#### Vítor Oliveira

# O PLANO DIRETOR MUNICIPAL (PDM) DO PORTO DE 2006

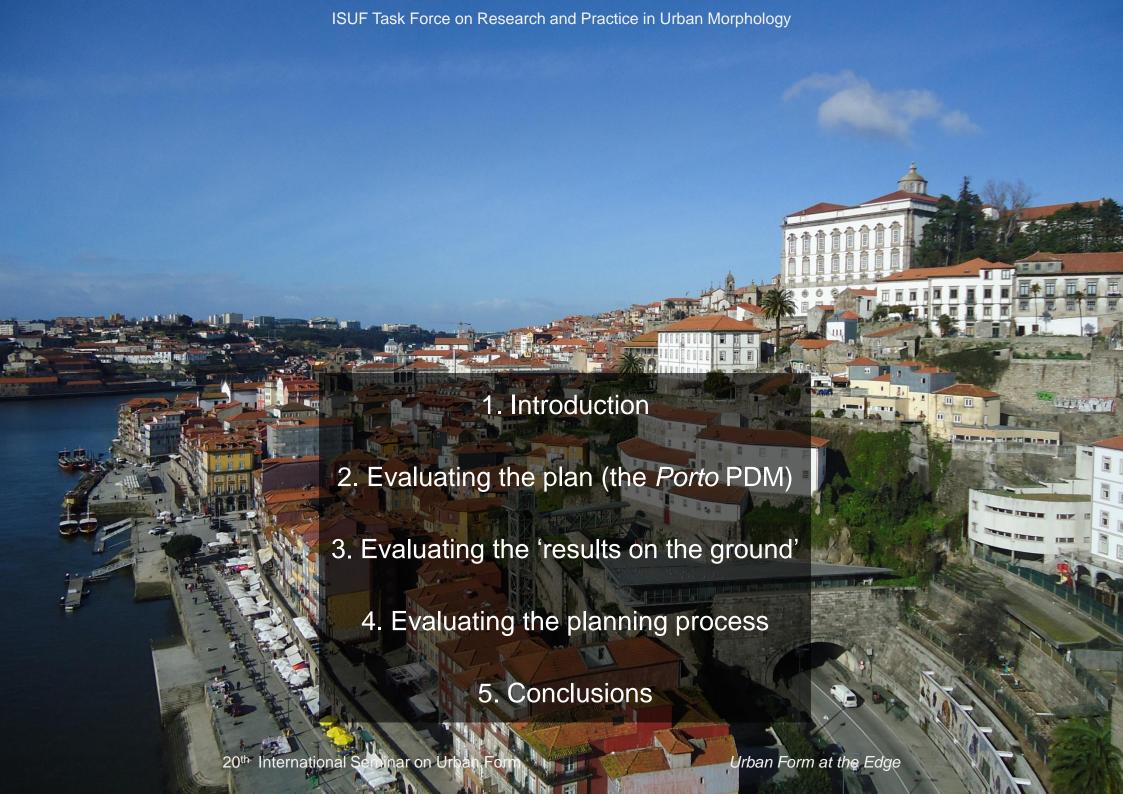
Doutoramento em Arquitetura ULP 2014-15

### Evaluating the Porto plan. Assessing the application of the urban tissue concept

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ISUF Task Force on Research and Practice in Urban Morphology

### 1. Introduction

# ISUF Task Force on Research and Practice in Urban Morphology

#### End of 2011

Michael Conzen launches the Task Force

Chair: Ivor Samuels

Objective: report on ways in which ISUF could build better bridges between researchers in urban morphology and practitioners.

October 2012 (Council of ISUF)
Interim report (available at http://www.urbanform.org/about.html)
Four main proposals:

- i) the publication of an ISUF manifesto;
- ii) the compilation and publishing of relevant incorporation of urban morphology in different **curriculums**;
- iii) the production of a **good practice catalogue** of how and where urban morphology is being used successfully;
- iv) the creation of an urban morphology manual.

#### **Early 2013**

Studies focused on the 3rd recommendation:

"The good practice catalogue: how, where and why is urban morphology being used successfully?".

Bursaries for postgraduate students to carry out evaluations of established applications of urban morphology in practice. http://www.urbanform.org/about.html

#### March 2013

1<sup>st</sup> bursary - **Mafalda Silva** (Supervisor: Vítor Oliveira) - Porto June 2013

2<sup>nd</sup> bursary - Kayleigh Hancox (Supervisor: Michael Barke) - Newcastle

#### Evaluation of the 2006 Plano Director Municipal for Porto

The evaluation is in 3 parts:

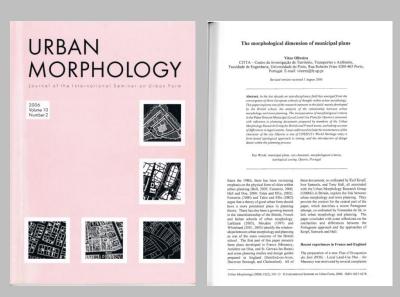
- i) an assessment of the contents of the **plan**, with a particular focus on its typological approach;
- ii) an evaluation of the results 'on the ground';
- iii) an assessment of the **planning process**, developed under the framework of the plan.

1<sup>st</sup> appraisal of the plan: 2006 (soon after ratification).

#### We trace the implementation of the plan over the last 7 years.

50 building permits

20 interviews (politicians, practitioners, architects, developers)



### 2. Evaluating the plan

- 2.1. The preparation on the *Plano Director Municipal* (PDM) of Porto
- 2.2. The typological zoning of the PDM

# The Plano Director Municipal (PDM) The main instrument of the Portuguese planning system. Establishes the model for the spatial structure of the municipal territory Defines the strategy for local development. Is composed of: i. a regulatory code, ii. maps defining the different land uses, urban systems, and operative units for planning and management, iii. a map with local rights of way and planning restrictions. nternational Seminar on Urban Form Urban Form at the Edge

#### Translation of the **Regulatory Code** – regulation of Single-Family Housing Areas

#### **Section IV. Single-Family Housing Areas**

#### Article 22

#### Scope and objectives

The different parts of the city covered in this section correspond to areas where the dominant existing type of building is the single-family housing – this should be maintained – and to the areas in which the plan enforces the construction of this type of buildings.

#### Article 23

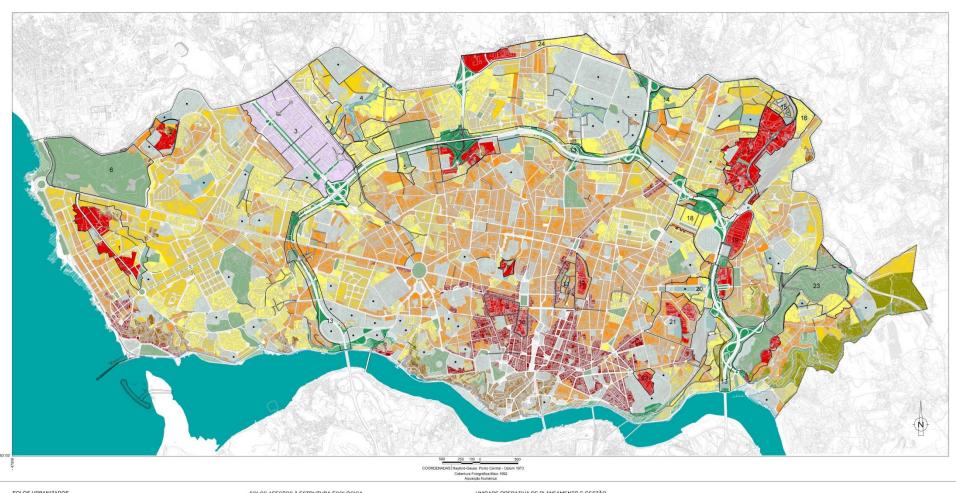
#### Land use

In the Single-Family Housing Areas the dominant land use is residential use. Other land uses are accepted if they are compatible with the dominant use.

#### Article 24

#### **Buildings**

- 1. New buildings, or interventions in existing buildings, should be developed in conformity with the following requirements:
- a. The maintenance of the main alignments of the surrounding buildings, in terms of building frontage plot-series and plot frontage, except when the local authority establishes new alignments.
- b. Building coverage cannot be higher than 60 per cent of the plot area (except if this prescription contradicts the previous one)
- c. The maintenance of the main heights of the surrounding buildings. In expansion areas, the maximum height of the new buildings should be 3 storey.
- d. All houses should have a direct access to the public street. The basement can be common to all of the houses.
- 2. In subdivision processes, building coverage cannot be higher than 60 per cent of the plot area.
- 3. In cases of additions to existing buildings in working-class neighbourhoods, and when better health conditions must be provided, 1.b and 1.c. can be more flexible.



U.O.P.G. 13 - VCI U.O.P.G. 14 - AREOSA U.O.P.G. 15 - S. JOÃO DE DEUS



# SOLOS AFECTOS À ESTRUTURA ECOLÓGICA AREA DE EQUIPAMENTO EXISTENTE INTEGRADO EM ESTRUTURA ECOLÓGICA AREA DE EQUIPAMENTO PROPOSTO INTEGRADO EM ESTRUTURA ECOLÓGICA AREA VERDE DE UTILIDADE PÚBLICA AREA VERDE MISTA AREA VERDE PRIVADA A SALVAGUARDAR AREA VERDE DE ENQUADRAMENTO DE ESPAÇO CANAL PROTECÇÃO DE RECURSOS NATURAIS COTAS DE MAXIMA CHEIA

UNIDADE OPERATIVA DE PLANEAMENTO E GESTÃO U.O.P.G. 1- AVENIDA NUN' ÁLVARES U.O.P.G. 2 - ALDOAR U.O.P.G. 17 - CONTUMIL U.O.P.G. 3 - ÁREA EMPRESARIAL DO PORTO (AEP) U.O.P.G. 4 - REQUESENDE NORTE/VISO U.O.P.G. 19 - MERCADO ABASTECEDOR U.O.P.G. 5 - PRELADA U.O.P.G. 20 - ALAMEDA 25 DE ABRIL U.O.P.G. 6 - PARQUE OCIDENTAL U.O.P.G. 21 - CAMPANHĀ U.O.P.G. 7 - REGADO U.O.P.G. 22 - PRADO DO REPOUSO U.O.P.G. 8 - BOUÇA U.O.P.G. 23 - PARQUE ORIENTAL U.O.P.G. 24 - CURTUMES/CIRCUNVALAÇÃO U.O.P.G. 9 - COMPANHIA AURIFÍCIA U.O.P.G. 10 - ESCOLA ACADÉMICA U.O.P.G. 11 - FONTINHA - PROPOSTA VIÁRIA U.O.P.G. 12 - DOZE CASAS

----- LIMITE DO CONCELHO

PLANTA DE ORDENAMENTO CARTA DE QUALIFICAÇÃO DO SOLO

PLANO DIRECTOR MUNICIPAL

CÂMARA MUNICIPAL DO PORTO





Timings

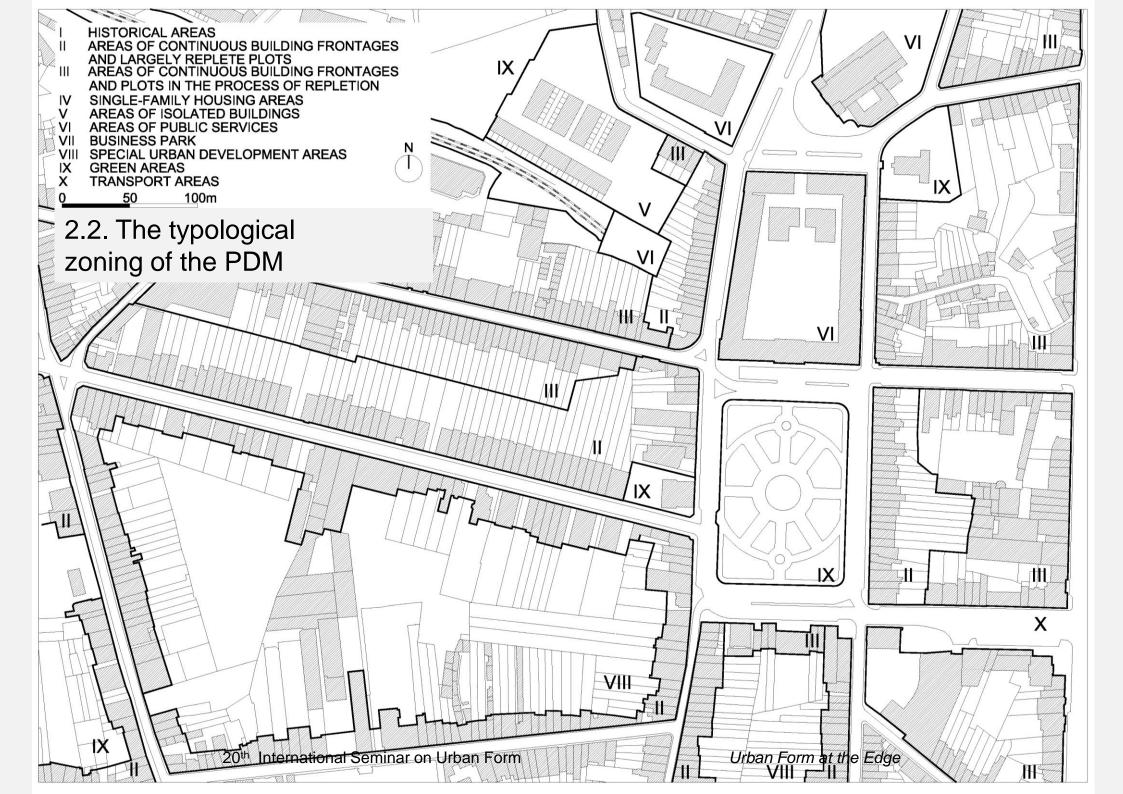
2000-05 Preparation of the plan

2005 Approved by the City Council

2006 (January) Ratified by the Central Government

#### Goals of the plan

- i. maintenance of the character and the urban identity of Porto,
- ii. rehabilitation of public space and the built environment,
- iii. rationalization of transport systems,
- iv. reduction of existing social and territorial imbalances between the Eastern and the Western parts of the city,
- v. rehabilitation of historic quarters and the central area.



#### Zone 1. Áreas Históricas

#### Historical Areas

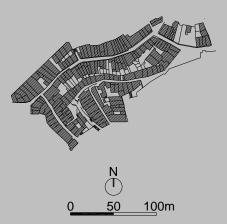
#### Description

The **streets** and **plot series** are very irregular.

There is a high **building** density.

Buildings are narrow, normally 3 storeys high.

Although buildings are always positioned on the front of the plot, building coverage is very high.





#### Zone 1. Áreas Históricas

#### **Historical Areas**

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<u>10</u>0m

#### Prescription

The PDM requires the maintenance of **streets**, **plot series** and **buildings**.

If the rehabilitation of an existing building proves to be impossible, the new building should maintain:

the height,

the alignment,

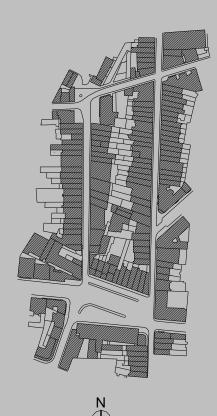
the type of roof,

the façade design,

and the materials of the existing buildings of its block.

Mixed **uses** are allowed in this zone.





100m

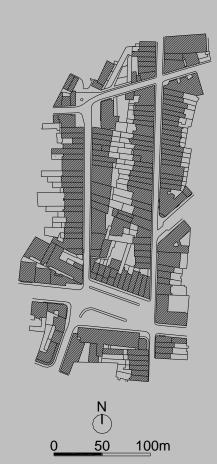
#### Zone 2. Áreas de Frente Urbana Continua Consolidada

Areas of Continuous Building Frontages and Largely Replete Plots

#### Description

In this zone, **streets** and **blocks** are regular, the **plot** is normally a rectangle with an average width of 6m and a depth that can attain 100m. Most of the blocks of this tissue have a continuous commercial **use** on the ground floor.





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#### Prescription

The new **buildings** should maintain: the heights and alignments of the adjoining buildings, and the existing relationship with the public space. The interior of the **blocks** should consist of private green spaces.



### Zone 3. Áreas de Frente Urbana Continua em Consolidação

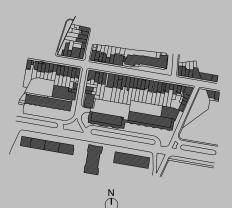
Areas of Continuous Building Frontages and Plots in the Process of Repletion

#### Description

Rebuilding in the 20th century, sometimes on a single **plot**, has created large disparities within some **plot series**, because of their excessive height and poor design.

In the core areas commercial **uses** tend to be retained on the ground floor, but away from these areas, the ground floor of many buildings is used for warehousing and there have been increases in the coverage of plots.





### Zone 3. Áreas de Frente Urbana Continua em Consolidação

Areas of Continuous Building Frontages and Plots in the Process of Repletion

#### Description

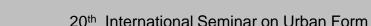


In the core areas commercial **uses** tend to be retained on the ground floor, but away from these areas, the ground floor of many buildings is used for warehousing and there have been increases in the coverage of plots.

#### Prescription

Unlike the previous zones, some new **streets** are proposed in the PDM. New **buildings** should follow the existing alignments of the adjoining buildings, the height of the new buildings should not exceed the width of the street, the building coverage should be less than 70 % of the **plot** area, and the interior of **blocks** should consist of private green space.





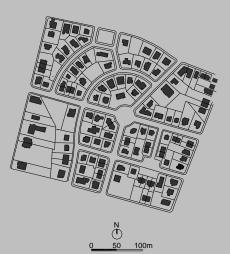
#### Zone 4. Áreas de Habitação de Tipo Unifamiliar Single-Family Housing Areas

#### Description

Correspond to 2 different types of housing development, built in different parts of the city.

Both types created an urban tissue composed of **streets** with a regular pattern, **plots** of different sizes, detached or semi-detached **houses** of 2 or 3 storeys, with gardens or patios.





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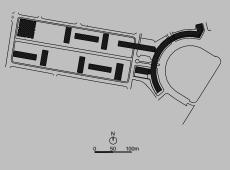
#### Prescription

The maintenance of the dimensions of the **plot series**, maintenance of the main alignments and heights of the surrounding **buildings**, and a maximum building coverage of 60% of the plot area.

### Zone 5. Áreas de Edificação Isolada com Prevalência de Habitação Colectiva

Areas of Isolated Buildings

#### Description



These areas are based on a Modernist model, and also consist of 2 different types of housing development.

**Plot ratio** was the main criterion used to control this type of development in Porto.

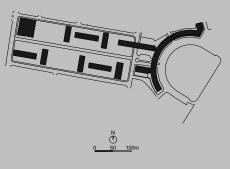
In almost all cases this has led to the production of an undefined public space.



### Zone 5. Áreas de Edificação Isolada com Prevalência de Habitação Colectiva

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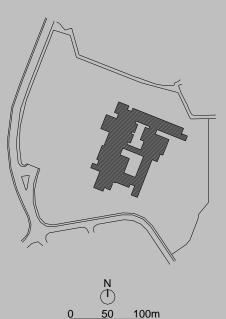
**Plot ratio** was the main criterion used to control this type of development in Porto.

In almost all cases this has led to the production of an undefined public space.



#### Prescription

**Building** coverage should be less than 65% of the **plot** area, the main alignments of the surrounding buildings should be maintained, and a plot ratio of 0.8:1 should be established.

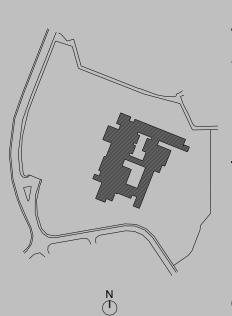


### Zone 6. *Áreas de Equipamento* Areas of Public Services

#### Description

These areas include large **plots** that contain, or are proposed to contain, public **buildings**.





### Zone 6. *Áreas de Equipamento* Areas of Public Services

#### Description

These areas include large **plots** that contain, or are proposed to contain, public **buildings**.

#### Prescription

Other land uses are allowed.

For new **buildings**, building coverage should be less than 75% of the **plot** area.



### Zone 7. *Áreas de Urbanização Especial* Special Urban Development Areas



#### Description

Areas of residential expansion or urban restructuring.

They correspond to the Operative Units for Planning and

Management where the greatest changes are proposed or
expected.



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#### Prescription

Lower order plans should be prepared offering more detailed guidance.

#### Zone 8. Área Empresarial

#### **Business Park**

#### Description



The strategic metropolitan location of this urban tissue led to the formulation of an ambitious project: to transform this industrial area into a business park.

There are already business enterprises in this zone mixed with the industrial **uses**.



#### Zone 8. Área Empresarial

#### **Business Park**

#### Description



The strategic metropolitan location of this urban tissue led to the formulation of an ambitious project: to transform this industrial area into a business park.

There are already business enterprises in this zone mixed with the industrial **uses**.

#### Prescription

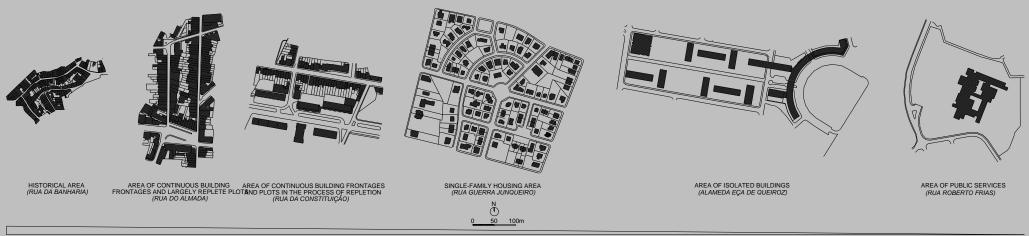
To create the conditions for the development of research and innovation activities connected to various business types.

The main prescription for the new **buildings** is that a **plot** ratio of 0.8:1 should be established.

A lower order plan should be prepared offering more detailed guidance.



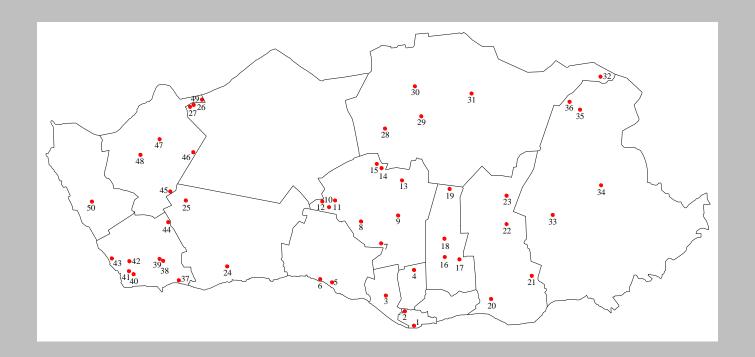
#### The variation of control of design detail in the different zones



HIGH CONTROL LOW CONTROL

3. Evaluating the 'results on the ground'

Typological zones (% in the city)		Sample of	Within the Sample		
		planning	Construction of	Reconstruction	Not built
		permits	new buildings	of old buildings	
1. Historical Areas	(1,7)	6	2	3	1
2. Areas of C. B. F. and Largely Replete Plots	(3,5)	5	1	1	3
3. A. of C. B. F. and P. in the Process of Repletion	(17,5)	22	13	2	7
4. Single-Family Housing Areas	(10,9)	10	8	0	2
5. Areas of Isolated Buildings	(13,5)	3	1	0	2
6. Areas of Public Services	(14,2)	3	2	0	1
7. Special Urban Development Areas	(3,4)	1	1	0	0
8. Business Park	(1,9)	0	0	0	0
9. Green Areas	(14,0)	-	-	-	-
10. Transport Areas / Street System	(19,4)	-	-	-	-
Total	(100,0)	50	28	6	16



Each erected building was analysed according to an evaluation framework structured in 3 parts:

- i) general data on the building development;
- ii) conformance to the plan guidance (i.e. the regulations of each urban tissue / typological zone);
- iii) comparison between the building development and other existing developments built, in the same street, according to the former plan.

#### Zone 1. Historical Areas

Sample: 6 / 50 building permits

1 has not been built.

The other 5 include the construction of 2 new buildings and the reconstruction of 3 old buildings.



Figure 1. Building n.º 2



Figure 2. Building n.º 42

#### Zone 1. Historical Areas

Sample: 6 / 50 building permits

1 has not been built.

The other 5 include the construction of 2 new buildings and the reconstruction of 3 old buildings.

4 of these 5 follow the main guidance of the plan (Building n.º 2, Fig 1), but 1 does not (Building n.º42, Fig 2).

**Building n.º 42** maintains the height and the alignment of the existing buildings of its block, but it does not maintain the type of roof, the façade design, and the materials of the existing buildings.



Figure 1. Building n.º 2



Figure 2. Building n.º 42

## Zone 1. Historical Areas

4 building developments conform to the plan.

Yet, these developments do raise a different concern.
While the façades of these buildings have been reconstructed, in many cases according to high quality standards, the whole interior of these buildings was demolished.



Figure 1. Building n.º 2

## Zone 1. Historical Areas

4 building developments conform to the plan.

Yet, these developments do raise a different concern.
While the façades of these buildings have been reconstructed, in many cases according to high quality standards, the whole interior of these buildings was demolished.

A comparison between these developments and other existing buildings in the same street erected according to the former plan reveals a significant step towards the maintenance of the character and the urban identity of Porto.



Figure 3. An existing building

#### Sample: 5 / 50 building permits

- 3 have not yet been built.
- 2 have been built:
- -reconstruction, and addition, of an old building in Foz Velha Fig.1
- -construction of a new building in the historical core of the city Fig.2



Figure 1. Building n.º 43



Figure 2. Building n.º 16

Sample: 5 / 50 building permits

3 have not yet been built.

2 have been built:

-reconstruction, and addition, of an old building in Foz Velha Fig.1

-construction of a new building in the historical core of the city Fig.2

The two buildings are in conformance with the plan regulations.

They maintain the heights and alignments of the adjoining buildings and the existing relationship with the public space, including the commercial uses.



Figure 1. Building n.º 43



Figure 2. Building n.º 16

Building n.º 16 (Fig 2) raises the issue of the quality of architectural design.

Although Building n.º 16 is an attempt to adapt to the architectural style of this type of tissue the final result is very poor.



Figure 2. Building n.º 16



Figure 3. An existing building

Building n.º 16 (Fig 2) raises the issue of the quality of architectural design.

Although Building n.º 16 is an attempt to adapt to the architectural style of this type of tissue the final result is very poor.

Nevertheless, a comparison between Building n.º 16 and other existing buildings erected under the guidance of the former plan makes evident, as in the first zone, the advantages of the typological zoning.

Fig 3: an existing building (4 storeys), erected on a larger plot, resulting from the amalgamation of 2 different plots.



Figure 2. Building n.º 16



Figure 3. An existing building

Sample: 22 / 50 building applications

7 have not been built.

The other 15 include the construction of 13 new buildings and the reconstruction of 2 old buildings (Fig 1).



Figure 1. Building n.º 12



Figure 2. Building n.º 11

Sample: 22 / 50 building applications

7 have not been built.

The other 15 include the construction of 13 new buildings and the reconstruction of 2 old buildings (Fig 1).

Almost all buildings conform with the PDM.

Nevertheless, there are 2 exceptions (Fig 2).

In both cases, the height of the new building exceeds the width of the street.

While the former case is covered by an exception included in the plan regulations the latter is not.



Figure 1. Building n.º 12



Figure 2. Building n.º 11

Fig. 3

In the same street of Building n.º12, a building erected on a large plot, in accordance with the former plan.

In terms of building height and architectural style, there is no respect for the remarkable set of seven houses adjoining it.



Figure 3. An existing building



Figure 4. Building n.º 19

Fig. 3

In the same street of Building n.º12, a building erected on a large plot, in accordance with the former plan.

In terms of building height and architectural style, there is no respect for the remarkable set of seven houses adjoining it.

Fig. 4

Building n.º 19, erected in conformance with the plan...
In many parts of Porto the plot is normally a rectangle with an average width of 6m and a depth that can attain 100m.
In the 2<sup>nd</sup> half of the 20<sup>th</sup> century, a number of houses within these plots were demolished and new apartment buildings, such as Building n.º19, were erected on the same plots.



Figure 3. An existing building



Figure 4. Building n.º 19

# Zone 4. Single-Family Housing Areas

Sample: 10/50 building permits

8 new buildings have been completed.

These are in conformity with the plan.

Nevertheless, in 2 cases, the local authority was somehow flexible when assessing the maintenance of the heights of the surrounding buildings.

The plan should reinforce the need to maintain the heights of the surrounding buildings.

# Zone 4. Single-Family Housing Areas

Building n.º 44 (Fig 1) conforms to the plan regulations for this type of urban tissue.

One of the articles of the regulatory code establishes that all houses should have a direct access to the public street.

Yet the basement can be common to all of the houses.

The building development maintains the frontage of the plot series and the main alignments and heights of the surrounding buildings. However, in terms of building plan and of building volume, it is quite different from the surrounding buildings.



Figure 1. Building n.º 44

# Zone 5. Areas of Isolated Buildings

Sample: 3 / 50 building permits.

Only 1 of these 3 developments has been built – Building n.º 5



Figure 1. Building n.º 5

# Zone 5. Areas of Isolated Buildings

Sample: 3 / 50 building permits.

Only 1 of these 3 developments has been built – Building n.º 5

Building n.º 5 is covered by the exceptional regime of the *Actos Válidos*.

Building n.º 5 does not conform to the plan in terms of building coverage and, although the plan established a maximum plot ratio of 0.8:1, this building has a plot ratio of 1.6:1.

The evaluators believe that the main problem of this case is not the plot ratio of 1.6:1, but the fact that this urban tissue is still mainly regulated by an abstract index.



Figure 1. Building n.º 5

## Zone 6. Areas of Public Services

Sample: 3 / 50 building permits.

One has not been built.

The fundamental prescription is that building coverage should be less than 75% of the plot area.



Figure 1. Building n.º 10



Figure 2. Building n.º 8

### Zone 6. Areas of Public Services

Sample: 3 / 50 building permits.

One has not been built.

The fundamental prescription is that building coverage should be less than 75% of the plot area.

### **Building n.º 10** (Fig.1)

- -7 storeys high, commerce and offices
- surrounded by other buildings of 7 storeys and the Casa da Música.

### Building n.º 8 (Fig. 2)

- -7 storeys, private hospital
- -in contrast to Building n.º 10, it is surrounded by 4 buildings with 2 and 3 storeys high.



Figure 1. Building n.º 10



Figure 2. Building n.º 8

## Zone 7. Special Urban Development Areas

Sample: 1 / 50 building permit Building n.º 28

The plan is quite permissive in terms of regulation for these areas – it offers some guidance on the design of new streets and it regulates the construction of new buildings with a plot ratio between 0.6:1 and 1.2:1.



Figure 1. Building n.º 28

## Zone 7. Special Urban Development Areas

Sample: 1 / 50 building permit Building n.º 28

The plan is quite permissive in terms of regulation for these areas – it offers some guidance on the design of new streets and it regulates the construction of new buildings with a plot ratio between 0.6:1 and 1.2:1.

**Building n.º 28** is included in the UOPG 7. The only guidance for this UOPG is a plot ratio of 0.6:1.

This building (10 storeys) was erected establishing no relation with the surrounding buildings and contradicting the implicit strategy for this UOPG.



Figure 1. Building n.º 28

# 4. Evaluating the planning process

#### 20 Interviews

- -carried out in 2006 (beginning of PDM implementation) and in 2013
- -politicians (4), local authority officials (8), architects (4), developers (4)

# 4.1. Local politicians

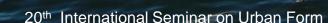
The preparation of the PDM began in 2000 during a socialist administration. At the end of 2001, a conservative administration, still in power, was elected. Yet, this political change seems to have had a minimal effect; though it delayed the preparation and approval of the PDM, the typological approach proposed has not been questioned.

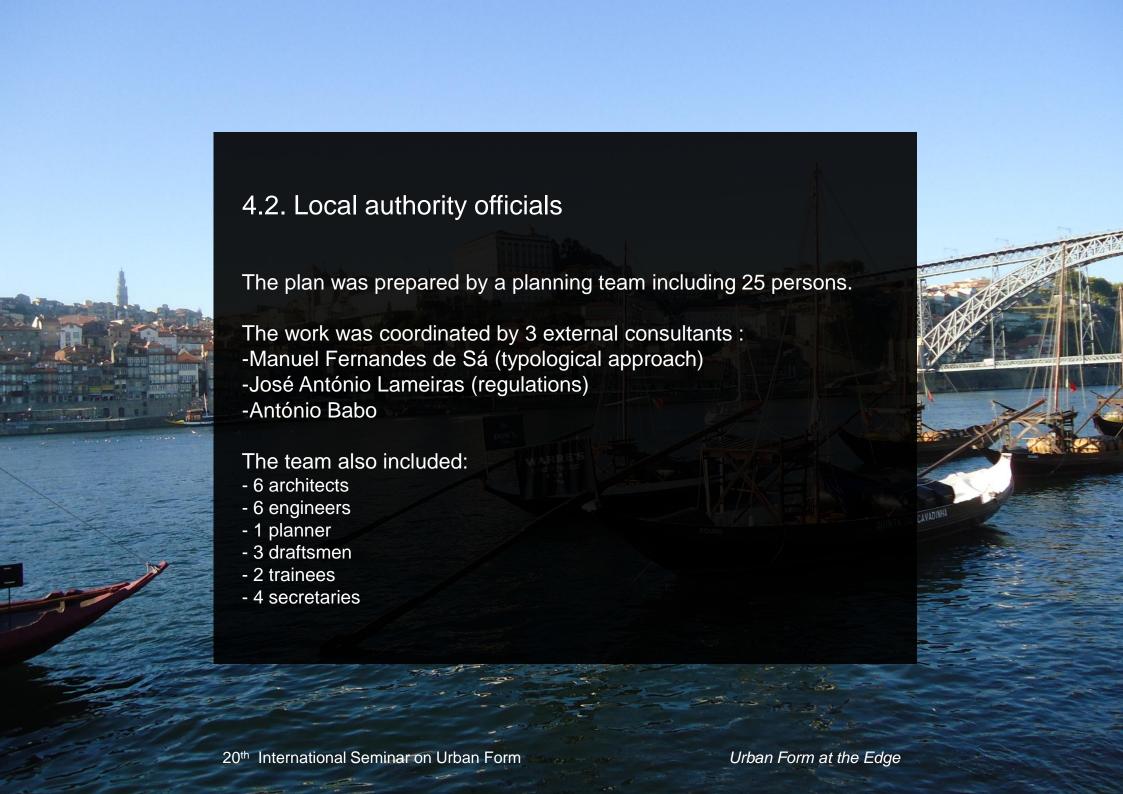
Over the last 12 years the political support of planning practice was not constant.

The potential of this plan, in urban form matters, is not fully understood by the local politicians.

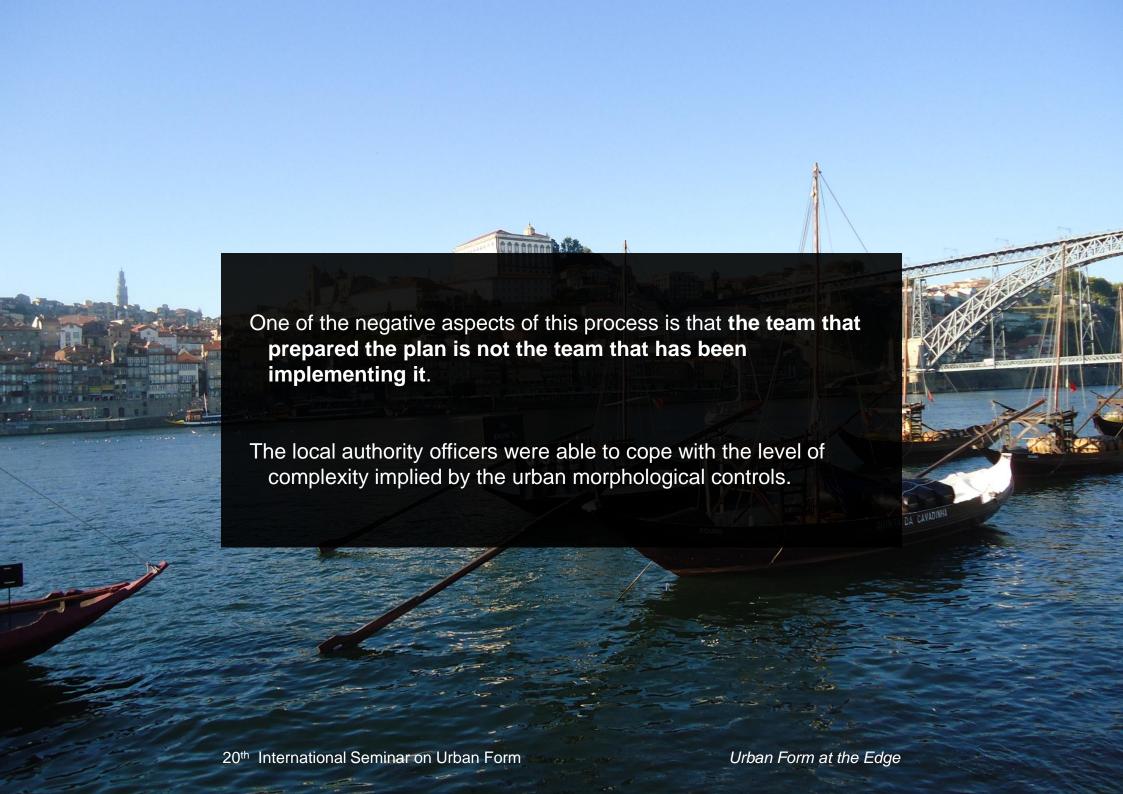
Perhaps the typological approach is very complex and difficult to be communicated in an effective way to non-experts.

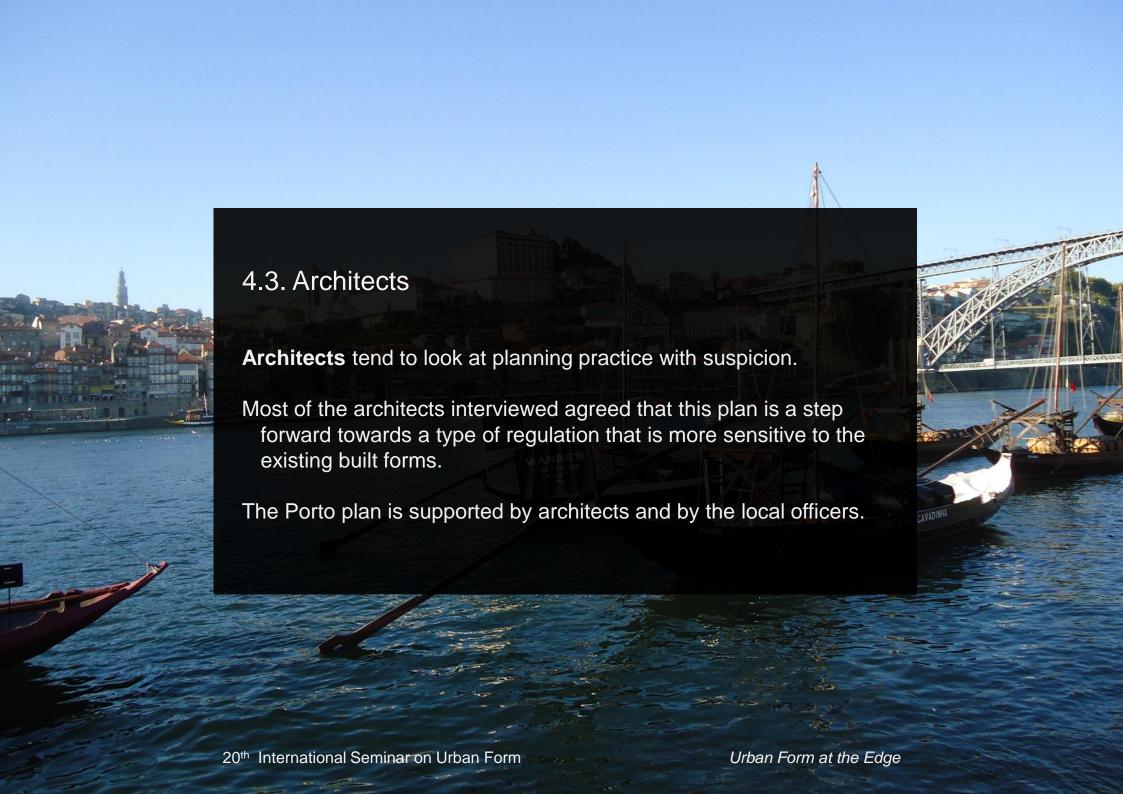
It could also be that the local politicians are not fully committed to achieving the main goal of the plan.













The set of interviewees includes different scales of developer, with different strategies and goals.

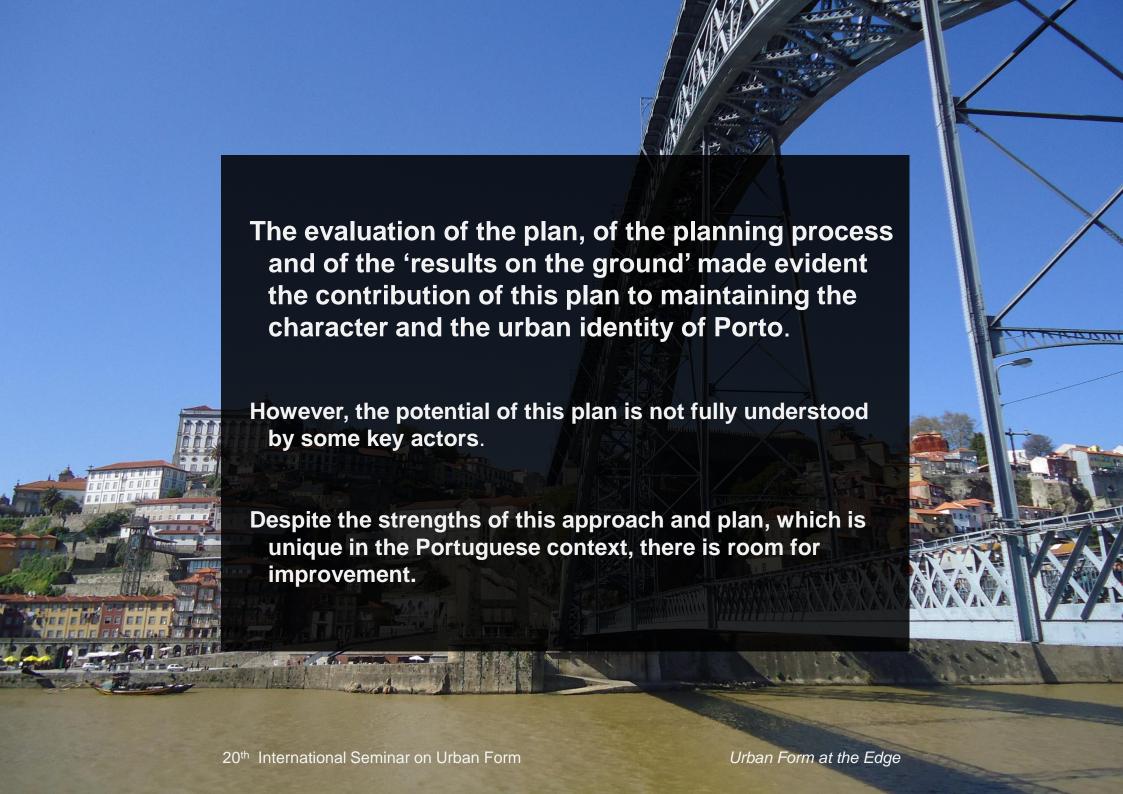
For most of the developers interviewed the advantages of this plan in relation to the earlier plan are not clear.

The potential of this plan, in urban form matters, is not fully understood by the developers.

The main reasons:

- i. a reduction of maximum building volume in the different parts of the city,
- ii. a more complex type of regulation,
- iii.a higher discretionarily attitude by the local authority officers.

# 5. Conclusions



The appraisal of the regulations for the Historical Areas is positive.

Yet, in one of the cases the officers did not follow the plan.

The analysis of these applications in the Historical Areas raises an important issue. While the façades of these buildings are being reconstructed their interior is being demolished and a new one is being erected.

How far can interior arrangements be retained for current requirements?

Is this within or beyond the scope of typological zoning? Should this be an issue of concern to the plan?



