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DEPARTAMENTO DE ENGENHARIA
CIVIL, ARQUITETURA E GEORRECURSOS

TÉCNICO LISBOA

Área Científica de Sistemas Urbanos e Regionais

ESTUDOS URBANOS / URBAN STUDIES

Urban social facilities and its functioning as a network

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Summary

1. Concepts
2. Planning of the public facilities network and municipal plans
3. Public facilities dimensioning and programming: concepts of catchment area and target population.
Programming, dimensioning and location criteria of public facilities in urban areas
4. Tomar example
5. New challenges

PUBLIC FACILITIES: Concept

- Buildings and land where are located activities aimed at **providing services of public interest** essential to the quality of life.

[DGOTDU, 2002]

- Areas allocated to facilities (includes the areas occupied by buildings and surrounding land) for the provision of **services to communities** (health, education, administration, social welfare, public safety, civil protection, etc..), for the provision of **economic services** (markets, fairs, etc..) and for **cultural activities, recreation and leisure and sports**.

[Portaria 216-B/2008, de 3 de Março]



PUBLIC FACILITIES: Concept

- Facilities where people can attend to satisfy their needs and to reach **social services**:
 - ***“Informal” recreation and leisure, green areas;***
 - **Sports**, in appropriate premises;
 - **Education**
 - **Public safety and civil protection** (*Fire Department, Police Station*)
 - **Health**
 - **Religion** (*church, mosque, synagogue, temple or other places of worship*)
 - **Social welfare** (*nursery and kindergartens, elderly care centres, ...*)
 - **Supplying** (*markets, fairs, shopping centres,...*)
 - ***“Formal” recreation and culture*** (*theatre, concert hall, ...*)
 - **Administrative services** (*courts, tax office, ...*)

[Prof. Costa Lobo]



PUBLIC FACILITIES: Concept

“Refers to the physical manifestations of governmental services on behalf of the public. These include buildings, equipment, land,... and the whole systems of activities”.

[American Planning Association]



PUBLIC FACILITIES vs. PUBLIC SERVICES

- **Public/collective services** of economic, social, cultural or other sectors are traditionally provided in **public facilities** or installations.
- They are sometimes linked together in networks in order to adequately cover the territory, to gain **scale effects**, to create **synergies** between them and with other public services.
- The **location**, **sizing** and **type** of facility must take into account a wide range of aspects so that they can fulfil their role (provide public/social services) with greater **effectiveness**, but also with the greatest possible **efficiency**.
- The definition of a network of collective facilities is usually designed in accordance with urbanistic **standards** used in planning instruments.



Planning and programming of Public Facilities: Public task

- Activities carried out by **public sector institutions** in order to establish the most appropriate decisions (in **quantity**, on **time** and in the **appropriate locations**) to develop a network of public facilities (public or private).
[DGOTDU, 2002]
- “Public facilities requires governments to **inventory and assess** the condition and adequacy of **existing facilities** and **propose a range of facilities** that will support land-use development”.
[American Planning Association]



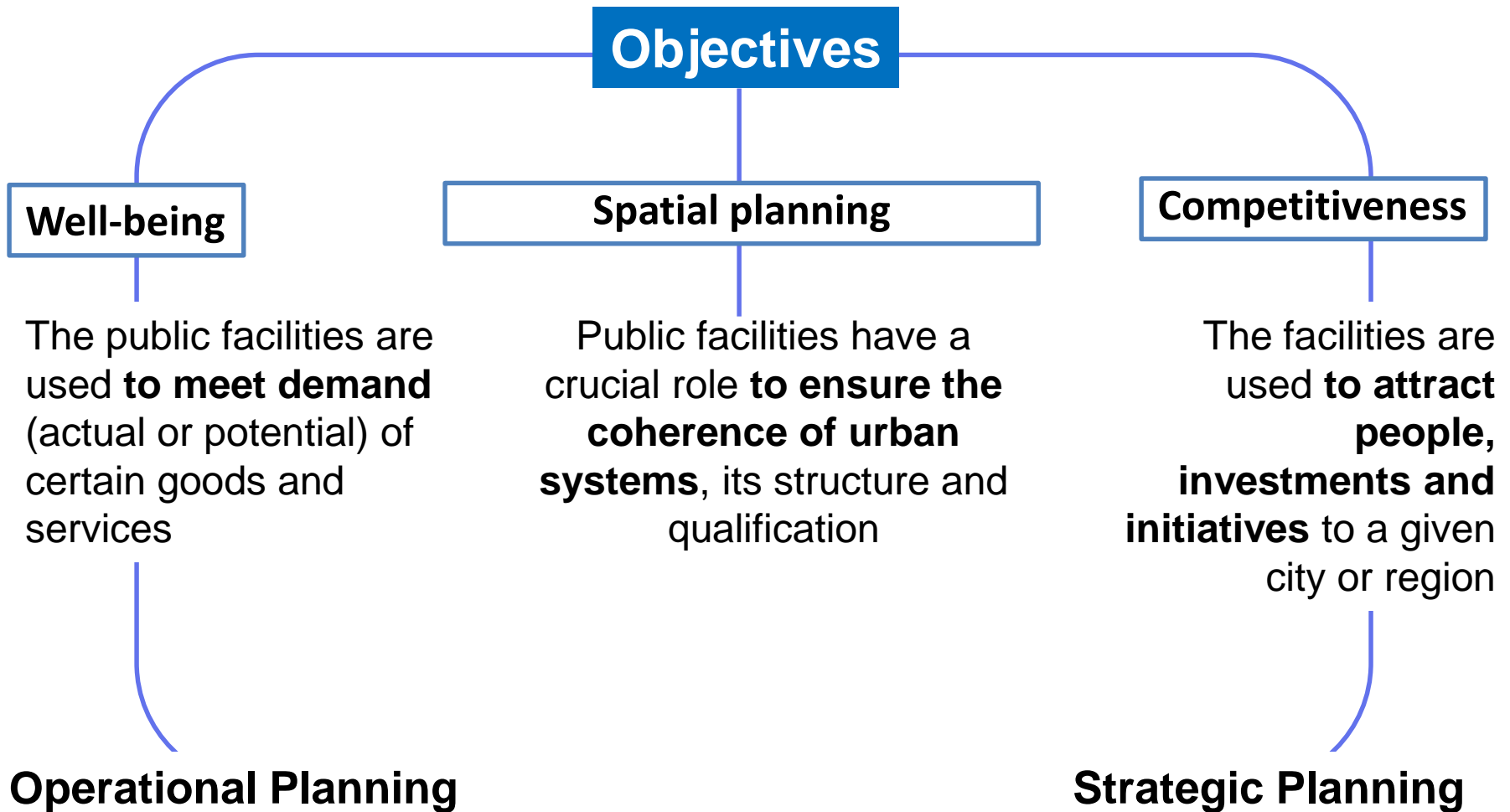
Planning and programming of Public Facilities: Public task

Successful **public facility planning and programming** historically have met both the **practical and functional needs of society** and, at the same time, have expressed cultural and civic aspirations.

Relies on characterization studies:

- of the **activity/sector** - standards of design, sizing and location and establishment of criteria for the definition of the network and hierarchy of units
- of the **population**

Planning and programming of Public Facilities





Planning and programming of Public Facilities

- The concern with public facilities has always been associated with urban planning.
- The **Welfare State** (Europe, post-war period) continued to guarantee the importance of public facilities in the structuring of urban spaces.
- In this context, the operation of public facilities should be ensured to a **large extent (or even exclusively) by the public sector.**
- They often corresponded to public service offers which, because they were **not considered lucrative but were nevertheless fundamental** (education, culture, sport and so on), could not fail to be provided.



Planning and programming of Public Facilities

- The growing **liberalization of the economy** and the weakening of the State, which has occurred mainly since the 1980s, has triggered new modalities of service provision:
 - first by the cooperative and associative sectors and
 - then by the private sector.
- This transfer intends **to relieve the State of a great financial burden**, ceasing to be the (exclusive) provider and concentrating both on regulation and provision.
- There may be multiple **new forms of supply and management** - privatization, concession, PPP, etc.
- At the same time, the “outsourcing” process is also taking place within the public administration itself with the **decentralization of competencies from the central to the local level**.

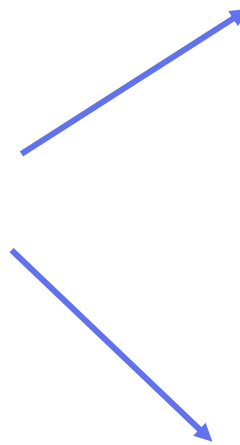
Planning and programming of Public Facilities

The **public sector involvement** in the provision of public facilities can undertake several forms:

- **Production (maintenance and operation)**
- **Concession**
- **Financing**
- **Licensing**
- **...**

Public Nature

**profit/ non-profit
Private Nature**





The principle of subsidiarity and the role of the Local Administration

Subsidiarity is an **organizing principle** that it aims to ensure that decisions are taken as closely as possible to the citizen. Political decisions regarding **local public facilities** should be taken at a **local level if possible**, rather than by a central authority.

The role of the Public Administration

PUBLIC FACILITY	MAIN RESPONSIBILITY
EDUCATION	
University	Estate + Private PN
Vocational School	Estate + Municipal + Private PN
High School	Estate
Basic School 23	Estate + Municipal
Basic School I	Estate + Municipal
Basic School 1	Municipal
Nursery School	Municipal + Private NPN
VOCATIONAL TRAINING	
Vocational Training Centre	Estate
HEALTH	
Central Hospital	Estate
District Hospital	Estate
Nursing home	Private PN/NPN
Health centre	Estate
Health centre extension	Estate
Pharmacy	Private PN
SOCIAL WELFARE	
kindergarten	Municipal + Private NPN
After-school recreation centres	Municipal + Private NPN
Elderly care centres	Municipal + Private NPN/PN
Day-care Centre	Municipal + Private NPN
Disabled care centre	Municipal + Private NPN
PUBLIC SAFETY	
Police station	Estate
GNR station	Estate
Fire station	Municipal + Private NPN

PUBLIC FACILITY	MAIN RESPONSIBILITY
CULTURE	
Public libraries	Municipal + Estate
Cinema-Theatre	Municipal + Private PN
Museums and exhibition centres	Estate + Municipal
SPORTS	
Big Playing field	Municipal + Private NPN
Small Playing field	Municipal + Private NPN
Athletic field	Municipal + Private NPN
Sports hall	Municipal + Private NPN
Indoor swimming pool	Municipal + Private NPN
Outdoor swimming pool	Municipal + Private NPN
RECREATION AND LEISURE	
Urban Park	Municipal
Playground	Municipal
Recreation Centre	Municipal + Private NPN
Camping	Municipal + Private NPN/PN
ADMINISTRATIVES	
Tax office	Estate
Court	Estate
Notary	Estate
Register	Estate
RELIGION	
Church	Private NPN
Cemetery	Municipal
OTHER	
Market	Municipal

PN: PROFIT NATURE
NPN: NON-PROFIT NATURE



Planning of the public facilities network and municipal plans

(Portuguese Law for the Policy on Land, Spatial Planning and Urbanism)
Law 31/2014, 30 May

Purpose of the Policy on Spatial planning and Urbanism

“Strengthen national cohesion by organising the territory so as to contain urban sprawl and dispersed building, **correcting regional asymmetries**, namely in low density territories, **ensuring equal opportunities for citizens** in terms of access to infrastructures, **public facilities**, services and urban functions, especially those facilities and services that promote family support, elderly support and social inclusion.”

Duties of Public Administration (State and Local governments)

- To ensure **enough spaces** for **social facilities** and infrastructures
- To ensure the **economic sustainability** of public works needed for the installation and maintenance of infrastructure and **social facilities**



(Legal Framework for Spatial Planning Instruments)
Decree-Law 80/2015, 14 May

The infrastructure and **public facilities networks** that promote quality of life, support economic activity and ensure the optimization of access to **culture, education, justice, health, social welfare, sport** and **leisure** are identified in Spatial Planning Instruments.

Spatial Planning Instruments should define a **coherent strategy for installation, conservation and development** of those infrastructures and **public facilities**, considering the social and cultural needs of the population and the economic and social development.

The Planning Process and the programming of public facilities

Characterization and diagnosis

Programming
Sizing:

Public facilities have to **meet demand needs** (actual or potential).

Synthesis: Plan

Choice of location,
Financing,
Acquisition of the
needed land

Plan Execution

Financing,
Acquisition of land,
Production,
Concession,
Maintenance and
Conservation, ...



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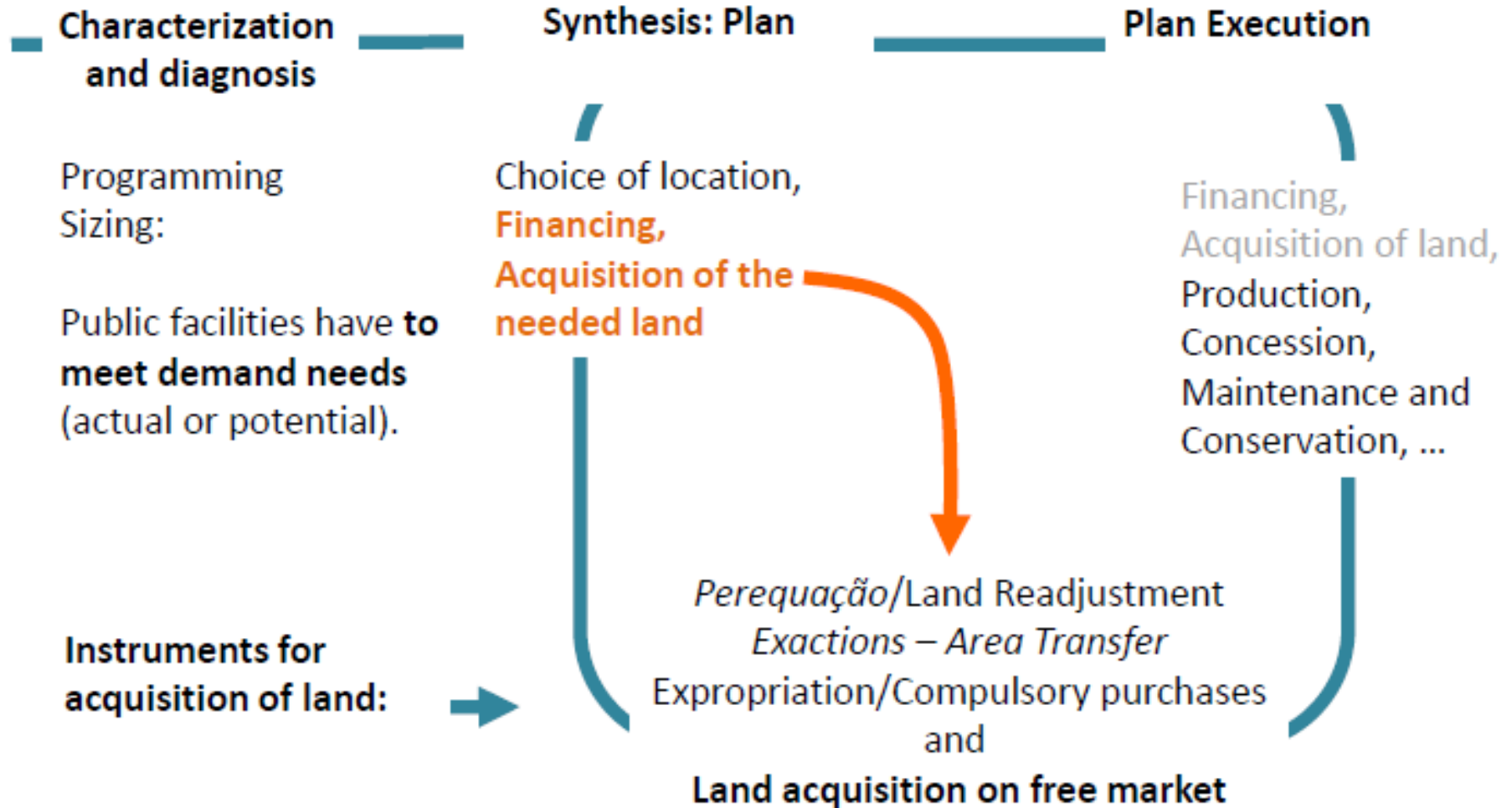
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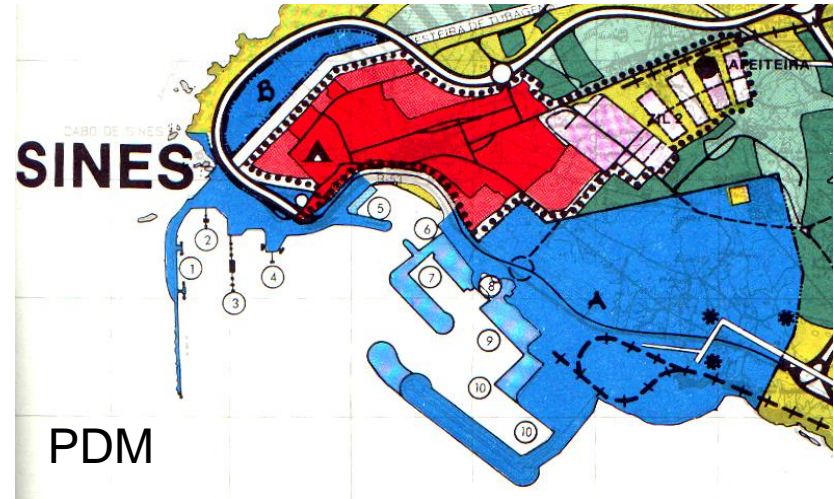
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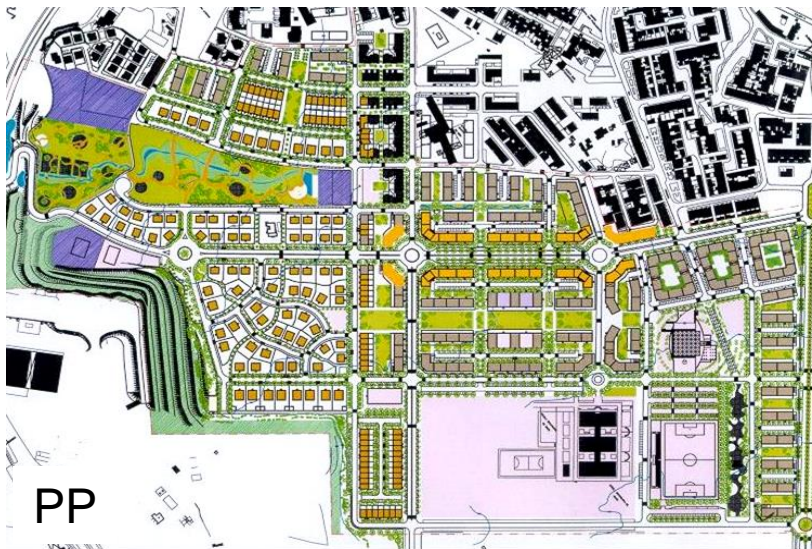
The Planning Process and the programming of public facilities



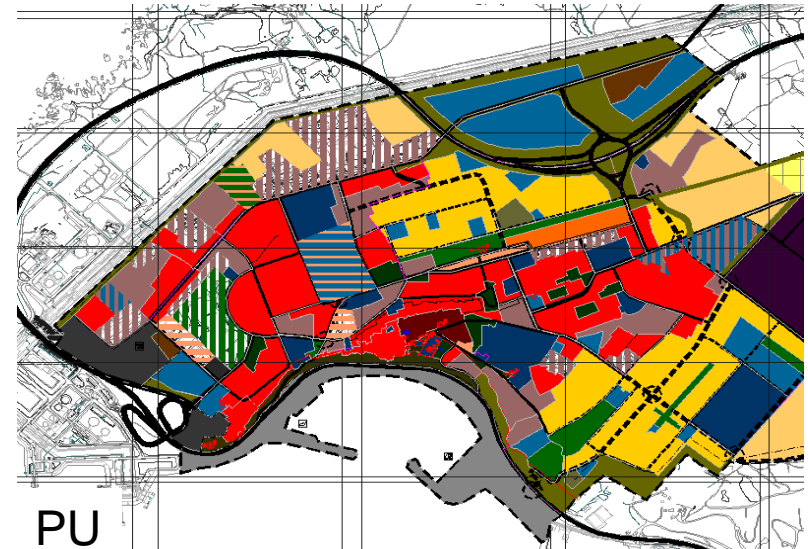
The planning and programming of public facilities must be made in terms of the **Municipal Master Plan (PDM)** and **Urban Zoning Plan (PU)** but their sizing should be done at the scale of the **Detailed Plan (PP)**



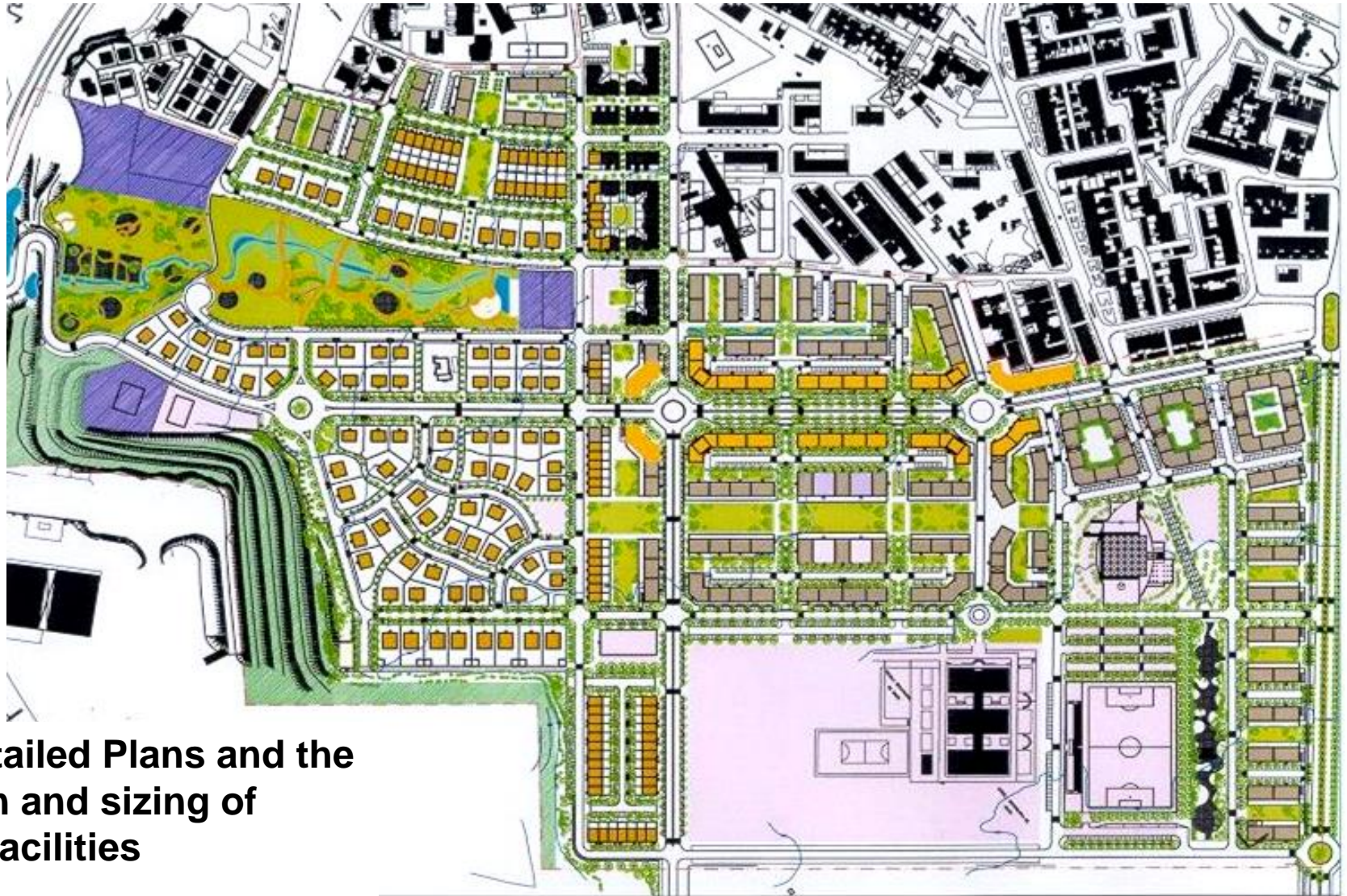
PDM



PP

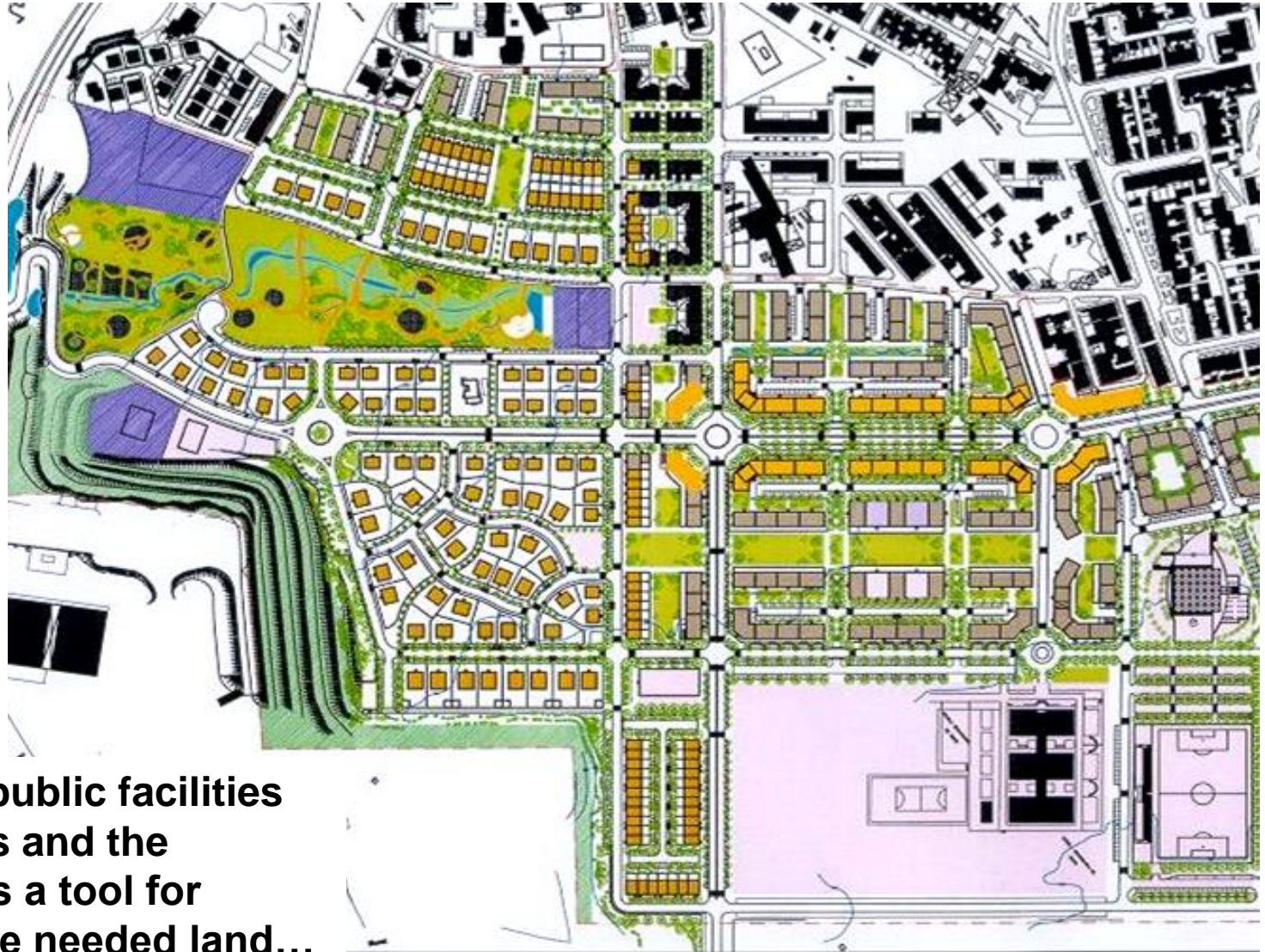


PU



The Detailed Plans and the location and sizing of public facilities

PP for expansion in the south of the City of *Sines*



The location of public facilities
in Detailed Plans and the
“*Perequação*” as a tool for
acquisition of the needed land...

PP for expansion in the south of the City of Sines

Area transfer / Exactions - Legal Framework

Areas to be provided for public facilities (...) in private urban developments (land subdivision operations – “*loteamentos*”)

- **Portaria 216-B/2008, 3 March** – Minimum areas to be given for social facilities, green spaces and other public spaces and also minimum areas to be provided for car parking facilities.

Areas allocated to facilities (**includes the areas occupied by buildings and surrounding land**) for the provision of services to communities (health, education, administration, social welfare, public safety, civil protection, etc..), for the provision of economic services (markets, fairs, etc..) and for cultural activities, recreation and leisure and sports.

General legal framework for developer obligations: exactions

Portaria 216-B/2008, de 3 de Março

Defines the minimum areas to be given by private developers for public facilities, green spaces (and also minimum areas to be provided for car parking). These parameters are used when the municipal plans does not define them.

Uses	Green public spaces	Public facilities	Infra-estruturas — Estacionamento (a)
Single family houses	28m²/dwelling	35m²/dwelling	1 lugar/fogo com a. c. < 120 m ² . 2 lugares/fogo com a. c. entre 120 m ² e 300 m ² . 3 lugares/fogo com a. c. > 300 m ² . O número total de lugares resultante da aplicação dos critérios anteriores é acrescido de 20 % para estacionamento público.
Multiple family buildings	28m²/ 120m² floor area	35m²/ 120m² floor area	Habitação com indicação de tipologia: 1 lugar/fogo T0 e T1; 1,5 lugares/fogo T2 e T3; 2 lugares/fogo T4, T5 e T6; 3 lugares/fogo > T6. O número total de lugares resultante da aplicação dos critérios anteriores é acrescido de 20 % para estacionamento público. Habitação sem indicação de tipologia: 1 lugar/fogo para a. m. f. < 90 m ² ; 1,5 lugares/fogo para a. m. f. entre 90 m ² e 120 m ² ; 2 lugares/fogo para a. m. f. entre 120 m ² e 300 m ² ; 3 lugares/fogo para a. m. f. > 300 m ² . O número total de lugares resultante da aplicação dos critérios anteriores é acrescido de 20 % para estacionamento público.

General legal framework for developer obligations: exactions

Portaria 216-B/2008, de 3 de Março

Defines the minimum areas to be given by private developers for public facilities, green spaces (and also minimum areas to be provided for car parking). These parameters are used when the municipal plans does not define them.

Uses	Green public spaces	Public facilities	
Commerce	28 m²/ 100m²	25 m²/ 100m²	Comércio: 1 lugar/30 m ² a. c. com. para establ. < 1000 m ² a. c.; 1 lugar/25 m ² a. c. com. para establ. de 1000 m ² a. c. a 2500 m ² a. c.; 1 lugar/15 m ² a. c. com. para establ. > 2500 m ² a. c. e cumulativamente 1 lugar de pesado/200 m ² a. c. com.
Services	28 m²/ 100m²	25 m²/ 100m²	3 lugares/100 m ² a. c. serv. para establ. ≤ 500 m ² . 5 lugares/100 m ² a. c. serv. para establ. > 500 m ² . O número total de lugares resultante da aplicação dos critérios anteriores é acrescido de 30% para estacionamento público.
Indústria e ou armazéns	23 m ² /100 m ² a. c. ind./armaz.	10 m ² /100 m ² a. c. ind./armaz.	1 lugar/75 m ² a. c. ind./armaz. Pesados: 1 lugar/500 m ² a. c. ind./armaz., com um mínimo de 1 lugar/lote (a localizar no interior do lote). O número total de lugares resultante da aplicação dos critérios anteriores é acrescido de 20% para estacionamento público.

Area transfer / Exactions as a tool for acquisition of the needed land



Medium density areas: $0,35 < FAR_g \leq 0,65$
 Low density areas: $FAR_g \leq 0,35$

land subdivision operation
 “*loteamento*”

Área de solo bruta (As_b)= 10 000 m²
 Gross Land Surface (S_g)= 10 000 m²

Example

land subdivision operation
 “*loteamento*”

Área de solo bruta (A_{s_b})= 10 000 m²
Gross Land Surface (S_g)= 10 000 m²

From PDM:

$$I_{u_b} = \sum Ac / A_{s_b} = 0,65$$

$$FAR_g = \sum FA / S_g = 0,65$$

$$\sum Ac = 6500 \text{ m}^2$$

$$\sum FA = 6500 \text{ m}^2$$

$$\sum Ac_{hab} = 80\% \sum Ac_{total} = 5200 \text{ m}^2$$

$$\sum FA_{residential} = 80\% \sum FA_{total} = 5200 \text{ m}^2$$

$$\sum Ac_{com} = 20\% \sum Ac_{total} = 1300 \text{ m}^2$$

$$\sum FA_{commerce} = 20\% \sum FA_{total} = 1300 \text{ m}^2$$

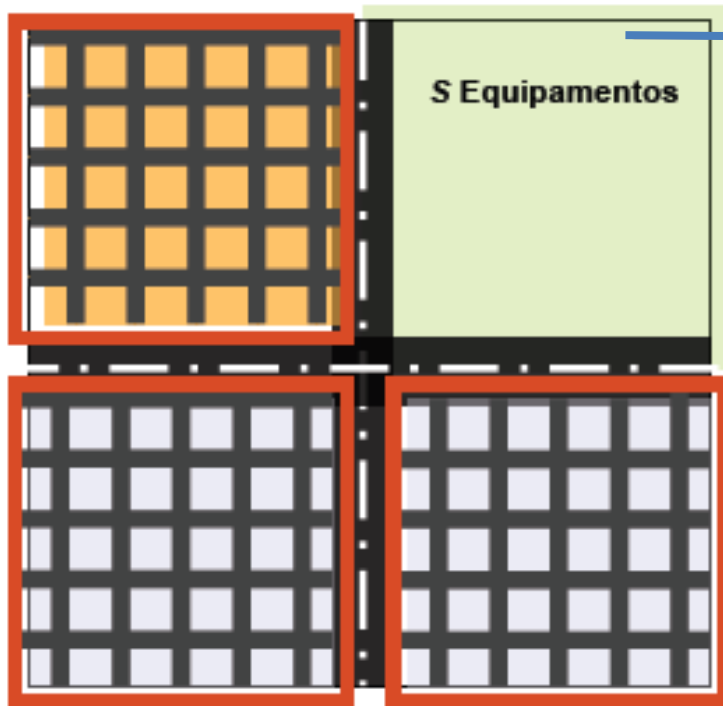
Example



→ **Área de solo bruta (A_{s_b})= 10 000 m²**
Gross Land Surface (S_g)= 10 000 m²

→ **Sup. de Cedências (Portaria 216-B/2008):**
2 730 m² (Hab) + 689 m² (Com) = 3419 m²

$S_{\text{social facilities}}$ (Portaria 216-B/2008):
2730 m² (Residential) + 689 m² (Commerce) =
3419 m²



**Areas "peripheral"
(unsuitable)
and often converted
into compensation in
cash ...**



Public facilities dimensioning and programming: concepts of catchment area and target population

Programming, dimensioning and location criteria of public facilities in urban areas

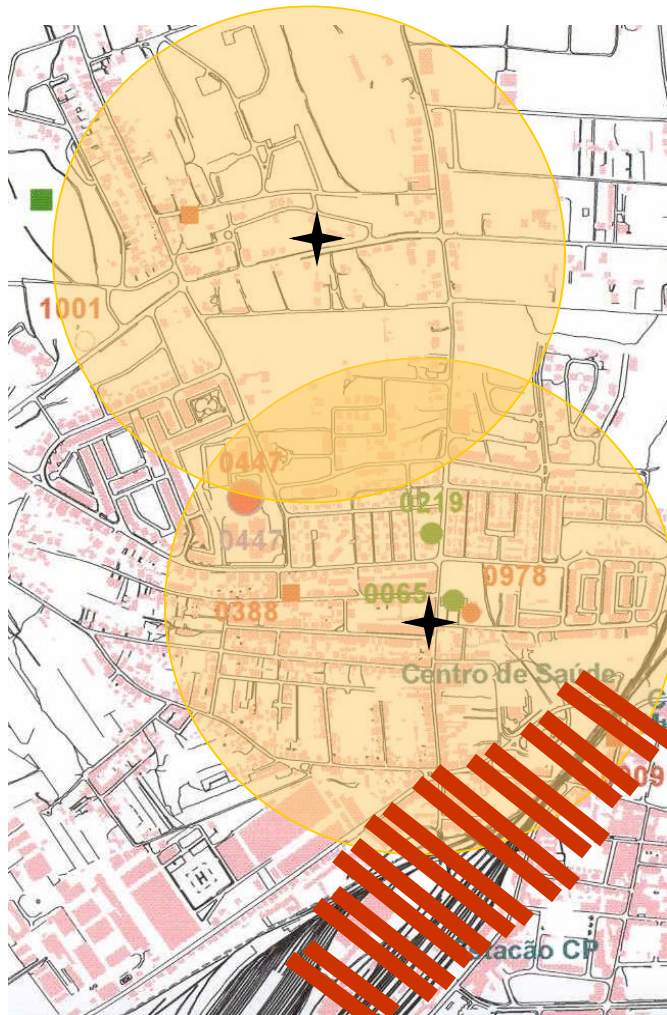


Indicators for programming and characterization of Public Facilities

Target-population

- **Value for the population that justifies the creation of a given public facility**
- Can be stated in general terms, in **number of inhabitants**, or in a more detailed way, referring to a certain group of the population, or even in **number of users** of the public facility.
- The target-population is the population which support a "**minimum unit**" of the facility
- The **minimum unit** is the facility whose dimensions and characteristics represent the **THRESHOLD** from which there are conditions of economic and functional viability.

Indicators for programming and characterization of Public Facilities



“*Irradiação*” ≈ Radius:

maximum **travel time** or **distance** traveled by users from their place of origin (usually home) to the facility (destination) on foot or using public transport.

It is measured in minutes or kilometers

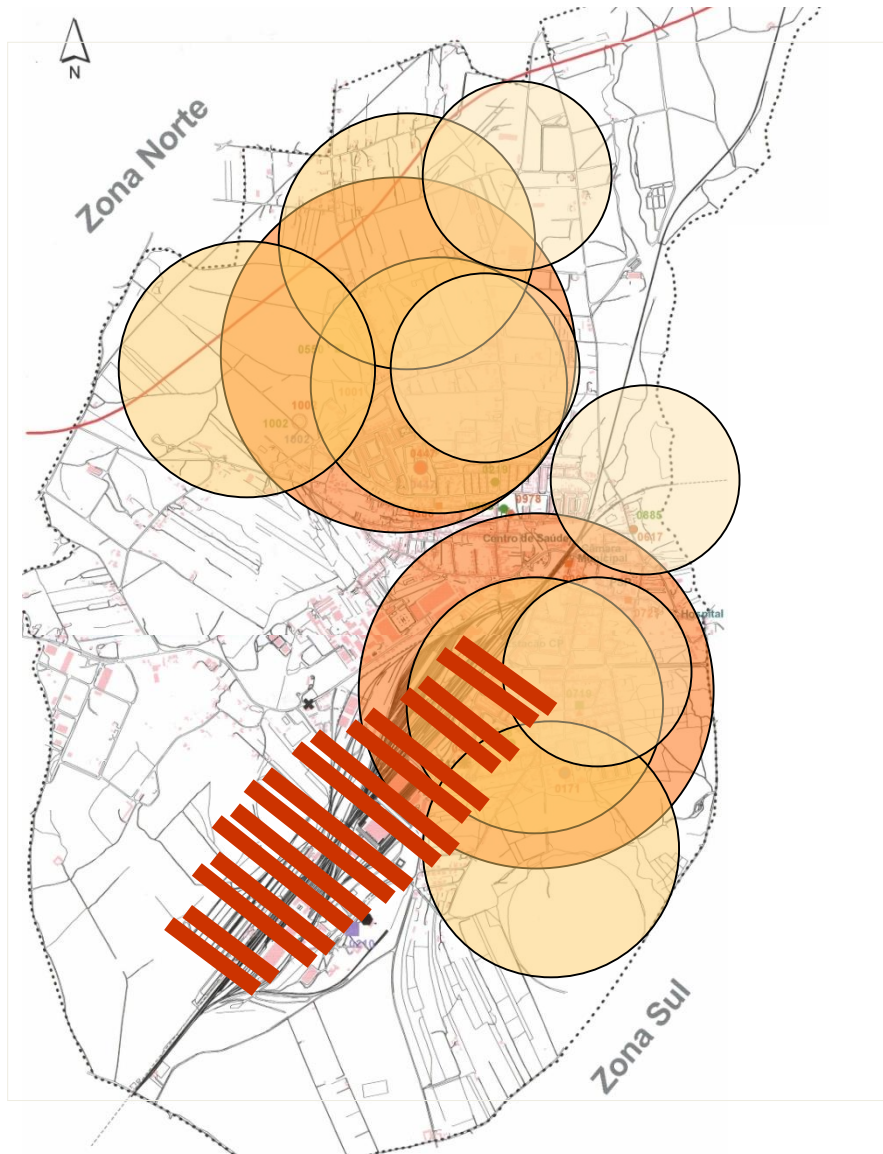
“Is measured along practicable roads considering the distance of 500 m wide from each side of the road.”

Catchment area :

Area defined by points whose distance to the equipment corresponds to the value of the radius.

Factors to consider: The area's orography, roads, transport network

Indicators for programming and characterization of Public Facilities



Preferential radius :

Jardins de Infância (JI) / Nursery School

15 minutes walk

Escola Básica 1º ciclo (EB1) / 1st cycle primary school

Walking - 1 Km; 15 minutes (V = 4Km/h)

Escola Básica 2º e 3º ciclos (EB2,3) / 2nd and 3rd cycle school

Walking – 1,5 Km; 30 minutes

Escola Secundária / High school

Walking - 2 Km; 30 minutes

Avaliação da qualidade da inserção urbana e das áreas de drenagem:





Programming criteria

- Criteria to determine the public facilities needs (**number** and **type** of units) taking into account the population.
- It is based on questions concerning the operation and management of the facility, in order to establish adequate conditions for a quality service.
- The programming criteria of each type of facility is presented with one or more indicators. This(these) indicator(s) can reflect **minimum values**, **maximum values** and **preferential values** of users, depending on the specificity of the equipment and of the sector concerned.
- Examples (education facilities):
 - Minimum number, maximum number or preferential number of students per class
 - Minimum and maximum capacity



Sizing criteria

- Indicators to calculate the **dimensions** of the facility
- With the sizing criteria should be obtained, at least, the area of land and the construction area/floor area.

Example (health facilities):

Floor-area in m²/bed



Location criteria

- Define the conditions to be taken into account when the location of the equipment is selected. These conditions relate mainly to **complementarities** and **incompatibilities** with other activities, as well as special features that the sites should provide.
- Recommendations for inclusion in the urban fabric, safety requirements, basic infrastructure needed

Location criteria– Education facilities

The school and the urban environment

- ➔ **Proximity** to residential areas
- ➔ **Safety** along the main pedestrian access to the school and surrounding areas:
 Road safety: Location along the roads without heavy traffic;
 Social control: Location along the paths of daily routine.
- ➔ **Functional coordination between schools, residential areas, public gardens, and sports, cultural and social facilities;**
- ➔ **Harmonization with the public transport network;**
- ➔ **Environmental conditions** (air quality and noise levels)
- ➔ **Proper distance of unhealthy or dangerous activities** (industries, high-voltage power lines, ...)





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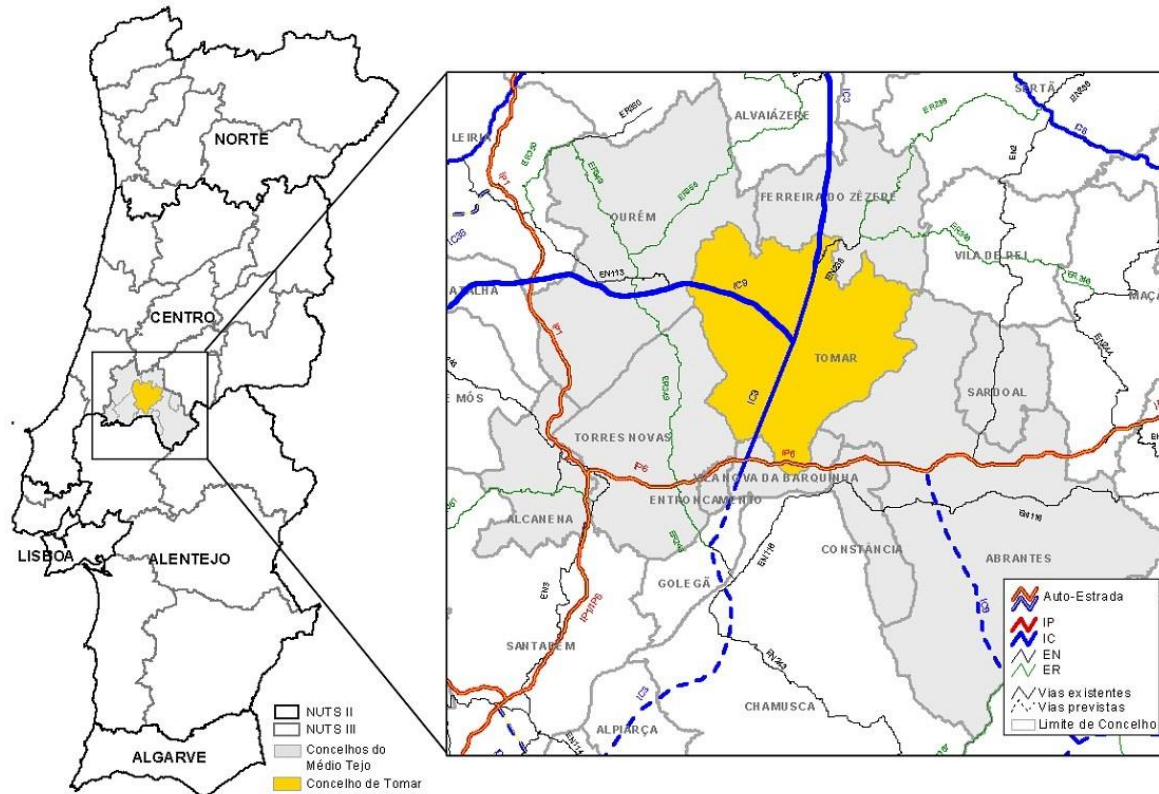
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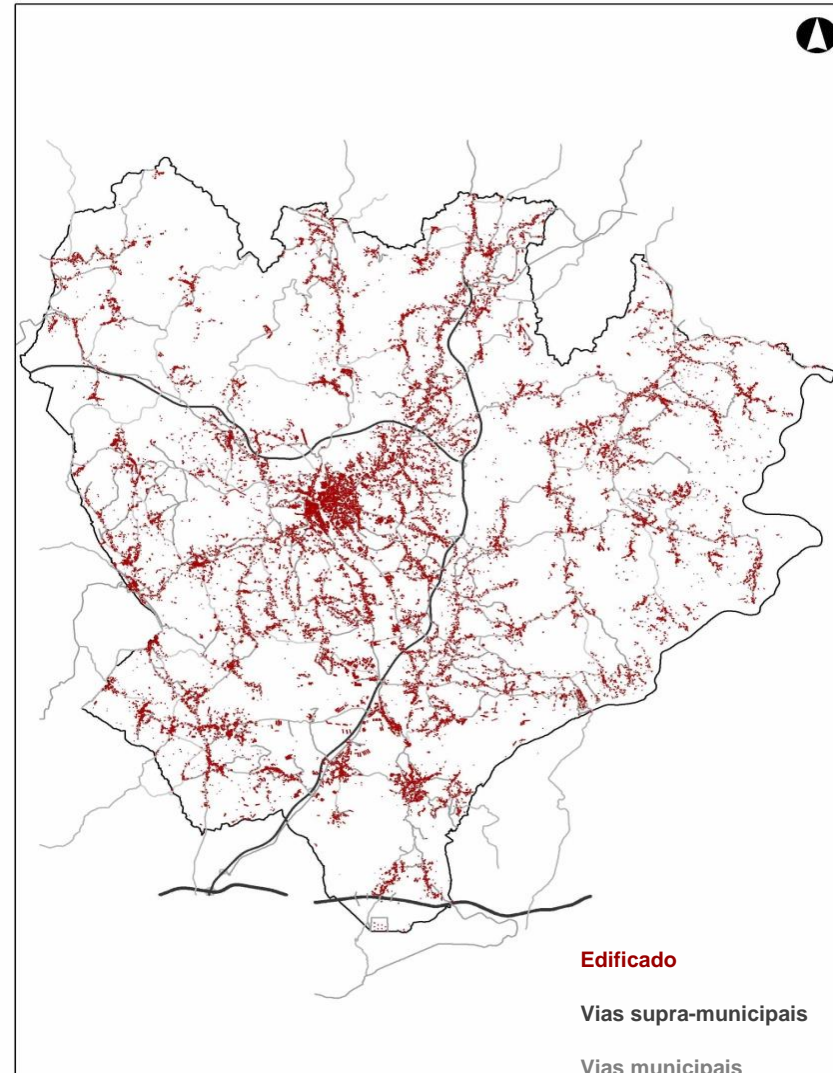
Example of *Tomar* MMP

Territorial framework of *Tomar* municipality



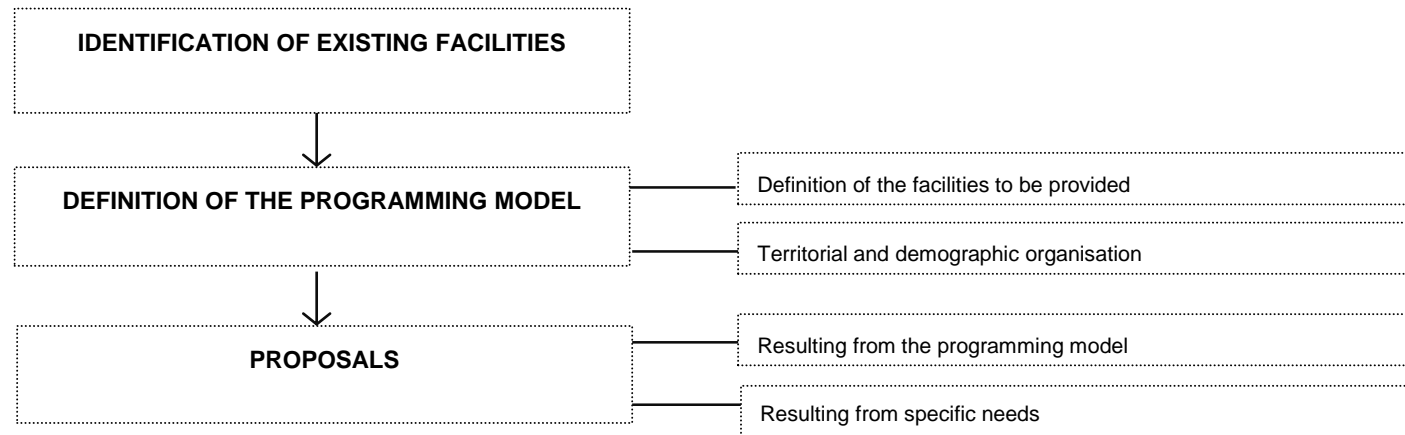


Tomar's settlement structure

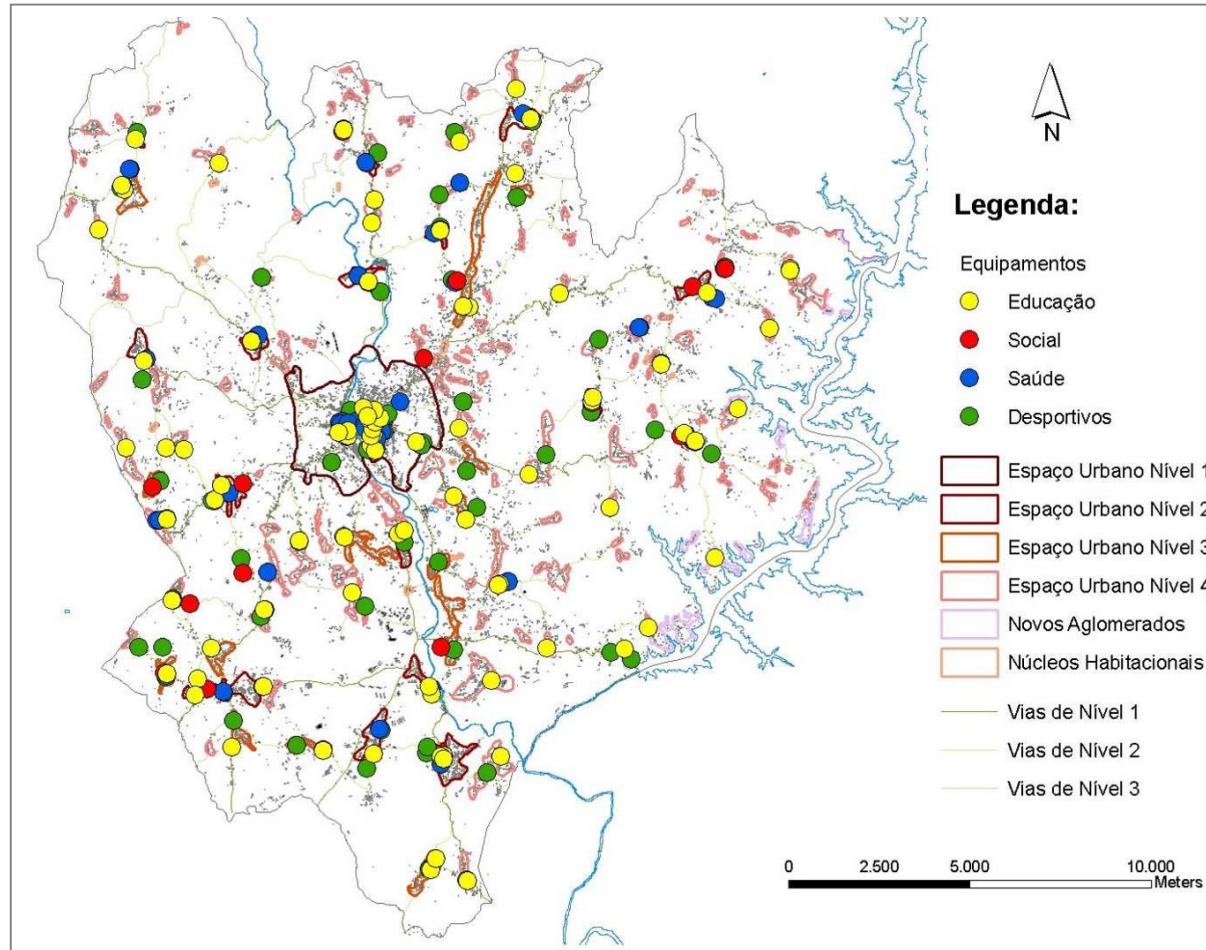


“The collective facilities are spaces for satisfying needs, but also important elements for structuring the territory.
 Therefore, the MMP must seek to **counteract the logic of land availability** as the main criterion for the implantation of facilities and look for locations that can **effectively fulfil their role of structuring the territory**”.

Methodology for Public Facilities Programming



Location of educational, health, sports and social welfare facilities in *Tomar* municipality





Assumptions

- The historical trend towards the **concentration of public services** (and the facilities where they are provided) in the **city of *Tomar*** reflects the asymmetries in the human settlement of its territory.
- In most of the **rural parishes**, the tendency of population loss, either due to ageing or negative migratory balance, constitutes the greatest **threat to the maintenance and reinforcement of public facilities**.
- However, it will be desirable to ensure that, despite the need to downsize costs, a **proximity offer is maintained** for a certain range of essential facilities.



Public Facilities Centers

- The solution found involves gathering in **Public Facilities Concentration Centers** (*Centros Concentradores de Equipamentos*) some services considered indispensable and which are offered in a decentralized logic in relation to the city.
- Each parish or group of parishes will have at least one of those Centres.
- The identification of the **best locations** for the creation or reinforcement of these Public Facilities Centers was based on the **criteria: location and number of inhabitants.**
- Points of **best accessibility** in relation to their catchment area and the population identified in the catchment area with a **sufficient number of users** to justify all the services considered (desirably above 2500 inhabitants, but acceptable above 2000).



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New challenges ?????



New challenges

- Over the last few decades the social, economic-financial and technological changes have been profound, and it has begun to make sense to question the concept of public facility/service
- Social changes create the **need for new facilities** or the **expansion of existing ones**, but they can also mean **closing others** because they no longer make sense:
 - their target population has disappeared or
 - other ways have been found to offer the same service
 - Home service;
 - On-line service;
 - New and more efficient ways of providing services



New challenges

- Traditionally, the **programming of public facilities** was always done **by type of response/sector** - education, health, sports, green spaces, public safety, culture...
- **Each sector had a specific set of criteria and standards** for programming and sizing which were used to apply to new proposals or to evaluate the quality of the existing network.
- These **standards should not be immutable**, but should progressively keep pace with social, technological, demographic and even financial changes.
- Another limitation is the **weak coordination** between types of responses
- **The idea is to leave the principle of exclusive planning and programming by type of facility and to promote a true networking of all these resources - a systemic functioning.**

Key words: coordination | flexibility/adaptability | synergies