an active path along the river.

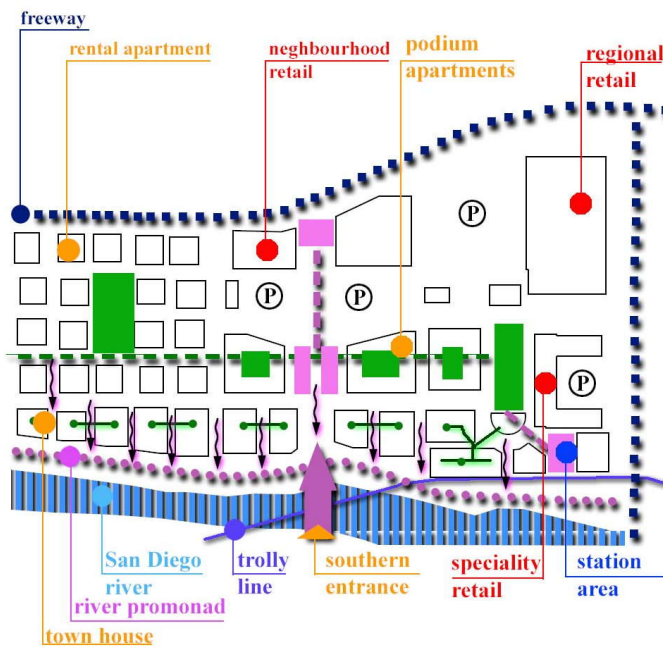


Figure (3-13); inter connectivity between different types of public and semi-public spaces

The plan uses a modified grid of streets, in some cases passing through the larger retail parking lots, as a way of reducing the separation of uses. Along the river are townhouses configured around courtyards, in the western corner are rental apartments, and at the centre are podium apartments. Surrounding the Crescent Commons is retail with residential above and two major office buildings beyond. The trolley stop is a plaza just off the park with restaurants, cinemas, and more shops.

Conclusion:

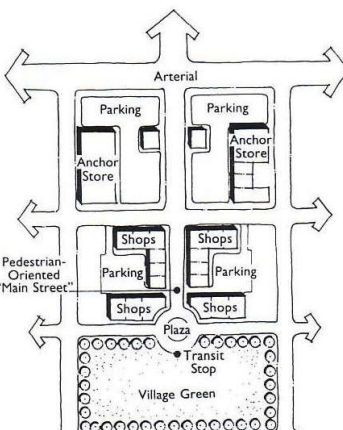
Regional service facilities must combine with the other contradictory needs of transit stop or a neighbourhood forming a homogeneous urban pattern.

Special destinations like a river front promenade must be well served by a pedestrian network as well as an auto network.

### 3-2-2) CORE COMMERCIAL CONFIGURATION

The configuration of shops in the core area must balance pedestrian and auto comfort, visibility, and accessibility. While department stores may need to orient to an arterial and parking lots, smaller shops should orient to pedestrian "Main Streets" and plazas. Direct local street access from the local neighbourhood is required.

To attract foot traffic to local shops, the configuration of streets, entrances, and parking must provide a comfortable route for pedestrians. Traversing large parking lots and access roads designed for heavy auto traffic will discourage them. Configurations, which provide traditional "Main Street" sidewalk storefronts in combination with arterials, can provide accessibility for both pedestrians and auto.



Gore commercial areas should be configured to allow standard parking quantities, access, and visibility for the car, as well as a convenient path for local pedestrians. Often, the smaller shops can turn to form a pedestrian-oriented "Main Street" with street-side parking and rear parking lots. ... see figure (3-14). This "Main Street" forms a pleasant place to walk, and should connect the residential areas and parks with the shops and transit stop. Simultaneously, the edge of the core area fronting the arterial may house larger parking areas and big stores in locations visible from arterials. Big stores, such as supermarkets and drug stores, are encouraged to provide entries to both their parking lot and the pedestrian shopping street.

figure (3-14) the typical form of a suburban retail centre

New neighbourhood and convenience retail centres should be incorporated, as much as possible. New competing retail uses should be strictly limited within one mile (1.6 km) of the core commercial area.



Competing centres in locations, which are not supported by transit or pedestrian network within a neighbourhood can diminish the opportunity to build mixed-use centres. Many General Plans, in fact, significantly over-zone for commercial sites, thus diminishing the ability of an area to concentrate retail uses and create activity centres. Each growth area should be examined to determine whether the location of these commercial uses may be in conflict with the goals of promoting transit usage, encouraging walking or biking for some daily trips, and building a network of streets that allows auto users to travel to local shops on local streets. ... see figure (3-15).

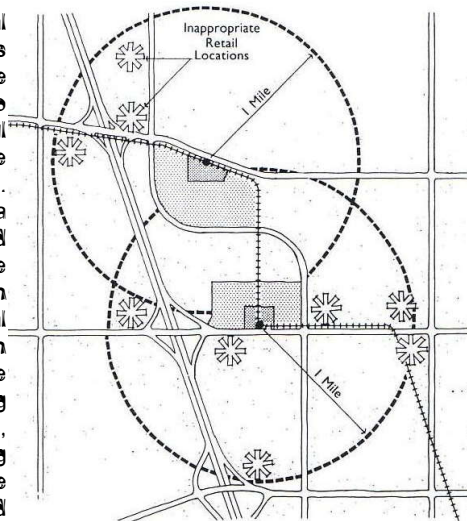


figure (3-15) zone within a commercial area, where locating other commercial uses may cause conflict

In order for the core commercial area to attract major stores and activities and be economically viable, new competing retail centres must be limited through zoning within that commercial area. Strip commercial uses that extend beyond a 10-minute walking distance of a transit stop should be limited so that businesses that fit in the transit stop area, can capitalize upon their location and proximity to transit in the transit stop area.

**Example: Atlantic Centre, Brooklyn, New York 1981.  
Activities Attracted To The Transit Station Area<sup>(88)</sup>**

This master plan represents an attempt to direct growth into prime inner city areas that are well served by transit, rather than allowing the jobs, housing and activity to be dissipated into the suburbs.

The site is in an historic redevelopment area, between older Brownstone neighbourhoods and 1960s-style co-op apartments. Atlantic and Flatbush Avenues are major arterials, which border two sides of the site. ...see figure(3-16).



Figure (3-16) the site location and Atlantic centre at Brooklyn NY

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<sup>(88)</sup> Peter Gathorne, "The Next American Metropolis", 1993, p. 90-94

The project aim was the general revitalization of downtown Brooklyn, by placing mixed-use development: at one of the region's largest transit stations, "Atlantic Terminal of the Long Island Railroad".

The master plan organizes four-story brownstone courtyard apartment buildings around a crescent park and along streets, which re-establish the lost fabric of a neighbourhood, decimated by 1960s redevelopment. Office buildings along Atlantic Avenue would shield the residential neighbourhood from the adjacent train tracks. ...see figure (3-17).

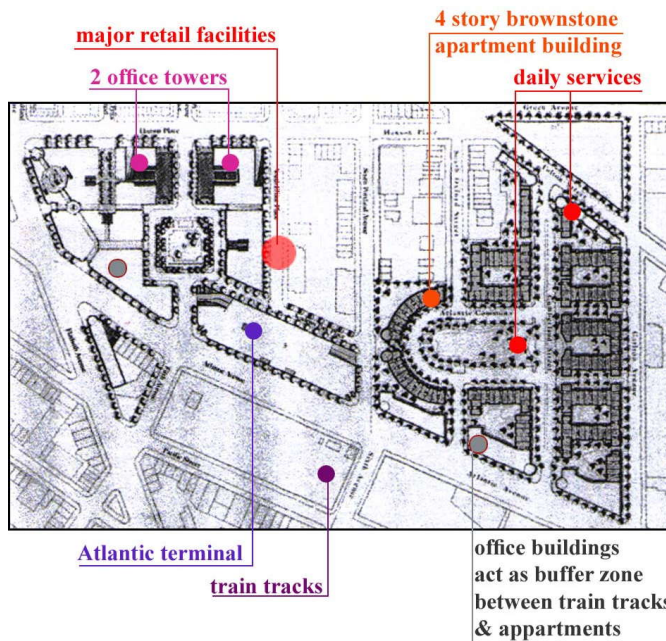


Figure (3-17) plan of the Atlantic centre, Brooklyn, New York

Day-care and community centres were situated at the base of the crescent park. Neighbourhood grocery stores and small retail stores line the neighbourhood's edge, while larger retail facilities were planned near the underground terminal. Two large office towers would have housed the majority of the back office space at the

northwest end of the site near the famous Williamsburg Bank Building. ...see figure (3-18).



Figure (3-18), Aerial view of the site

The plan creates two centres, ...see figure (3-19). One with a commercial focus over Atlantic Terminal and the other a residential neighbourhood wrapping around a crescent-shaped park. Between is a multi-purpose building with a major grocery store. The commercial area includes a skylight concourse entry to the station with shopping, entertainment, and restaurants. Two major office-building towers centred on an urban park sit adjacent to the terminal and concourse. The residential area features small shops, day-care, the park, and nine courtyards.

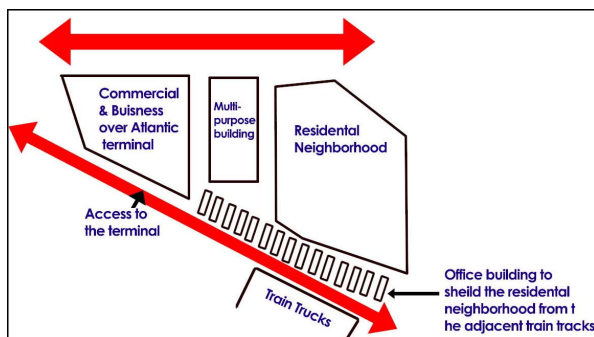


Figure (3-19), functional zones of the centre

The view along Atlantic and Flatbush shows the low-rise "back office" buildings with ground floor retail. The famous Williamsburg Bank building beyond is complemented by one of the two new towers. ... see figure (3-20). In order to attract businesses, which would have moved to the suburbs, these new towers must have large floors, which contribute to their bulk.



Figure (3-20) view along Atlantic and Flatbush Avenue

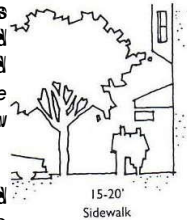
**Conclusion:**

Business and commercial activities grew around transit stop to be easily reached by those who live or work in the zone and use the station, as well as those who live far away and find it easy to use the underground to reach their destinations.

Activities locate themselves where they could benefit from adjacent activities, as locating two business towers near the famous Williamsburg Bank building.

### 3-2-3) COMMERCIAL BUILDING CONFIGURATION:

- Building setbacks from public streets should be minimized. Setbacks should reflect the desired character of the area and bring buildings close to the sidewalk. ... see figure (3-21). This encourages window shopping and street-side activity.



- Building facades should be varied and articulated to provide visual interest to pedestrians. Street level windows and numerous building entries are required in the core commercial area. Arcades, porches, bays, and balconies are encouraged. In no case shall the street-side facade of a building consist of an unarticulated blank wall or an unbroken series of garage doors.

figure (3-21) building set back from public streets

- Varied and interesting building facades are key to making a place "pedestrian oriented." Streets with monotonous and unarticulated buildings are not conducive to pedestrian activity and make walking less appealing.

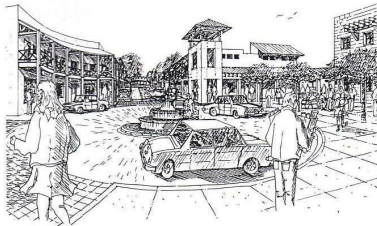


figure (3-22) entries of commercial buildings: the pedestrian life of a building is

- Primary ground-floor commercial building entrances may orient to plazas, parks, or pedestrian-oriented streets, not to interior blocks or parking lots. Secondary entries from the interior of a block are also permitted. Big retail buildings may have their entries from off-street parking lots; however, on-street entries are strongly encouraged. ... see figure (3-22).

- The pedestrian life of a building is at its entry. If the entry orients to parking lots, it steals the activity and life from the street, the main pedestrian route, while signalling that auto access is preferred.

- Entries into small shops and offices should face directly onto a pedestrian-oriented street. Buildings with multiple retail activities should have numerous entries to the street; small single-entry malls are discouraged. Off-street parking should also be located at the rear of buildings with paths leading to the street and primary entrances. Handicapped access must be incorporated into the overall commercial area design.

- Some retail big stores (above 30,000 sq-ft., ~2787 m<sup>2</sup>), such as grocery stores, need parking lot access to the primary entry. In these cases, pedestrian access to the entry should also be provided from the street and configured so pedestrians are not required to walk through the parking lot to enter the store.

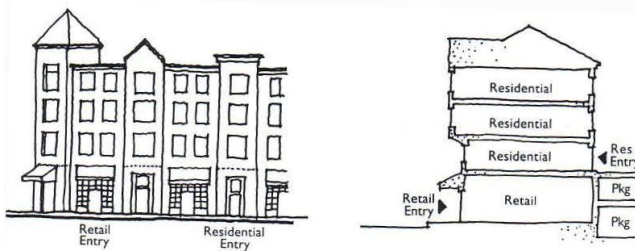


figure (3-23) upper-story uses special core must be given to the design of residential units to ensure privacy and security

- This density bonus for retail buildings may be designed as an incentive for developers to provide office and residential uses in the core commercial areas. Special care must be given to the design of residential units to ensure privacy and security by separating entries. ... see figure (3-23). Also, the required amount of retail parking may be added.

- Taller buildings are encouraged in the core commercial areas to provide visual interest, a more urban character, and street security at night, and to concentrate pedestrian activity. In addition, upper-floor residential and/or office space can support the retail by bringing a greater number of after-work shoppers.

### **3-3) Parks, Plazas, and recreational facilities**

#### **3-3-1) LOCATION OF PARKS AND PLAZAS**

Parks and plazas should provide a public focus for each neighbourhood. They

should be located next to public streets, residential areas, and retail uses.

Parks should not be formed from residual areas, used as buffers to surrounding developments, or used to separate buildings from streets.

Public parks and plazas are fundamental features of liveable and enjoyable higher-density

communities. Parks and plazas in urban areas act as neighbourhood

meeting places, recreational activity centres, childcare facilities, and lunchtime picnic spots. Because their function is primarily "public activity," they are most appropriately located central to residential or core areas." <sup>(89)</sup> ... see figure (3-24).



Figure (3-24), parks and plazas are fundamental features of higher-density communities appropriately located central to residential or core areas

Park and plaza sites should reinforce retail and residential areas by creating places suitable for informal gatherings or public events. Appropriate sites are centrally located and adjacent to streets and shopping areas. In many communities, parks and plazas are located on sites that are not suitable for other types of uses, such as under freeways, on oddly shaped parcels at the edge of a development, or within private residential or office complexes. These sites are not appropriate for public parks and plazas and rarely function effectively as such.

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<sup>(89)</sup> Peter Getthorp, "The Next American Metropolis", 1993, p. 90-94



So, parks' locations should fulfil the following criteria:<sup>(90)</sup>

- Parks and open spaces should be prominently so that we are aware of them through out the day in our normal routine.
- All residential areas should be within walking distance of at least a neighbourhood park. While it does not necessarily need to be located internally, it should be located so that it is visible and easily accessible from the neighbourhood in order to serve the area and encourage both its use and pride of ownership in it.
- Most people do not live where the major recreational activities occur. Large-scale land for major parks on the fringe of developing suburban areas will never host the number of visitors that most of them designed to accommodate. Instead, communities should concentrate on opportunities closer to the bulk of the population.
- The location of parks should encourage the spontaneous use by visitors. If all parks require premeditation and advanced preparation, much of the enjoyment that they bring is lost. They should be located so as to maximize the interaction with and access to other destinations. Large parks can become excellent transition spaces between land uses, but benefit from both.
- So many parks, especially those adjacent to schools, literally turn their backs on the adjoining streets; some

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<sup>(90)</sup> Gerald A. Perterfield and Kenneth B. Hall, Jr. –1995. "Acencise to community planning", p.172-176

even to the point of walling or fencing them off to inhibit or control access. This seems to defeat the entire purpose of open space and its relationship with the community.

- Linkages between existing parks need to be identified and actively pursued. These are some of the best opportunities to expand the use of the open space currently in place while expanding access to more residents.
- More parks should be located to reinforce existing and proposed public buildings. That's to say, public buildings and their related green spaces should be located in more prominent locations so that they become community focal points and activity centres.

### 3-3-2) CLASSIFICATION OF PARKS AND OPEN AREAS.

Parks should be developed throughout urban communities and surrounding them to meet on-site population needs: ... see figure (3-25).

1- One- to four-acre (0.96 to 3.8feddans) parks should be placed within two blocks of any residence.

2- Five- to ten-acre (4.8 to 9.6feddans) neighbourhood parks with large playing fields should be located at the edge of the neighbourhood or adjacent to schools.

3- Ten- to thirty-acre (9.6 to 28.9feddans) community parks should be placed along regional open space or bicycle networks.

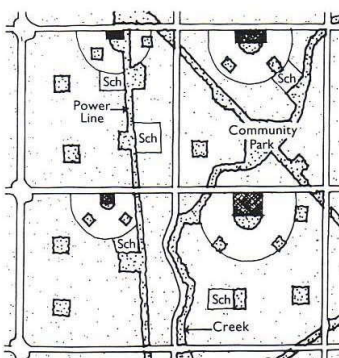


figure (3-25) distribution of parks throughout residential areas

Total park acreage (*feddans*) should be based on the quantity of residential development and/or equivalent to roughly 5 to 10% of the site area.

Small and frequent parks should be dispersed throughout residential areas to provide auto-free destinations for children within a neighbourhood. Too often, parks are aggregated for marginal savings in maintenance costs, and become too remote to be safe for foot or bike access.

One- to four-acre sites can easily accommodate a useful range of active and passive uses for a variety of age groups. Basketball, tennis, tot lots, picnic areas, gardens, and strolling areas are feasible at this scale.

With two acres (a typical city block) a softball field with other facilities is possible. These smaller parks are also safer; they are shallow enough for street and residential surveillance and they easily become the informal responsibility of local residents.

To preserve the compact, mixed-use character of a neighbourhood, larger parks and playfields should be located away from the central areas. Mid-sized neighbourhood parks, with their soccer, baseball, and football fields, are often successfully placed next to elementary and middle schools, where active play areas can be jointly used and evening lights and occasional crowds can be managed. Their size reflects the needs of a large residential population.

Many cities are now planning for very large 'community parks.' These 10- to 30-acre (9.6 to 28.9 *feddans*) parks tend to serve populations of 15,000 or more and should be strategically placed to provide easy access for the broader community along both street and bicycle networks. Open space features, such as creeks, rivers, knolls, woodlands, can be incorporated as park amenities.

The standards for the ratio of park area to number of residents vary widely from city to city. A minimum of 3.5 acres (3.37 *feddans*) per thousand populations is advisable, as parks enhance the quality of the public domain, create more convenient recreation areas, and provide open space for moderate- to high-density housing.

**So, parks and open areas are distributed among urban communities according to the size of the community. ... see table (3-1).**

<b>Community</b>	<b>Kind of park</b>	<b>Radius of area served</b>
<b>Residential group</b>	<b>Playground</b>	<b>0.5 miles (0.8 km)</b>
<b>Neighbourhood</b>	<b>Neighbourhood park</b>	<b>0.5 miles (0.8 km)</b>
<b>Residential quarter</b>	<b>Playfield and sport club</b>	<b>1.5 miles (2.4 km)</b>
<b>Town</b>	<b>Community park and sport court</b>	<b>2.0 miles (3.2 km)</b>
<b>District</b>	<b>District park</b>	<b>3.0 miles (4.8 km)</b>
<b>Region</b>	<b>Regional parks and reservations</b>	<b>10.0 miles (16 km)</b>

*Table (3-4) classification of parks and radius of the area <sup>(91)</sup>*

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<sup>(91)</sup> Joseph De Chiara /Lee Koppelman, 1975. "Urban planning and design criteria", 2<sup>nd</sup> edition, P.363

### 3-3-3) CONFIGURATION OF PARKS AND PLAZAS

- Public parks and plazas should be designed for both active and passive uses. They should reflect and reinforce the character of the surrounding area and accommodate the anticipated intensity of use. Their form should be coherent and memorable, rather than residual. Their design should respect vistas created by streets. Plant types must reflect the local climate and history.

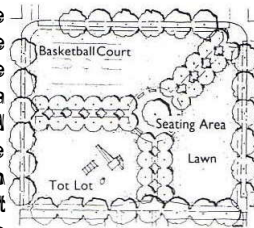


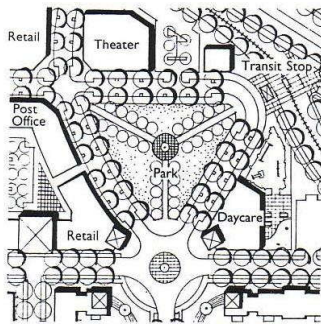
figure (3-26) example of a park in residential areas

- Various types of parks and plazas can be designed to establish identity or character for each neighbourhood. ... see figure (3-26). For example, plazas in commercial core areas may be most appropriately designed with finished hardscape materials such as stone or brick, and include fountains and seating areas; parks in residential areas could be developed with grassy fields, play equipment, and sports facilities. Parks should not be situated on oddly shaped parcels or within private areas.

- Because parks and plazas will be focal points of neighbourhood activity, special consideration should be given to making these public spaces not only functionally appropriate, but consistent with the character and density of the surrounding area. Sensitive integration of public spaces is also critical to public acceptance and commercial success.

- Park and plaza landscaping should provide trees and plants that make comfortable, relaxing environments. The amount and location of such landscaping should be appropriate to and complement the character and design of the space. Landscaping should allow comfortable use in both summer and winter months.

### **3-4) Community services**



*figure (3-27) civic services should be placed in central locations as highly visible local points*

Civic services, such as community buildings, government offices, recreation centres, post offices, libraries, and day-care, should be placed in central locations as highly visible focal points. Where feasible, they should be close to the transit stop. ... see figure (3-27).

The re-integration of our civic and commercial world is essential to creating strong communities. Day-care, libraries, police and fire stations, and post offices should be located with retail areas or adjacent to public gardens. Community buildings can enhance the identity

of an area, as well as reinforce connections with the past in older neighbourhoods. Civic structures will contribute to the level of activity in neighbourhood commercial centres and encourage walking and transit use. Community buildings associated with parks can contribute to the identifying aspects of neighbourhoods, as well. These parks and community buildings will help to differentiate one neighbourhood from the next, and help to create a node of activity apart from the core area.

The architectural quality of community buildings can elevate their prominence and civic importance. Major building entries should face public streets and be strongly articulated. Massing and architectural features should be designed to take advantage of vistas along streets to visually connect these civic buildings with their surrounding neighbourhood. Major Public buildings should have a civic presence enhanced by their height, mass, and materials. The architecture should convey a sense of permanence and importance.

### 3-4-1) EDUCATIONAL SERVICES

Educational facilities are among the controlling elements that help determining the size of urban communities, which was discussed before in chapter one. These educational facilities can be classified into:<sup>(92)</sup>

- Nurseries and pre -school and day care education facilities.
- Primary and preparatory schools (elementary education).
- Secondary schools (high schools).
- Technical secondary schools.
- Training centres.
- High education (universities and institutions).

Note that, Technical secondary schools, Training centres, High education (universities and institutions) are likely to be located away from the core areas.

#### 3-4-1-1) Pre-school and day care facilities

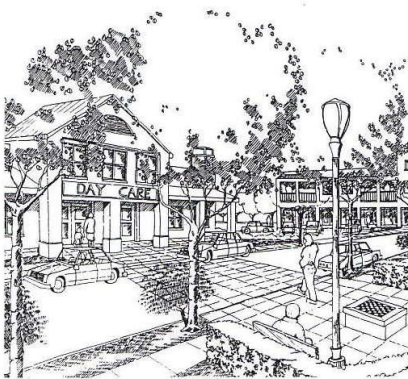


figure (3-28) daycare facilities should be located within residential neighborhoods, adjacent to parks, core commercial areas, office buildings

Sites for pre-school day-care facilities should be located in route to transit or within the core commercial area. many parents now lengthen early morning and evening auto trips by driving to a childcare facility before continuing on to work. Locating childcare facilities in neighbourhood centre will not only provide a necessary service, but will allow parents to make the daycare trip part of their transit commute trip,

<sup>(92)</sup> The general organization for physical planning, (GOPP), "Planning basics and Rates", august, 1993. p.10-35

thus reducing vehicle miles traveled.

Daycare facilities should be convenient and accessible to local residents and employees. Sites should be located within residential neighbourhoods, adjacent to parks, core commercial areas, and office buildings. ... see figure (3-28). The precise parcel size and size of the facility should be determined in conjunction with appropriate local agencies. Daycare facilities for school-age children should be located at school sites to meet the needs of each school's students.

Nurseries and pre-school education serve an area of radius 1-2 blocks desirable and 1/8 mile (200 m) maximum.

#### 3-4-1-2) Elementary school

Elementary education schools are usually located near centre of residential area, near or adjacent to other community facilities, they should also be accessible by footpath from dwelling units without crossing any streets. If street must be crossed, it should be minor street.<sup>(93)</sup>

Elementary education schools serve an area of radius ¼ mile (400 m) desirable and ¾ mile (1200 m) maximum.

#### 3-4-1-3) Secondary schools

Secondary schools (high schools): they should be centrally located for easy access. Proximity to other community facilities is advantageous. They should be located adjacent to a park area. They also should be adequately screened from noise or objectionable uses.<sup>(94)</sup>

Secondary schools (high schools) serve an area of radius ¾ mile (1200 m) desirable, 1 mile (1600 m) maximum.

#### 3-4-1-4) Schools and Community Parks

If needed, school sites and community parks should be located at the edges of core areas within neighbourhoods. Strong pedestrian and bike links should connect these sites with the commercial and transit core.

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<sup>(93)</sup> Joseph De Chiara /Lee Koppelman, 1975. "Urban planning and design criteria", 2<sup>nd</sup> edition, P.363

<sup>(94)</sup> Joseph De Chiara /Lee Koppelman, 1975. "Urban planning and design criteria", 2<sup>nd</sup> edition, P.363



While schools and community parks are not necessary appropriate uses within the core area, they may be needed to serve the larger population. Schools and community parks should be located within convenient walking distance of the whole neighbourhood, along pedestrian paths, streets, and bikeways which follow the shortest route to the commercial and transit core.

... see figure (3-29).

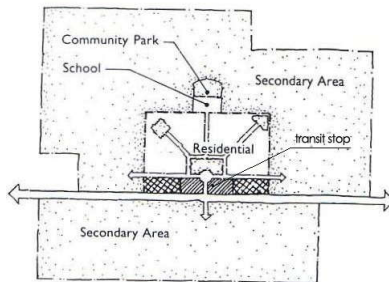


figure (3-29) locating schools and parks within convenient walking distance of the whole

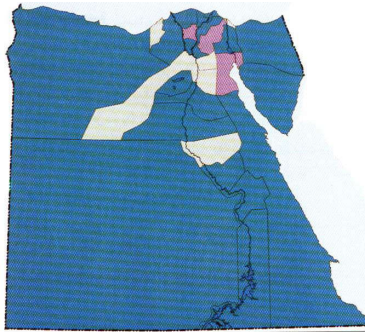
Studies of travel behavior indicate that roughly half of all daily trips are to local destinations, such as schools, recreation, and shopping. If only a portion of these trips were made on foot or bike, the reduction of vehicle miles traveled would be significant. This further supports the importance of providing safe and direct street and bicycle routes for children.

### 3-4-1-5) Regional Educational Facilities In Egypt

Available data about regional educational facilities which serve on the level of the governorates in Egypt, are studied & analysed, in-order to find out their rates & adequacy.

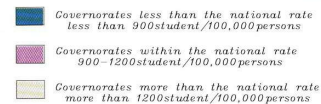
Egypt owns 13 universities; five were established long ago ( Cairo, Alexandria, Ain-shams, Asuit & Al Azhar universities), seven more were established in the 70's , and in 1994, South Wadi University were established.<sup>(95)</sup> So, the performance rates of university education in Egypt reached. 1850 student/ 100 thousand capita.<sup>(96)</sup>,<sup>(97)</sup>

In 1996/97, university students were 9'302'920 student & the country population was 59 million persons. In the same year, Comparing this rate to that of developing countries (60 students /100 thousand Persons), its clear that it exceeds very much rates of developing countries & join that of developed countries (Germany 700/100 thousands, France 130/100 thousands, USA 3300/100 thousands).



Yet, not all Egyptian governorates fulfil this rates.

... figure (3-30) illustrates the national rate, governorates within national rates and governorates that exceed national rates.



source: Ministry of Education  
Ministry of High Education

<sup>(95)</sup> التقرير -وزارة الاسكان والمرافق والمختصات العمرانية، الهيئة العامة للتخطيط العمراني، "خريطة التنمية والتعمير لجمهورية مصر العربية عام ٢٠١٧

العالم"، يونيو ١٩٩٨ ص٧٥-٨١

<sup>(96)</sup> وزارة التعليم العالي

<sup>(97)</sup> وزارة التربية والتعليم

### 3-4-2) MEDICAL SERVICES

The medical services is one of the most important services offered to a community. Naturally, it is classified according to the size of the community. The most important point is the role each medical facility do to the community, starting with ambulances to long stay hospitals. Medical facilities can be classified as follows: <sup>(98)</sup>

- Ambulant patient care: local or community clinics and health centres.
- Small hospitals: range from 10-15 beds up to 100 beds, offering basic inpatient services.
- Community hospitals : medium-sized to large with 200 – 600 inpatient beds and most or all major diagnostic and treatment specialties. Also provide some teaching for med, nursing and Para-med staff.
- Tertiary or teaching hospitals : usually have 600 – 1000 beds, house not only all basic services but sophisticated specialties. Most provide teaching for med students, nursing and Para-med staff and post-graduate training and research.
- Long stay : for elderly, chronically sick, children, psychiatric patients and some other special purposes.

Although, medical facilities differ in size, population served and many other technical issues, yet they have some common preferable site requirements, which are:

- The ideal hospital site should have clear and simple traffic configuration.
- The ability to expand in the future.

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<sup>(98)</sup> Ernst Neufert, 1984. "Architect's Data, The handbook of building types", second (international) english edition, p.149-181.

- Building don't occupy major part of hospital grounds.
- Parking 1½ - 2 car/bed
- Multiple entry.

### 3-4-2-1) Regional Medical Facilities In Egypt.

Regional medical facilities indicate public hospitals that include all medical trades & they are usually located in capitals of governorates & in big cities.

The governorate	pub. hospitals	no. of beds	beds/1000 p.
Cairo	12	2194	0.32
Alexandria	2	644	0.19
Porsaid	3	686	1.44
Suez	1	369	0.87
<b>Urban Governorates</b>	<b>18</b>	<b>3893</b>	<b>0.35</b>
Damietta	2	435	0.47
Dakahlia	1	237	0.06
Sharkia	1	252	0.06
Kaayebeya	3	534	0.16
Kafr el-shiekh	1	464	0.20
gharbia	4	1199	0.35
Menefia	1	262	0.09
Behira	0	0	0.00
Esmailia	1	222	0.35
<b>Delta governorate</b>	<b>14</b>	<b>3605</b>	<b>0.14</b>
Giza	5	1589	0.33
Bni swief	1	787	0.41
Fayoum	1	457	0.22
Menia	1	358	0.11
Assuit	2	381	0.13
Shahg	2	500	0.16
Qena	1	564	0.20
Aswan	1	518	0.52
<b>Wadi governorates</b>	<b>14</b>	<b>5154</b>	<b>0.23</b>
Red sea	1	82	0.52
Wadi gadih	1	200	1.38
Matruh	1	214	0.98
North saina	1	204	0.79
South saina	1	70	1.26
<b>Bearder governorates</b>	<b>5</b>	<b>770</b>	<b>0.92</b>
<b>Egyptian governorates</b>	<b>51</b>	<b>13422</b>	<b>0.22</b>

Table (3-5) rates of regional medical facilities in all the Egyptian governorates

The study here analyses the location & the rate of performance of regional medical facilities in Egypt (bed/1000persons). According to the ministry of health and population the optimum rate for regional medical facilities in Egypt should be 2 bed/1000 persons. But this rate varies a lot from one governorate to the other.<sup>(99)</sup>

Although regional medical facilities covers all Egyptian governorates especially those of high population, Yet nun of them fulfil that rate set by the ministry. ... see Table (3-5)<sup>(100)</sup>

<sup>(99)</sup> وزارة الصحة والسكان

<sup>(100)</sup> وزارة الصحة والسكان

### **3-5) Conclusion:**

- The size and mix of uses of each core commercial area can vary depending on the size, location, and overall function of the site in the region.
- Core commercial areas are classified mainly according to the size of the area served: neighbourhood, residential quarter, district, town or regional centres.
- Many factors control land taken for service areas and open spaces, other than standards, mainly economical and political, as well as existing land uses and population densities.
- The configuration of shops in the core area must balance pedestrian and auto comfort, visibility and accessibility.
- Each core commercial area has a zone of influence, where locating other commercial uses may cause conflict.
- Commercial building set back should be minimized in order to encourage window shopping and street-side activity.
- Commercial and service building entries should be oriented to the main pedestrian route or to the street and not to parking lots, so as to bring activity and life to the street.
- Parks and plazas should provide a public focus for each neighbourhood.
- New communities in UK have experimented with different approaches to the community service areas, which stimulated the field of social development to set up countless local voluntary and community organisations as a

means of developing a sense of community and shown themselves able to promote high standards of cultural and creative activity. In health care, education and recreational provision they have demonstrated the same readiness to encourage new approaches.

While new urban communities in Egypt are still going through experiments that are very much affected by funds, political decision as well as the lack of organization and cooperation between the new communities and the governorates they follow.

- Although rates of university education in Egypt is relatively high , it is not spatially distributed, only 11 governorates of 26 have universities which support only some faculties, the rest of the governorates haven't got any university education. That's to say, high rates doesn't mean efficient services. As citizen of governorates deprived from university education or from some of its faculties have to pay more & more for living & transportation or otherwise change their minds.
- All the Egyptian governorates suffer the low rates of regional medical facilities as the national rate now is 0.2 bed/1000 per. While the standard rate set by the ministry of health & population is 2 bed/1000 per.
- some Egyptian governorates suffer an extremely low rates of medical facilities like ( Behera , Dakahlia , Sharkeia & Sohag) The estimated current shortage in number of beds is 106,098 beds, in addition to that shortage, the quality of medical service in general is really below standards.





### **3-7) Conclusion Of The Theoretical Study:**

- Urban communities survive because they fulfil the commercial, social and psychological needs of their citizens.
- Each urban community acquire a level of self sufficiency according to service facilities it offer as well as its level in the urban hierarchy.
- People travel longer distances when price and selection are the primary consideration.
- Community needs for services vary over space, and location of facilities affects the level of satisfaction of service recipients.
- The planning process is a tool to provide decision makers with adequate analyses and up to date information.
- A plan designed for town or community service centre should be feasible and socially attractive, in order to acquire success and sustainability.
- Qualities that attract people to town centres usually results from the random interaction of the economic and social forces, geographical location, and deliberate choices and policies that help to shape the urban environment.
- A major determinant of how much traffic a particular street will carry is the development and arrangement of

the land uses in its vicinity. Conversely, the land use arrangement in an area is determined to an extent by the traffic patterns.

- Car ownership, vehicle miles travelled per household and number of trips per household per day, are factors that determine the travel behaviour and so, the appropriate location for urban services.
- Choosing the right location for a service centre, could effectively reduce auto dependence, increase mobility, minimize air quality impact, and create more affordable communities.
- Accessibility to transit stops must be given high priority in the design of streets in order to promote the transit rider-ship.
- Studies do not provide a simple rule to estimate a community's demand for services, but they do provide a guide line using per capita requirements approach, which is subjected to the reality of willingness to pay and affordability.
- The size and mix of uses of each core commercial area can vary depending on the size, location, and overall function of the site in the region. It should, at a minimum, serve as a residential group shopping area.

- Business and commercial activities grew around transit stop to be easily reached by those who live or work in the zone and use the station or transit stop
- Various types of parks and plazas can offer identity or character for each neighbourhood

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## Part Two: Practical Study

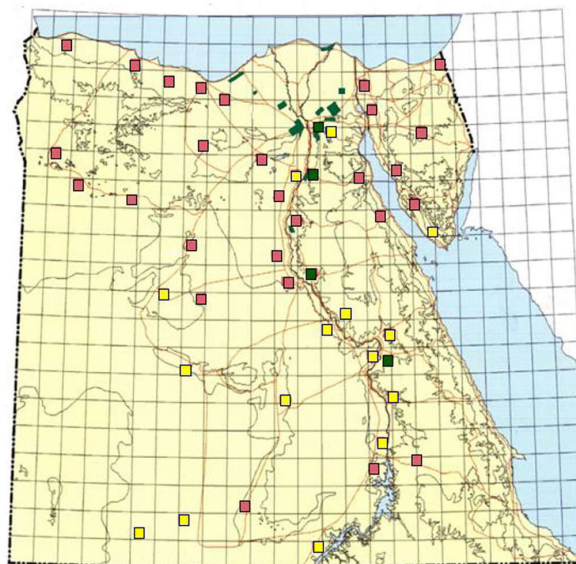
## **Chapter Four: Study And Analysis Of The Case Study**

#### **4-1) Criteria Of The Selection :**

Choosing the study area was not an easy job, because it has to fulfil some criteria that enable a realistic evaluation and produce trustful indicators.

1. The study area should be urban area totally planned from scratch, and not an upgraded area that was once a random residential area. In this case, the design rates can be tested clearly.

... **New Urban Communities** were the best example. ...see figure (4-1), table (4-1).



- Existing New Urban Communities
- Planned New Urban Communities
- Future New Urban communities

figure (4-1), New urban communities in Egypt

**NEW URBAN COMMUNITIES IN EGYPT**

Existing new urban communities	Planned new urban communities	Future new urban communities
6 <sup>th</sup> of October	New Akhmeem	In addition to 28 future New Urban Communities.
New Berg el-Arab	New Sohag	
New Saïhia	New Aswan	
10 <sup>th</sup> of Ramadan	New Fayoum	
15 <sup>th</sup> of May	El Amal	
Sadat	New Qena	
New Damitta	Shark Owaynat	
New Nobaria	Teshka	
Obeur	Edfou	
Badr	New Naga-Hamady	
Shiekh Zayed	Dakhia	
New Bani Swief	Kharge	
New Menia	Shark El-teur/Ras-Mohamed	
Shereuk	Faraïfa	
New Cairo		
New Asuit		
New Tiba		

Table (4-1) new urban communities in Egypt

2. The study area should be old enough (more than 15 years), to express a real evaluation for urban services planning rates.

... The first generation of The New Urban Communities were the best example. ... see figure (4-2), table (4-2)

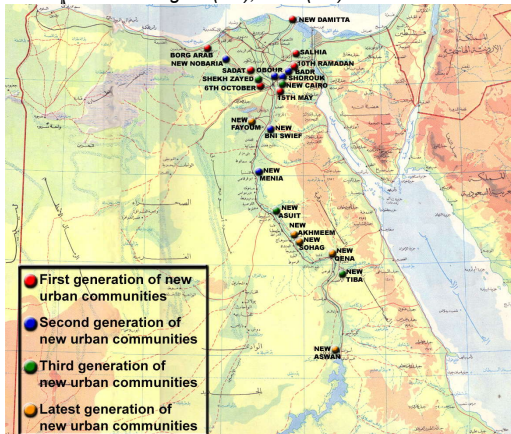


Figure (4-2), generations of new urban communities in Egypt

THE CITY		Designation Order Date
FIRST GENERATION	10 <sup>th</sup> of Ramadan	1977
	Sadat	1978 1990
	15 <sup>th</sup> of May	1978 1995
	6 <sup>th</sup> of October	1979 2000
	New Borg el Arab	1979
	New Dammita	1980
	New Sakhia	1982 2000
SECOND GENERATION	New Noharia	1986
	Obour	1982 1990 2003
	Badr	1982 1983 1986 2001
	El Shorouk	1995
	New Bani Swief	1986
	New Menia	1986
	THIRD GEN.	New Cairo
Sheikh Zayed		1995 2001 2003
New Asuit		2000
New Tiba		2000
LATEST GEN.	New Aswan	1999
	New Sohag	2000
	New Fayoum	2000
	New Akhmeem	2000
	New Qena	2000

Table (4-2), generations of new urban communities in Egypt



3. Population should be big enough to produce realistic indicators.  
 ...see table (4-3)

The City	Urban Mass (in feddan)	Population (Persons) 2002	Target Population (Persons)
10 <sup>th</sup> of Ramadan	21'428	230000	500'000
Sadat	11'376	120000	500'000
15 <sup>th</sup> of May	8'316	230000	250'000
6 <sup>th</sup> of October	44'077	360000	2'000'000
New Berg el Arab	11'376	75000	510'000
New Dammita	4'022	180000	270'000
New Salfia	1'428	40000	60'000

Table (4-3), areas and population of first generation of the new urban communities

4. The study area should be integrated, i.e. contains residential areas, services of different categories, as well as an economic base so as to enable studying the relationships between all sorts of land use.

5. All kinds of services should be present and working, i.e. serving the community long enough to be tested.

6. The study area should contain almost all sorts of housing classes.

#### 4-1-1) HOW TO DETERMINE THE STUDY AREA :

In studying urban services areas, some would prefer to identify the services zone simply as a "some vague area with no definite boundaries". Another conclude that "when it comes to drawing a firm boundary for the purposes of study, the extends of the services zone must be determined arbitrarily". However, though the boundary itself may not exist in reality, the reason behind the location of a line may be basically objective.

Drawing a boundary line is to approximate the zonal edge of the services zone by the use of standardized methods; this clearly facilitated comparisons and contributed to acknowledge of the content and functioning of this critical urban region.

## 4-2) 6<sup>th</sup> of October New City \_ Egypt

### 4-2-1) CITY OVER VIEW

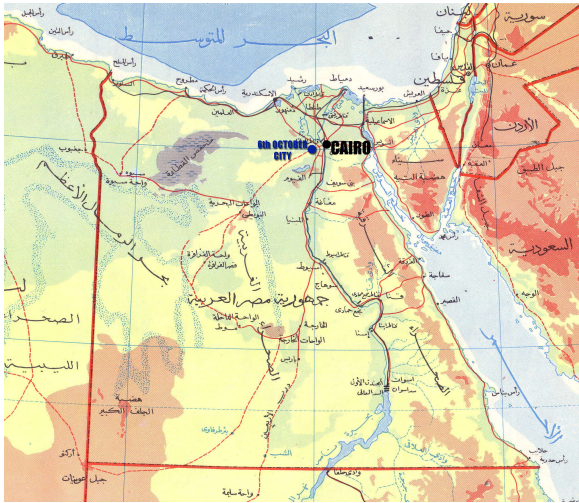
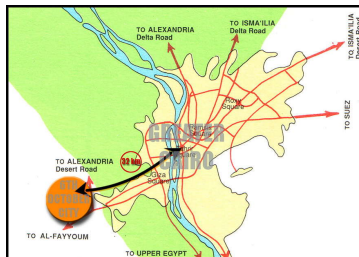


Figure (4-3), the location of 6<sup>th</sup> of October City with respect to Egypt

6<sup>th</sup> of October City ... see figure (4-3) was located at the Km 25 Gairo – Alexandria road and the Km 19 Fayoum road, 32 Km from downtown, 17 Km from the pyramids touristic zone, and connected to Gairo through 26 July artery. It lies at 180 to 190 meter height over see level. ... see figure (4-4).



Figure(4-4), 6<sup>th</sup> of October City is 32 km away from Cairo's downtown

The 6<sup>th</sup> of October City was planned in 1979 to assist in the decentralization of greater Cairo. The original master plan had an area of 367 km<sup>2</sup> ~ 87381 feddans includes 83 km<sup>2</sup> ~ 19762 feddans as a greenbelt and 263 km<sup>2</sup> ~ 62619 feddans as urban mass. The plan has a target Population of originally 350,000 reaches 2 millions after the city was extended

#### 4-2-1-1) General Objectives

- The city was planned in order to reduce the population accumulation in the Greater Cairo Region, especially in Cairo and Giza Governorates.
- The plan should provide job opportunities, to attract citizens from G.C.R. by means of allocating economical activities of different fields in the city.
- The plan should create an urban, economic and social base on the Cairo – Alexandria – El Wahat road.
- The plan should seek to resolve local environmental problems.
- The plan should provide for the development of land to meet the needs of local people in terms of homes, jobs, leisure and services.
- The plan should provide for the development of land to meet the needs of economic development.

#### 4-2-1-2) City Boundaries

The city was originally a 16km x 22.5km rectangle lies on a medium height hill, then extended to be bounded by sand dunes from south-west side, El Wahat road and Fayoum road from south east side, Cairo – Alexandria road and Sheik Zayed town from east, and extended plain sand from north.

#### 4-2-1-3) City Access

The city is connected to the regional road network through three main entrances: ...see figure (4-5)

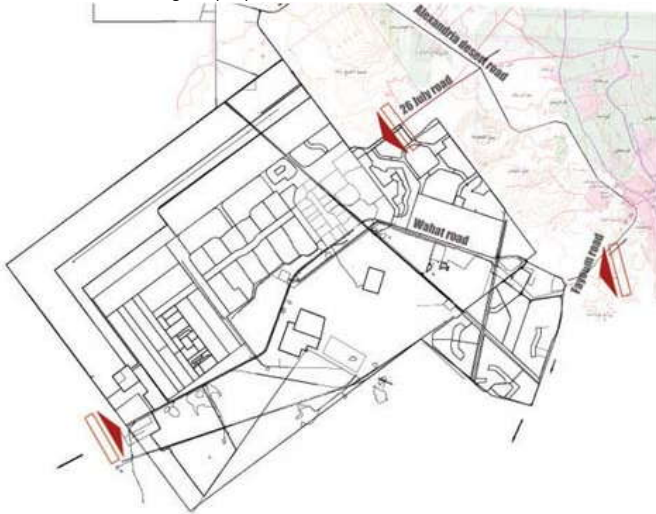


Figure (4-5), access to the 6<sup>th</sup> of October City

- The eastern entrance from Cairo ring road through the touristic zone.
- The southern entrance from El Wahat - Fayoum roads.
- The western entrance from the road connecting Cairo - Alexandria road to El Wahat - Fayoum road.

#### 4-2-1-4) Landuse

...see figure (4-6)

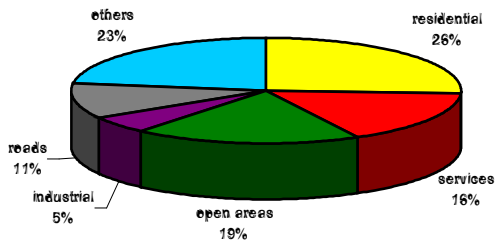


Figure (4-6), the land budget of 6<sup>th</sup> of October City

**Touristic Activities:** Touristic villages, investment touristic projects, and clubs zone.

**Residential Activities:** 12 residential quarters perpendicular to the axial service centre representing different housing classes.

The first and second northern urban zones.

The northern extensions of the touristic and residential areas.

The south of the residential quarters (previously the city garden).

The Fayoum / Wahat roads zone.

Extensions of the east touristic zone.

South of Wahat road zone.

**Services:** The axial central service centre, which contains the central services like the hospital, the commercial, administrative and entertaining activities.

The quarter's service centres.

The neighbourhood's service centres

Some regional and national services.

Industry and warehouses: 6 industrial zones, in addition to their extensions.

Agriculture: Cultivating the greenbelt.

#### **4-2-2) THE CASE STUDY**

In studying urban services areas, some would prefer to identify the services zone simply as a "some vague area with no definite boundaries". Another conclude that "when it comes to drawing a firm boundary for the purposes of study, the extends of the services zone must be determined arbitrarily". However, though the boundary itself may not exist in reality, the reason behind the location of a line may be basically objective.

Drawing a boundary line is to approximate the zonal edge of the services zone by the use of standardized methods; this clearly facilitated comparisons and contributed to acknowledge of the content and functioning of this critical urban region.

In order to achieve the most realistic results, and to avoid misleading, the original urban mass of 6<sup>th</sup> of October city was chosen to be our specific study area as it fulfil all our criteria, also including the city extensions will produce misleading indicators. ... see figure (4-7).

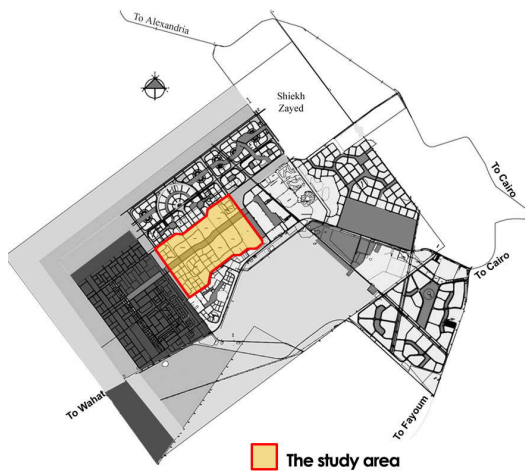


Figure (4-7), the study area in 6<sup>th</sup> of October City

#### 4-2-2-1) The Area Development and Growth

The 6<sup>th</sup> of October original Master Plan 1980, chooses the linear form as the most convenient solution for the site nature and topography, this solution provides: ... see figure (4-8).

- The direct and equal relation between the city main service centre and the residential quarters.
- Easy implementation of the city centre phasing in parallel with the city phasing.
- Clear and easy road network, strongly related to the regional road network.

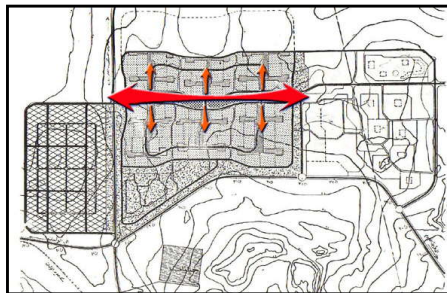


Figure (4-8), direction of growth in the original plan of 6<sup>th</sup> of October City

- Separating the industrial zone and the touristic zone from the main residential zone.
- Choosing the best location for the industrial zone so as not to subject the city to pollution and heavy traffic.

But the touristic zone, the industrial zone and the regional road blocked extending the city east and west.

#### 4-2-2-2) The Urban Components of The Area

The principle of 'the neighbourhood' in the development of 6<sup>th</sup> of October City was achieved largely by giving each neighbourhood its own identity, by giving every two residential area their own local service centre, (shopping centre, community centre, health centre, mosque and social centre).

So, the components of the study area can be described as follows: The main service axis interposes the main residential area, the residential quarters lie perpendicular to the main service centre forming three residential zones, each has its own service axis which serve the zone as well as the residential quarter.

The area of the residential quarter varies from 280 to 410 fed. Each contains 6 – 8 neighbourhoods of 4000 – 6000 persons, and occupies about 35 fed. So the city consists of 3 zones, 12 quarters, 84 neighbourhoods.

This hierarchy of the residential communities ensures that each has its own character as well as being self-dependent within the structure of the whole city, and these residential communities are:

- The residential group persons ~1200
- The neighbourhood 6000 persons ~4000 –
- The residential quarter 35'000 persons ~25'000 –
- The residential section persons ~115'000



- The city persons ~350'000

#### 4.2.2.2-1) THE RESIDENTIAL QUARTERS

The study area consist of 12 residential quarters and the original city centre, ... see figure (4-9), those represent almost all sorts of housing classes. ... see table (4-4).



Left, Figure (4-9), the study area contain 12 residential quarters

Quarter	Area (feddan)	Housing level	Target population	Estimated population density per feddan
The First Quarter	464.83	Upper medium class	72075	155
The Second Quarter	411.31	Medium and upper medium	113200	275
The Third Quarter	361.11	Medium and upper medium	97420	220
The Fourth Quarter	366.21	Medium and upper medium	82350	225
The Fifth Quarter	417.13	Medium	89655	215
The Sixth Quarter	503.21	Economic and low	75450	150
The Seventh Quarter	265.48	Medium and upper medium	32250	125
The Eighth Quarter	287.31	Upper medium	35875	125
The Ninth Quarter	236.99	Reserved land	29625	125
The Tenth Quarter	271.83	Economic and upper medium	34000	125
The Eleventh Quarter	294.39	Medium and upper medium	36750	125
The twelfth Quarter	265.70	Low	23250	125
The City Centre	512.13			
Total	4657.62			

Table (4-4), area and population of residential quarters in 6<sup>th</sup> of October City

Each residential quarter consists of 6 to 8 neighbourhoods and various from 280 to 400 fed. Accommodating 25'000 to 35'000 persons. In the middle of each two quarters lies their common axial service centre with concentrated green and open areas. . see figure (4-10).

The urban form of the residential quarter here in 6<sup>th</sup> October city are characterized by:

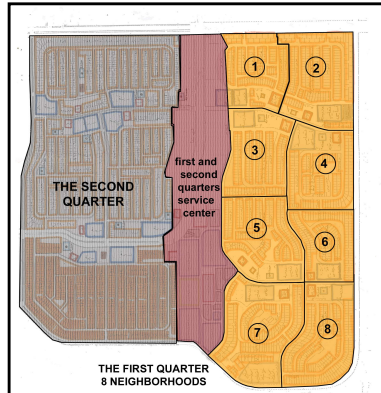
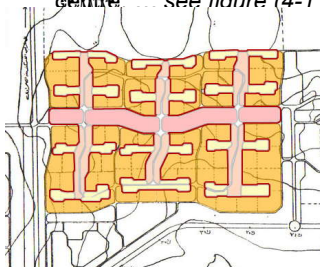


Figure (4-10), the first and second residential

- The neighbourhood service centre is visually and functionally connected to the city main service centre . . . see figure (4-11).



- Connecting the main and the secondary footpaths with the open and green areas, and locating services along them.

- Green and open areas were concentrated to assure their scale and efficiency.

- Roads were designed in three levels:

- Those passing through and around the quarters service centres.
- Those around the neighbourhoods.

Figure (4-11), the interconnection between main service center and the other service centres

- These inside and connecting the neighbourhoods.

#### 4-2-2-2) THE NEIGHBOURHOODS

It is the basic unit for almost every new urban community around the world, as the hierarchy of service centres and open areas starts with the neighbourhood.

The neighbourhood in 6th October city can accommodate 4000 – 6000 persons. On 35 – 40 fed. (4 to 6 residential groups). Its service centre includes: a primary school, a commercial centre and the neighbourhood garden, each two neighbourhoods share a mosque and a preparatory school. ... see figure (4-12).



figure (4-12), the first neighbourhood in the first residential quarter

#### 4-2-2-2-3) THE RESIDENTIAL GROUPS

It is a very homogeneous community, which shares a lot of common characters economically, socially, culturally as well as their behaviour.

**The residential group (1000 – 1200 persons ~ 200 families) surrounds totally or partially a central area that usually includes: a nursery and a few small shops to fulfil the residents' daily needs.**

#### 4.2.2.2.4) THE SERVICE CENTRES

The plan provides the city with three levels of service centres:

... see figure (4-13)

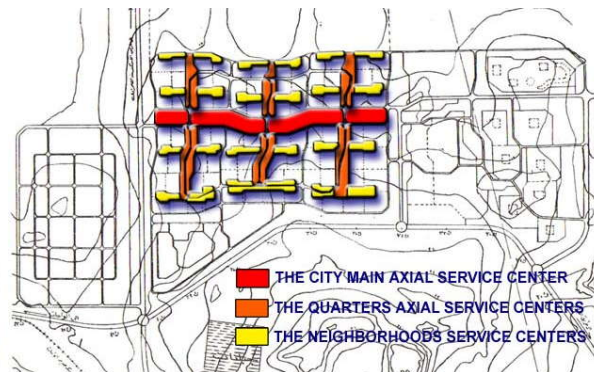


figure (4-13), hierarchy of service centres in 6<sup>th</sup> of October City

**First:** the axial service centre of the neighbourhood, which contains: a commercial centre, a social centre, a religious centre (a mosque), and an elementary school.

This axial service centres lies perpendicular to that of the quarters and interposes four neighbourhoods.

**Second:** the residential quarters axial service centres, they interposes the residential sections and the quarters in the rate of one centre for each two quarters. These centres contains commercial, educational, administrative, and cultural services ... etc.

These axial centres lie perpendicular to the city main axial centre, to ensure direct connectivity in-between and to facilitate transportation.

**Third:** the city main axial centre that serves the whole city and connects the industrial zone with the touristic zone.

#### 4.2.2.2.5) GREEN AND OPEN AREAS

The 6<sup>th</sup> October City original urban mass is blessed with the entertaining and touristic zone to the east, the city garden triangle to the south and the club zone.

Inside the main urban mass green and open areas were placed at different levels of the city in order to raise its environmental conditions and to serve all the residents.

It was also meant for these green areas to be integrated with other landuses \_ especially in the central service areas \_ as well as with the footpaths.

Green and open areas were distributed among residential quarters, so as to interpose these quarters in linear paths from northwest to southeast in order to encourage the favourable wind.

Inside the neighbourhoods, green areas were meant to be economic and private gardens were encouraged to assure that they are cared for.

So the rates of green areas were as follows: ... see figure (4-14)

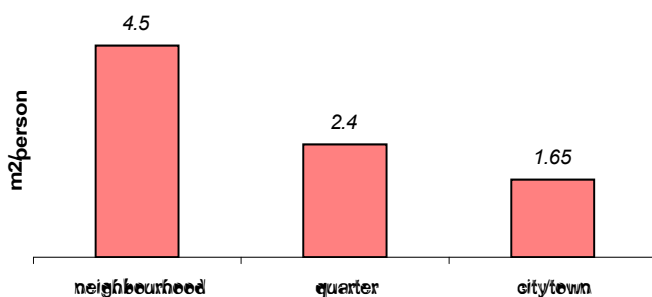


figure (4-14), person's share of the city service centres

At neighbourhoods	4.5 m <sup>2</sup> /pers.
At quarters	2.4 m <sup>2</sup> /pers.
The whole city	1.65 m <sup>2</sup> /pers.

Note: - the city garden was not counted; it was then converted to a residential area.

#### 4-2-2-3) Transportation

The original 6<sup>th</sup> October city has a hierarchy of road network that fulfil its function efficiency and safety, it also provides a clear vision of the network. This network consists of five levels of roads beside the regional roads, these roads are: ... see figure (4-15)

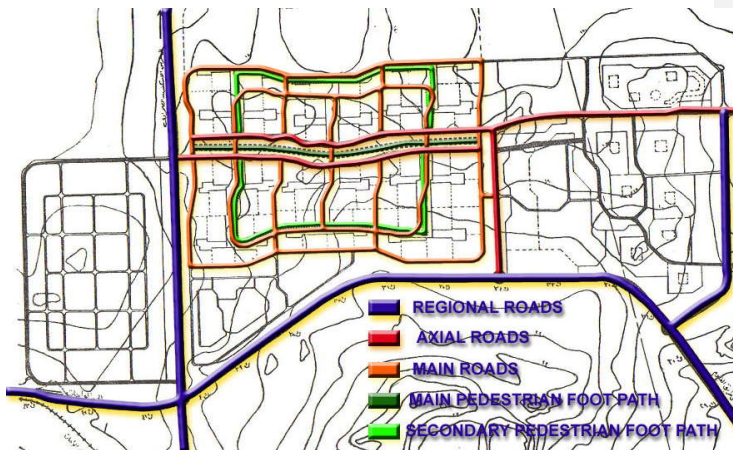


figure (4-15), road system and pedestrian network, 6<sup>th</sup> of October City

**Axial roads:** they bound the axial main service centre as well as connecting the city east to west.

**Main roads:** they bounds and pass through the quarter's service centres.

**Secondary roads:** they serve inside the quarters.

**Main pedestrian footpath:** they pass through the quarter's service centres as well as the city main service centres.

**Secondary pedestrian footpath:** they pass through the neighbourhoods' service centres.

### 4-3) Analysing The Study Area:

The study area has a hierarchy of residential communities each has its own services, so services should be studied at three main residential levels of the community: the city main service centre (down town), the quarters service centre, and the neighbourhood service centre.

#### 4-3-1) THE CITY SERVICE CENTER (DOWNTOWN):

It is the main service centre contains unique activities that serve the whole city population.

4-3-1-1) form

The city service has a linear form that divide the study area into six quarters north of that axial service centre and another six to the south of it. The axial service centre is divided into three sectors, each serve four quarters, where central services were distributed. ... see figure (4-16)

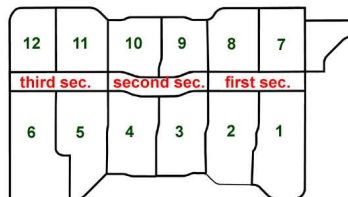


figure (4-16), each sector of the main service centre serves four quarters

assuming the contrast between the different parts of this linear centre, give each sector its own character.

4-3-1-2) population

The city centre serve the population of the twelve residential quarters. Each sector of the tree sectors of the city centre serves 120'000 persons. The person's share of the total area of the city service centre is about 6m<sup>2</sup>.



#### 4-3-1-3) Transportation system

**road system:** There are three kinds of roads that serve the city centre:

The first are the axial roads that bounded the centre from the north and south directions.

The second are three main roads that penetrate the city centre and connect the northern quarters with the southern ones.

The third are some local roads that were introduced during the city implementation.

**Accessibility:** The city centre linear form elongated the centre's facades to the residential quarter and enable using the centre at the edge without a real interaction with the inner public plazas and footpaths. Yet the three main roads that penetrate the centre represent three points of accessibility, as they suppose to carry the pedestrian flow into the centre. ...see figure (4-17).

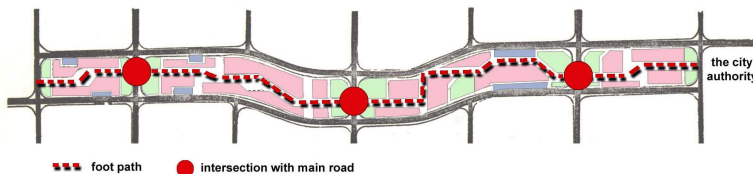


figure (4-17) the main foot spine is cut by three main roads

Besides, parking lots were located on the centre sides and service roads were used to access different areas in the centre.

**Footpaths:** The main footpath interposes the city centre, forming the main spine of this axial centre and intersecting the main roads from the quarter's centres at three points ...see figure (4-17), where solutions were put to achieve safety and continuity of the footpath.

A group of main plazas were located along the main footpath, where the directions of the path or the uses on it were changed. ...figure (4-18).

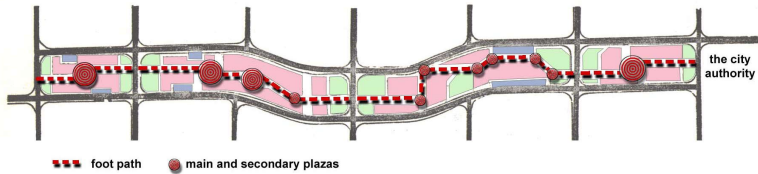


figure (4-18), main and secondary plazas in the main service centre

#### 4-3-1-4) Activities:

**Mixed land-uses were allowed in the city centre (services, administrative, residential) ...see figure (4-19).**

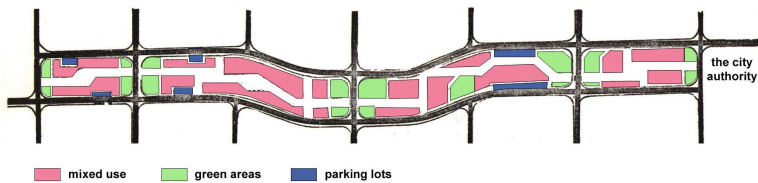


figure (4-19) mixed landuse in the main service centre

- **Some crafts were allowed to be located inside the centre. And Concentrating green areas at the intersection of the main footpath with the main road to form some visual nodes ...see figure (4-20).**

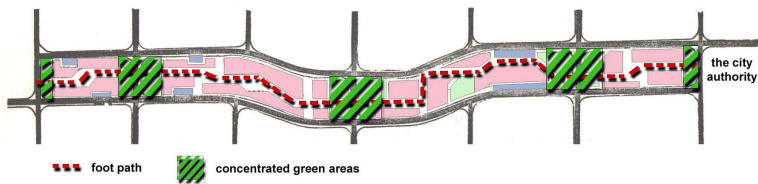


figure (4-20) relation between concentrated green areas and the main foot spine

## MEDICAL SERVICES:

There are three kinds of medical services located in the city centre to serve the city tree sectors (120'000 persons each ~ 350'000 persons).

### First: The general hospital:

It occupies 27'200 m<sup>2</sup> (25'000 m<sup>2</sup> total floor area), in addition to 2'100m<sup>2</sup> for the morgue. This hospital serve 350'000 persons at this level, that's to say each resident's share of land is 0.08 m<sup>2</sup>/person and his share of the total floor area is 0.07 m<sup>2</sup>/person.

Comparing this results with that of other new communities of the first and second generation which were launched in the same period of time, we will observe according to table (4-6) that:

	6 <sup>th</sup> of October	10 <sup>th</sup> of Ramadan	El Amal City	New Nobaria	Obour	Sadat City
Land area/capita	0.08	0.092	0.3	0.16	0.187	0.144
Floor area/capita	0.07	0.084	0.3	0.225	-	-

Table (4-6) person's share of general hospitals in new urban communities.

### The general hospital in some egyptian new commun

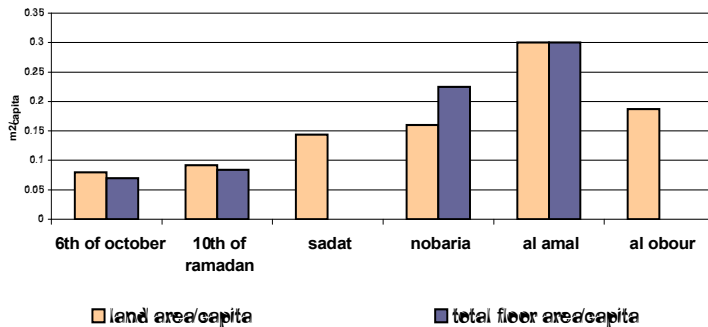


figure (4-21) person's share of general hospitals in new urban communities.

Person's share of the general hospital land in October city represent the lowest rate among the other cities, it nearly represent 26% of that of El Amal city and 50% of Nebaria city ...see figure (4-21).

**Second: Health Centres:**

It occupies average area of 12'600 m<sup>2</sup> (4'200m<sup>2</sup> x 3 centres) that have total floor area of 9'000m<sup>2</sup>. These three centres serve 350'000 persons in the city three sector, that's to say each resident's share of land is 0.035 m<sup>2</sup>/person and his share of the total floor area is 0.025 m<sup>2</sup>/person.

Comparing this results with that of other new communities of the first and second generation which were launched in the same period of time, we will observe according to table (4-7) that:

	6 <sup>th</sup> of October	10 <sup>th</sup> of Ramadan	El Amal City	Sadat City
Land area/capita	0.035	0.002	0.05	0.012
Floor area/capita	0.025	0.0014	0.03	-

Table (4-7) person's share of health centres in new urban communities.

Person's share of the health centres land in October city represent one of the highest, it represent 17 times that of 10<sup>th</sup> of Ramadan city and 3 times that of Sadat city ...see figure (4-22).

The health centers in some egyptian new communities

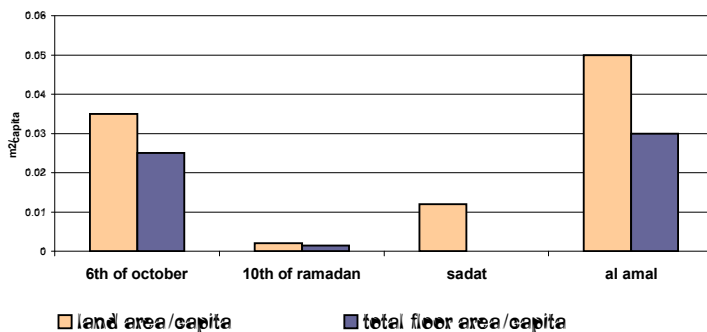


figure (4-22) person's share of health centres in new urban communities.

**Third: Specialized Hospitals:**

It occupies average area of 25'200 m<sup>2</sup> that have average total floor area of 22'500m<sup>2</sup>. Each of these hospitals is planned to serve 350'000 persons in the city three sectors, that's to say each resident's share of land is 0.07 m<sup>2</sup>/person and his share of the total floor area is 0.06 m<sup>2</sup>/person.

Comparing this results with that of other new communities of the first and second generation which were launched in the same period of time, we will observe according to table (4-8) that:

	6 <sup>th</sup> of October	10 <sup>th</sup> of Ramadan	El Amal City	New Nobaria	Sadat City
Land area/capita	0.07	0.09	0.3	0.07	0.067
Floor area/capita	0.06	0.084	0.3	0.072	-

Table (4-8) person's share of specialized hospitals in new urban communities.

Person's share of each specialized hospital land in October city lies within the range of the other cities except for El Amal city, which represent about three times the other cities ...see figure (4-23).

Specialised Hospitals in some egyptian new communities

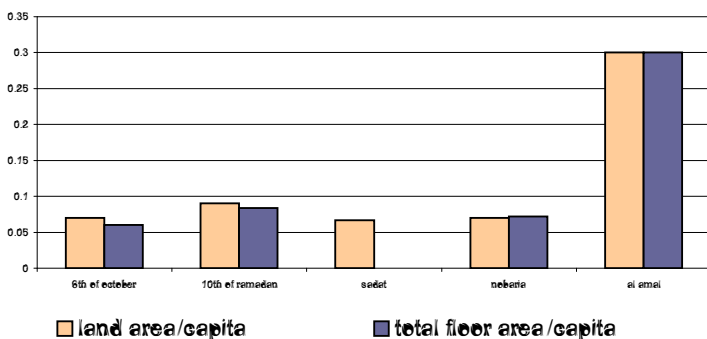


figure (4-23) person's share of specialized hospitals in new urban communities.

Generally:

On studying the medical services that serve some Egyptian new communities, at the level of a city, the following were concluded. ...see table (4-9) :

	6 <sup>th</sup> of October	10 <sup>th</sup> of Ramadan	Sadat City	New Nobaria	New dommiatta	Amal	Badr	Obour
Land area/capita for the city	0.16	0.17	0.25	0.23	0.2	0.16	0.26	0.45

Table (4-9) person's share of city medical services in new urban communities.

Person's share of the medical services, at the level of a city, lies between 0.16 – 0.25 m<sup>2</sup>/capita except for Obour city, which exceeds that range by nearly 180%. ...see figure (4-24).

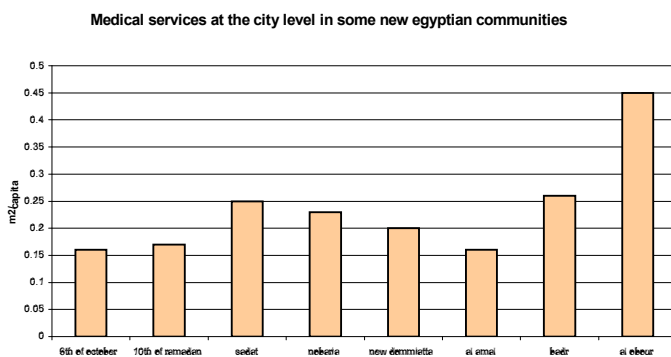


Table (4-9) person's share of city medical services in new urban communities.

## SOCIAL SERVICES:

Social services that cover the whole study area includes:

- Three central social centres, to serve area's three sectors, each has average land area of 2'100 m<sup>2</sup> and a total floor area of 200 m<sup>2</sup>.
- Two shelters for boys and girls, each has average land area of 2'100 m<sup>2</sup> and a total floor area of 1'500 – 2'000 m<sup>2</sup>.
- An elderly house of 2'100 m<sup>2</sup> average land area and 1'500 – 2'000 m<sup>2</sup> total floor area.

By comparing October's land area per capita with other new Egyptian communities, for the whole social services that serve at the level of a whole city and sectors of the city, table (4-10) illustrates that:

	6 <sup>th</sup> of October	10 <sup>th</sup> of Ramadan	Sadat City	New Nobarria	New dommiatta	Amal	Badr	Obour
Land area/capita for the city	0.13	0.04	0.05	0.044	0.04	0.05	0.04	0.23

Table (4-10), person's share of city social services in new urban communities.

The 6<sup>th</sup> of October city has the second highest area per capita for the social services (0.13 m<sup>2</sup>/capita), after Obour city (0.23 m<sup>2</sup>/capita), and the rest of the cities lies between 0.04 – 0.05 m<sup>2</sup>/capita. ...see figure (4-25).

Social services at some new egyptian communitie:

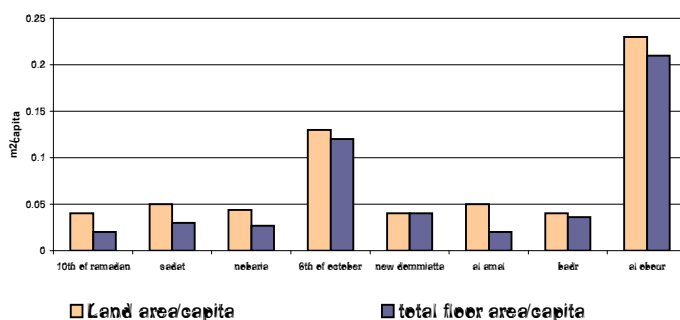


figure (4-25), person's share of city social services in new urban communities.

### CULTURAL SERVICES:

Cultural services usually include public libraries, cultural palaces, theatres, cinemas, museums, and galleries. In our city they cover approximately 42'000 m2 serving the city and sectors of the city with a total floor area of 28'000 m2.

table (4-11) compare the area per capita devoted for cultural services in 6<sup>th</sup> of October city and other new Egyptian communities concluding that:

	6 <sup>th</sup> of October	10 <sup>th</sup> of Ramadan	Sadat City	New Noharia	New dommiatta	Amal	Badr	Obour
Land area/capita for the city	0.03	0.029	0.067	0.044	0.1	0.084	0.038	0.062
Total floor area/capita	0.02	0.02	0.012	0.046	0.15			

Table (4-11), person's share of city cultural services in new urban communities.

Cultural services in October city represent one of the lowest as it represents 0.03 m2/capita, after the 10<sup>th</sup> of Ramadan city with 0.029 m2/capita, other cities range from 0.038 – 0.1 m2/capita...see figure (4-26).

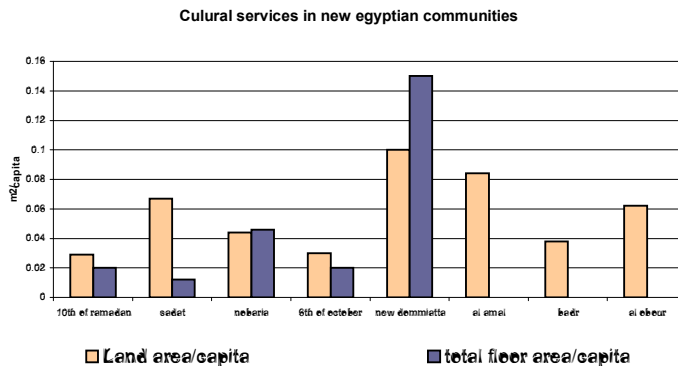




figure (4-26), person's share of city cultural services in new urban communities.

### **RELIGIOUS SERVICES:**

The study area is divided into three sectors each has a mosque of about 8400 m<sup>2</sup> and total floor area of 4000 – 5000 m<sup>2</sup> and serve a community of 120'000 persons. The study area also a church of area 8400 m<sup>2</sup> and total floor area of 4000 – 5000 m<sup>2</sup> that serve a community of 350'000 persons.

table (4-12) clarifies the area per capita given for this service in other new Egyptian communities.

	6 <sup>th</sup> of October	10 <sup>th</sup> of Ramadan	Sadat City	New Nobarria	New dommiatta	Amal	Badr	Obour
Land area/capita for the city	0.04	0.07	0.06	0.04	0.05	0.12	0.08	0.12
Total floor area/capita	0.02	0.04	0.02	0.031	0.04	0.07		

Table (4-12), person's share of city religious services in new urban communities.

Here person share lies between 0.04 – 0.08 m<sup>2</sup>/capita, except for Al Amal city and Obour city 0.12 m<sup>2</sup>/capita, our study area has a rate of 0.04 m<sup>2</sup>/capita ...see figure (4-27).

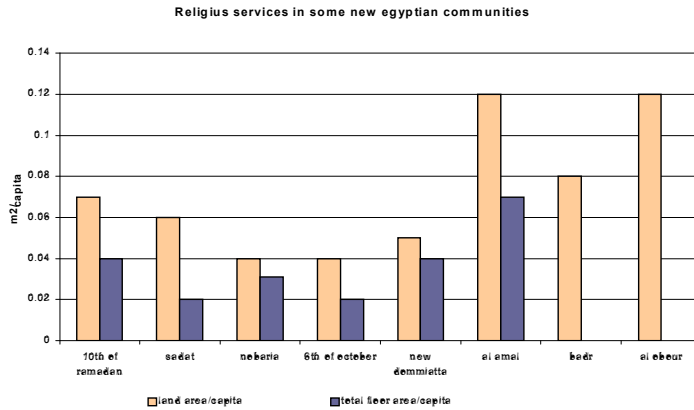


figure (4-27), person's share of city religious services in new urban communities.

### **COMMERCIAL SERVICES:**

Commercial and retail activities usually represent the most dominating activity in any service centre, here in our study area, it occupies about 75 feddans, with a total floor area of 150'000 – 200'000 m<sup>2</sup>, these areas serve as shopping centres, banks, restaurants and cafes, .....etc.

In studying table (4-13) we could observe that:

	6 <sup>th</sup> of October	10 <sup>th</sup> of Ramadan	Sadat City	New Noharia	New dommiatta	Amal	Badr	Obour
Land area/capita for the city	0.9	0.39	0.44	0.64	0.89	0.84	0.28	0.28
Total floor area/capita	0.5	0.25	0.31	0.45	0.84		0.14	

Table (4-13), person's share of city commercial services in new urban communities.

The study area represents the highest commercial area per capita between these new Egyptian communities (0.9 m<sup>2</sup>/capita), new dammitta city and al amal city are not so far (0.89,0.84 m<sup>2</sup>/capita

respectively) the rest lies between 0.28 and 0.64 m<sup>2</sup>/capita ...see figure (4-28).

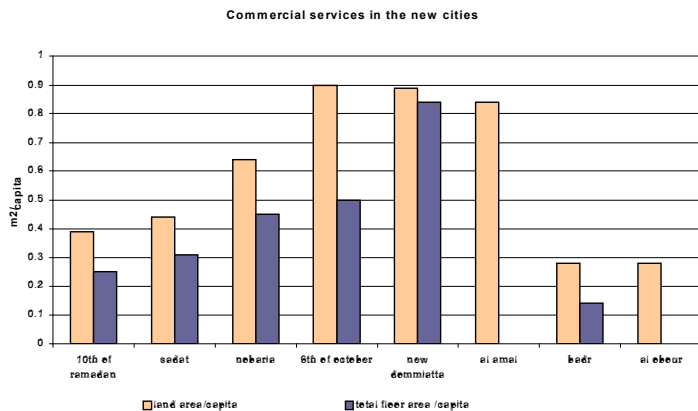


figure (4-28), person's share of city commercial services in new urban communities.

### SECURITY AND ADMINISTRATIVE SERVICES:

In our study area security and administrative services represent post offices, communication and telecommunication centres, police and fire departments, security head quarter, and finally the city authority and its departments.

In our study area person's share of land area is 0.06 m<sup>2</sup>/capita and 0.03 m<sup>2</sup>/capita from the total floor area ...see table (4-14).

	6 <sup>th</sup> of October	10 <sup>th</sup> of Ramadan	Sadat City	New Nobaria	New dommiatta	Amal	Obour
Land area/capita for the city	0.06	1.3	0.75	0.37	0.09	0.06	0.04
Total floor area/capita	0.03	0.51	0.28	0.21	0.08		

Table (4-14), person's share of city security and administrative services in new urban communities.

Here we can observe that no reasonable range can be concluded, as October, new dammiatta, amal and obour lie between 0.04 – 0.09 m<sup>2</sup>/capita, while new nobaria is more than three times that area (0.37

m<sup>2</sup>/capita), sadat city is double that of nobaria (0.75 m<sup>2</sup>/capita), and finally 10<sup>th</sup> of Ramadan is nearly double the last (1.3 m<sup>2</sup>/capita). ...see figure (4-29).

security and administrative services in new egyptian communities

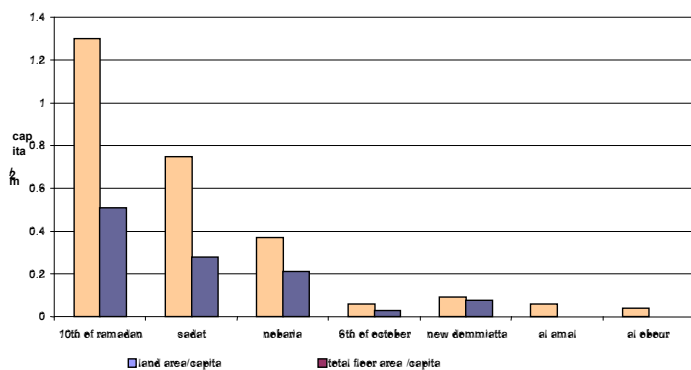


figure (4-29), person's share of city security and administrative services in new urban communities.

### OPEN AREAS AND RECREATIONAL SERVICES:

The study area's open and recreational areas include plazas, gardens, open areas, recreational centres, youth centres, ..... etc., covering 138 feddans with a total floor area of 20'000m<sup>2</sup>.

table (4-15) compares between the open and recreational areas per capita for the study area (1.66 m<sup>2</sup>/capita) and other new Egyptian communities.

	6 <sup>th</sup> of October	10 <sup>th</sup> of Ramadan	Sadat City	New Nobaria	New dommiatta	Amal	Badr	Obour
Land area/capita for the city	1.66	2.1	1.09	2.92	0.12	2.1	2.02	2.7

Table (4-15), person's share of city open and recreational areas in new urban communities.

Where all of them lie between 1.09 and 2.92 m<sup>2</sup>/capita except for new dammita city 0.12 m<sup>2</sup>/capita. ...see figure (4-30).

Open and recreational area in new egyptian commu

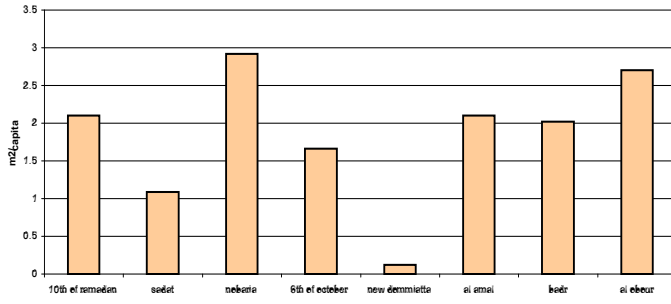


figure (4-30), person's share of city open and recreational areas in new urban communities

## EDUCATIONAL SERVICES:

When 6<sup>th</sup> of October city was first planned, the highest educational services offered there were general and technical secondary schools, later some regional educational services were located in the city, like universities and specialized academies.

These regional educational facilities had changed the character of the zones where they were located, as new activities flourish by neighbouring these activities.

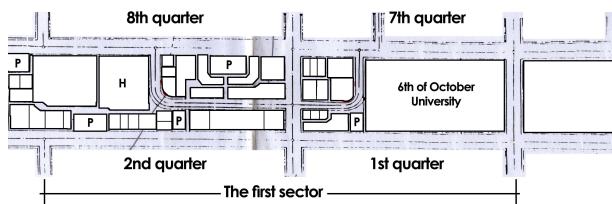


figure (4-31), location of 6<sup>th</sup> of October university.



figure (4-32), 6<sup>th</sup> of October university, in the city main centre.

This is the case with 6<sup>th</sup> of October University in the main city centre ...see figures (4-31), (4-32). where a large number of students houses were established in and around the city centre in its first sector where the university lies. Activities like dry clean facilities, stationeries, and photo copying centres and quick meal restaurants flourish too ...see figures (4-33), (4-34), (4-35).



*Left, Figure (4-33), students housing, a new use introduced to the centre*



*figure (4-34), (4-35), commercial and recreational uses that benefit from the university location*

#### **4-4) Conclusions and Recommendations**

Through the studies the following conclusions were observed:

- Variation of the inter service planning standards and rates in the new cities and communities.
- Continuous changing of plans at the inception of their implementation or its subject to supply and demand law.
- Dependence of plans, in most cases, upon some international schools, whose economic and social conditions, may be similar or different from the Egyptian community circumstances and conditions.

In observance of the non-stability of the international methodologies in setting planning standards, there are various trends with their respective justification and principles each one contradicts all or parts of its preceding one. It may also add or modify the concept or trend according to its own perspective.

- As the city is a dynamic entity, some new requirements of services, unconsidered during design process, may emerge; a sustained modification in the service programs should be introduced to cope with supply and demand policy.
- The accelerated evolution of town and city centres, forced by the arrival of attractive, alternative retailing formats away from the traditional high street, demands a significant change in the local offering if survival is to be ensured.
- Town Centre Management has been a very important factor in service centres success. It embraces the principles of mobilizing limited resources from all quarters to provide



realistic and workable local solutions to local problems for the benefit of all users of town centres.

- "Town centres should provide a focus for retail development where competing businesses are near enough for shoppers to compare prices and benefit from competition. There should be places in which a wide variety of different uses are encouraged. In that way, town centres will be attractive to local residents, shoppers and visitors, because they have lively restaurants and cafes, culture and entertainment, as well as interesting shops. The liveliness that we want to see in town centres cannot be achieved in an atmosphere of decline.
- Service centres should not just include shopping centre or market, but also a business centre, arts, culture and entertainment zone, and a place to visit. As well as residential areas and sources of educational and health services. This combination of roles, which gives town centres much of their character and life, and makes them special. It is also this combination that gives them their vitality and viability.
- Indicators for measuring town centre vitality and viability, is needed to understand some more basic fundamentals about the way in which each town centre satisfies its residents' needs. Examining indicators such pedestrian flow, retailer demand and vacancy levels can be appropriate, but only in those locations where sufficient and reliable comparative data exists over a long time series. However, a more detailed understanding of the town centres can be gained by assessing whether the town

already has in place the basic 'building blocks' of a vital and viable centre.

- In descending order of importance, these basic building blocks are:
  - The range and adequacy of accessible shopping and service facilities, appropriate to the town's size and role.
  - A safe and secure environment.
  - Social, cultural and leisure opportunities.
  - Environmental quality.

In other words, rather in the same way that the most basic human needs are food, air and water, followed next by shelter or safety, then by social interaction and finally by a high self-image, we can reasonably ask first, when looking at the vitality and viability of our town centres: "Have we got the basics right?"

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