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LAND PLOT – A MATRIX OF PLANNING SCRIPT

ABSTRACT

The goal of this work is to establish the structural rules of planning for quality of life of inhabitants. The aim of the research is to establish a division between land plots and the associated structure of general terms into a hierarchy of four levels of units of use and a matrix of symbols for their classification. The research methodology includes an analysis of relevant literature on the characteristics of fractals and the author's experience in preparing, developing and implementing spatial planning plans. A structure of general terms and symbols for spatial planning has been established with four levels along with the application of hierarchy of use for three groups of land plots and their classification. In this way the hierarchy of land plots is equally relevant for administrators and professionals and is a rule which must be respected.²

Key words: *hierarchy, matrix, land plot, plot, planning script, structure.*

1. INTRODUCTION

A significant contribution on the construction of space is based on the characteristics of 'fractals,' outlines of the areas zoned for construction in a settlement. By definition, a fractal is a rough or fragmented geometric shape that can be subdivided into parts, each of which is (at least approximately) a smaller copy of the whole (Thomas, et al. 2008). Fractals have been used for more than four decades for the description of outlines and surfaces and have generated a large number of papers in various scientific disciplines (geology, biology, landscape analysis, architecture, physics, remote sensing, etc.) including landscape analysis (see e.g. Milne, 1991 and McGarigal and Marks, 1995). More about fractals can be found further on in relevant works. In essence, the characteristics of fractals are the subject of scientific research especially with respect to their time-period, structure, hierarchy, function, identification and problems associated with them.

Research on time period of a fractal includes a view of growth in city areas in intervals over a longer period of time.¹ (Abercrombie, 1945; Doxiadis, 1968; Gallion and Eisner 1950, 1975). Research into the structure of fractals includes an elaboration of the characteristics of cities using different approaches. Important approaches are area type, model and use. Area type can be further divided into: poly-nuclear, container, patchwork, centre & sub-centre and fingers, while their characteristics can be further divided into: structure of living, transport system, green structure, commerce and mall location (Borsdorf and Zembri, 2004). Eminent authors (2004) note these models: Linear City, Satellite City, Central Place City, Production City, Market City, Real-Estate City, Funger City, Cluster or Corridor City, Regional City, Expansion City, Dispersed City, Fractal City, Information City, Network City and Global City. Nadalje prikazi Idealized Models of Urban Growth and Form (Morris, 1979; Arlinghaus and Nysteyn, 1990). Further views: Idealized Models of Urban Growth and Form (Morris, 1979; Arlinghaus and Nysteyn, 1990). A structure of use and size has been established as

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have the associated relationships between city areas at the general urban plan level (Marinović-Uzelac, 1989). The hierarchy is based on the view of characteristics of a city reminiscent of a tree or bodily organ. These are traffic systems (Keeble, 1959) and social groups (Abercrombie, 1945), the ideal system of social cities (Hovard, 1898, 1965; Kostof, 1991), the hierarchy of central places and hexagonal geometry and the lattice of central places (Christaller, 1933, 1966), regionalisation and nodal rules (Šimunović, 1996) and city development in the form of the growth of the human lung (Nelson and Manchester, 1988). Functional structure is the application of mathematical equations on the view of a certain fractal characteristic. These views are: Models of Urban Structure and Multinomial logit Model (Hensher and Johnson, 1981; Ben Akriva and Lerman, 1985, Wrigley, 1985). Models Measurement (Lagarias, 2007), and A Classification using fractal indices (Thomas, 2008). For identification purposes, this implies the structure of land plot terms in four units of use. In order from smallest to largest, these land plots are: Planning parcel, Planning block, Planning zone and Planning area (Poropat, 2010). Using previous fractal research, we can describe the identity of the characteristics of cities and spaces by which individual ranges and numerical measurement data are defined.

General concepts for range are: wider to narrower, larger to smaller, denser to sparser, higher to lower or vice-versa, while those for data are: History, design, growth rates, government policies, size, amount and height as well as functions, drawings, area shape or volume, etc. Modalities of characteristics are new understandings or the results of research which in essence are reminiscent of a tree, funnel or ring, etc. As a result, important research in the state of cities and their characteristics are a consequence of the problem. Problematically, there are millions of settlements in the world none of which are identical. The causes are sociological problems in cities for which planning rules for quality of life are lacking. Of the relevant sociological research some approaches and facts from urban sociology are set apart. According to Ognjen Čaldarević there are a number of approaches to urban planning: traditional, adaptable, stakeholder, tactical, structural, systematic and representational. Above this, approaches are directed towards planning goals and the way in which space is constructed with the policies of the relevant authorities predominating. The facts are that “The failures of urban planning throughout the world, the dissatisfaction of inhabitants with new settlements, unachieved realisation – ideal micro-regions-, neighbourhoods or individual –solutions- very quickly gave rise to the amassing of a large amount of literature² on the many aspects of this failure.” (Čaldarević, 1985). Competent authorities often change and supplement the terminology of spatial plans without defining units of use (Poropat et al., 2006). “We study space as if it were a shell in which social processes are fossilised, materialised and become categories of our every-day lives which will outlive us and which for later generations be telling of us and of our times. This is only cause for the constitution of rules at the spatial planning level. The subjects of the research are elements of planning and the objects of observation are land plots in the function of rules for spatial planning. Relevant works in international literature have been analysed and the empirical method or our own experience have been used in the preparation, development and implementation in spatial planning plans. The expected scientific contribution is in the constitution of a matrix of planning script. Research on consequences and sociological causes in the development of cities is scientifically inexhaustible. At the same time the facts stated which result in rules are difficult to implement on the existing state in cities. Basic research on the causes of the problems is lacking and would form a basis for the development of settlements and other space. The reason for this is largely in spatial plans which primarily create space under the influence of political authorities. The application of scientifically-found characteristics for planning new cities is questionable because rules for hierarchy and

structure of units of use are missing. For this reason we put for the following hypothesis for our research:

The land plot and its use in division, hierarchy, structure and classification of symbols can conditionally be elaborated into a matrix of planning script.

2. PURPOSE

The word 'purpose' is the technical word usually used, but it is not sufficiently clear and shall be examined through its definition, hierarchy and facts.

2.1. DEFINITION

The purpose of the space / area is a planned system of space use, more specifically the use of buildings, areas and land surfaces as determined the appropriate zoning document. The basic purpose of the space/area is the planned use of the space/area as determined for one function (settlement, farming, forest, transportation, economy, sport, recreation, etc.), within which purposes or activities exclusively arising from the needs of the basic purpose can be planned. The main purpose is the planned use of the space/area for a number of different functions, one of which is dominant (The Act, 2007, num. 76; 2009, num. 38). Conceptually, the purpose is legalized in a way that equates the space and area for which it differentiates the primary and most often purpose, but does not consider the properties, characteristics, gender or genus of the purpose.

Above this, words whose concepts must be made more precise using different wording are included in purpose. These are words or parts of sentences: a planned system of spatial use, the corresponding document, the function, the second purpose, content and the difference between space and area! Purpose is an essential element of construction conditions on land parcels zoned for building.³ In order to clarify, purpose is the identity of something for terms of use or the use of which is commonly utilized in the development of spatial planning documents. In addition, the concept behind the word *purpose* is very general. It can be used for movable property and real estate. An example of movable property. There is a stack of wheat in stock. From this stack of wheat two bags will be filled. One purpose for the bags will be seed while the other purpose of the bags will be used for processing and food. Properties are land and buildings⁴ whose purpose for a specific use are conditionally shaped and set by planners in spatial plans. In this respect, the purpose should be specified so that it points to the person that creates or shapes. As a rule, the purpose is created and shaped by the spatial planner. The intent is precisely defined if we say – the planner's intent! Why not "planning" intent? If we say planning intent, this excludes the creator's intentions, which means it can be anyone regardless of his expertise. Planning purposes are the current legalized practice for the professional basis of these documents that are: "provide(d) by competent state administration bodies and bodies of local and district (regional) government to conduct the professional work of spatial planning, as well as legal entities founded and registered to prepare these documents and licensed architects who independently conduct professional work in spatial planning." (The Act, 2007, 2009, article 23, section 2). The cited decree highlights that there are many entities which can create these documents, and consequently control the purpose (dictate). In practice, legal entities are most often those who create purpose, and behind them one usually finds incompetence and politically motivated decisions which benefit those in power rather than benefiting the local population and their quality of life. The responsible plan developer is therefore marginalized to the level of a technical

drafter from whom obedience and responsibility in completing tasks is expected; at the same time he is expected to bear the legal penalties that arise from mistakes made by others. In addition, the absence of written consent for the term “compliance” is not defined by law. (The Act, 2007, num.76; 2009: article 305-308).⁵

2.2. HIERARCHY

The concept of hierarchy can point to the example of spatial units and individual knowledge. “The cadastre rules” include a classification and registry of spatial units, of which the types are especially emphasised. These types are: administrative spatial units, spatial units of local self-government, spatial units of neighbourhood-level government, judicial spatial units, cadastre spatial units, statistical spatial units, address spatial units, spatial units of conservation and protected areas. Prominent types and classification of spatial units are reminiscent of the scope of land plots from which you can determine the hierarchy of administration, governance, power, domination, etc. See the sketch of enumeration districts. (Regulations, 2008, num. 142). In the literature we can also find the hierarchy of the movement of people from the city to home within an urban district. It is a polycentric view of more urban centres and their effect on where people gravitate (Thomson, 2002, 59-72).

In our case hierarchy⁶ is the rule of subordination and superiority in land plots in their identity of aligned or related purposes. Concerted use (compliance) is the rule for two or more identities which have the same comparative properties of a part or whole. Identity is the image or information on the characteristics which serve to differentiate one person or thing from any other person or thing. Harmonized data can be at the level of parts of different spatial planning documents, like numerical measures for: user, quantity, size, ratio, capacity, and land pollution of the associated land plot in the hierarchy of similar purposes.

Users of space are: people (resident, employee, guest, family, team, group), the dead (corpses), animals and poultry (conditional on their numbers), wild game, etc., vehicles (car, truck, boat, etc.), plants (fruit trees, grains, etc.); fish, etc.

Amounts in numbers: population (permanent and temporary) - employees (workers), the unemployed, guests, retirees, children, students, convicts, the sick, soldiers and peasants; animals - livestock and poultry, fish; and real estate - parking lots, moorings, land plots, buildings, functional units etc.

Sizes as measured: length, width, height, area and volume.

Ratios as they are used in area: proportions for the use of closed and open spaces: (basic and supplemental) /also elements of planning open spaces (leisure, road access)/, the proportion of elements (the use of surface areas or functional units) and includes grounds, the structure of relations at the planning area level; then the coefficients (the ratio of the surface floor-plan area of building to the land plot as well as the relationship of the gross area of the building and the area of the plot of land), degree (the ratio of volume of the buildings and land surfaces, and density (the ratio of quantities and units of the ground surface – land plot, acres, or km²), and the yield ratio or the amount of fruits and unit area, the catch (the ratio of the amount of fish and aquatic unit area) and the scale of maps, classification, etc.

Capacity in relation to the quantity and unit of time: yield, drainage, power, consumption, transport and communications. For example: infrastructure cables (the amount water sources, waste water drainage, available electrical power), fuel consumption (oil, gas, uranium), as well as traffic on through roads (roads, streets, railway, etc.), water surfaces (shipping lines, etc.), air (air routes, etc.) and links in the transmission of sound frequencies, letters and pictures, as well as the corresponding connections: telephone, telegram, internet, radio and television, and finally the level of waves allowed (sound, vibration, soil and radiation) etc.

Environmental pollution (air, water, ground) for the allowed properties (physical, chemical, radioactive and bacteriological) in relation to the unit of operation (°C, pH, mg / l, microcurie / ml, germs / ml, ha, etc.). This includes standards for landfill sites, waste, toxins and radiation. Conceptual, the spatial planning document is a complete study plan, bound (file), validated and made public as a whole that is much different than other document covering the “smaller” or “wider” area.⁷ Spatial and associated urban plans and strategic documents as a whole have different textual and graphic content regardless of some parts which can be adjusted. They differ in the structure of their contents, glossary, scope, meaning, etc. Compliance can be applied only to specific parts or provisions of physical planning documents when the regulation clearly defines the content and meaning of data that is in harmony. Therefore, compliance cannot be applied to synchronize the planning documents as a whole. The regulation should more closely define the data as parts of the physical planning documents and must be mutually consistent.

2.3. FACTS

A spatial planner should be the creator of the elements of planning in the application of professional rules and science “in accordance with spatial planning and construction standards that Croatia has yet to devise.”⁸ This lack of norms points to the facts that support traffic overload, over-capacity, uneven development, irrational infrastructural burden, substantial unemployment, profiteering and others. These facts at the beginning of the 21st century substantially confirm the state we see in modern medium and large sized cities.

Conceptually, the planning purpose is the identity of the purpose of real estate which is encompassed by land plots documented in spatial plans and represent the terms for their use or what they are already used for.

3. THE PLOT

What is the plot? A parcel in the field is a surface or belt of a certain area of land! It refers to the generic term that is synonymous with a building land plot and includes other planned land areas. A land parcel or plot⁹ on paper is a geometrical figure which constitutes a particular area, and is used as a rule in cadastral maps and the preparation of physical planning documents. In addition to these properties, they also determine the division of land plots and belts, the identity matrix and defining features as well as examples and differences.

3.1. PROPERTIES OF PLOTS

According to the use of land or crops on the land, cadastre regulations define that: THE PLOT is characteristically a cadastre parcel. For the purposes of land preparation, a “unique PARCEL” has been defined by studies which include many cadastre parcels consolidated into one entity in such a way that they create one plot of jointly-owned land (Poropat et al. 2000; Poropat, 2002; Poropat, A. Ružić, P. 2003, 479-489). The plot characteristically includes size in two dimensions (length and width), including the intent and shape of neighbouring land surfaces. Land use identifies a product for different uses, and most recently has become a means to digitally record data. New technologies create new products and change the environment with artificially created values, from buildings to new organisms (Poropat and Ružić, 1999, 215-225). To master the products at the planning level is to create a database as the foundation with the possibility of simulating the optimal development of formed land plots since the technological development in the past one hundred years has significantly compromised and distorted the natural balance.¹⁰

How are we to balance current and future spatial development? One way is to create an information system that integrates a whole unit of space with many data about its nature and where land plots are particularly highlighted (Poropat, 2002). The digital processing of plots (cadastre parcels) are all the more emphasised in spatial planning (Elfick, 1991, 107-114, 2009). This can also be the digital processing of topographic data (Filho De Figueiredo, Carvalho and Gattass, 1995).

Land plots in the planning area are of public interest and their importance can be compared to:

- ❖ A letter of the alphabet on paper or “a letter as the everyday name of a symbol of some writing system, usually alphabetic. In science the preferred term is grapheme”;¹¹
- ❖ A note as the means to record music onto paper;¹²
- ❖ Prominent spots in the raised writing system (Braille) used by the blind;¹³
- ❖ Numbers on paper to describe amounts;¹⁴
- ❖ Units of measurement on paper to describe size;¹⁵ etc.

3.2. SURFACES AND BELTS

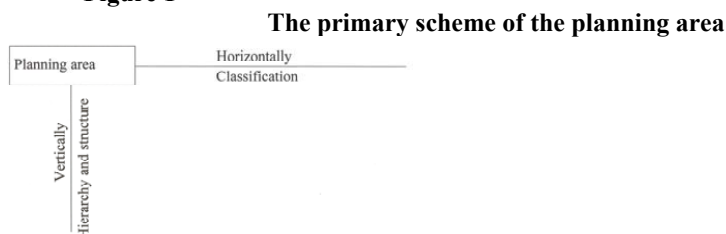
A land plot can be a surface or belt by its linear or geometric appearance. A surface includes the area of the geometric appearance of the land (square, rectangular, trapezoid and circular, etc.) with size, length and width being approximately equal or unequal to a certain size ratio (1:2 or more). Size ratios are adjusted to accept the building and land around it and for forming the remaining surfaces or areas which are not long and narrow in the function of public transport.

In spatial planning, a land plot belt is reminiscent of something narrow and long. These are land areas used for the public transport of goods and live animals on a belt or corridor road, railway, river etc. Notable land plots are surfaces which lead to destination plots (building plots, agricultural and other non-communal plots). In the preparation of detailed development plans, as a rule roads are made in the form of drafts in the scope of one unidentified parcel (Adli Imam Zakaria EL, 2006, 192-209), as well as the rest of the plot's surface. The structure of roads has been dealt with by several authors, of which three are relevant to this work: German architect Dieter Prinz differentiates roads according to transportation tasks: the area for pedestrians (pedestrian areas), hiking and biking trails; roadway-pedestrian through roads, access roads; collector roads, converging residential areas: traffic roads (roadway traffic), main traffic roads, motorways, city highways, state highways and junctions (Prinz, 2006, 99-104). Professor Dr. M. Mihail of the Faculty of Engineering at the University of Belgrade determined the planning characteristics for roads. These are primary and local networks. The primary network includes city highways (GA – connecting distanced areas of the city), main city roads (GM – connecting various urban facilities) and city traffic (GS – connecting residential areas and the city centre). The local network includes collector roads (SU – serving city entities) and access roads (PU – serving individual locations) (Maletin, 2005, 54-81). Similarly, roads are covered within the structure of the land plot: the main street – a plot of land set aside for through traffic and its links to street plots; collector street – a plot of roadway which links buildings (building plots) and other street plots, as well as paths with various purposes – plots of roadways intended for cyclists, horseback riders, pedestrians, etc. (Poropat, 2004, 281-293). Based on these insights we can define the structure of roadways which includes the four levels of land plots. City traffic (GS) can be replaced with the term “local” as used in the Guidelines (1998, 2004), then the plot for the collector road can be divided into primary and secondary as defined in the author's published article.

3.3. THE MATRIX FOR PLANNING SYMBOLS

The starting point for making a matrix of planning symbols is the primary scheme of the planning areas. The scheme includes the elaboration of the chosen area in two perpendicular directions, one direction is vertical and includes a hierarchy of structural levels and modalities and the second is horizontal and establishes the terms for the classified plots (fig. 1).

Figure 1



Source: author

The matrix of planning symbols is a graphical representation of the hierarchy of purposes and displays the identification signs of the plots.

3.3.1. THE HIERARCHY OF PURPOSE

To view the general terms of purpose, a graphic interpretation for the hierarchy of purpose and shaped characteristics of surfaces and belts was formed in the structure of plot classification levels. These are four levels of plot planning in which the first level (I) analyses the smallest unit and detailed purpose and the fourth level (IV) analyses the largest unit and global purpose. In forming the surfaces and belts the order is from the largest to the smallest shape-unit in such a way that the level of planning is recognised in identifying the hierarchy of four different terms from the largest to the smallest related unit. Universal terms in the hierarchical identification of plots are: Planning Area, Planning Zone, Planning Block and Planning Parcel, while those for the identification of belt plots are: Main, Local, Collector and Access. The shapes of the surface plots and their related belts can be regular, irregular or a combination of these with the condition that the surface is a homogeneous whole (Fig. 2).

Level IV

Planning areas are parts of territory within the smallest unit of the territorial organization of local government. These are larger areas of land or conditionally plots that make up the surface within which it is possible to identify and develop a global purpose over a longer time period: settlements, plant life (forests) and agriculture, barren land, barren mountainous terrain, water, protection and others.

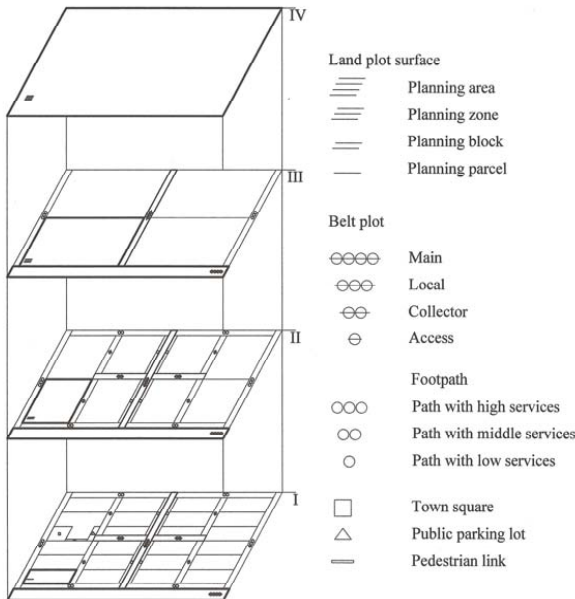
Level III

This planning zone is formed by the division of surface plots within the planning area. It is the result of several related or similar purposes. In our matrix these are four planning zones and three belt plots of which one is local and two are footpaths with high services. Prominent zones are joined by the main plot of the belt. It is a new image that establishes the rules for use and conversion of part of the surface into belts so that roadways and footpaths are separated.

Level II

The planning a block was created by the division of land surfaces within a planning zone. It came about from several related purposes as those in the third surface level. On the matrix in our example the level of one plot surface in the planning zone came out of plots for two block surfaces and four additional belt plots of which two were footpaths with medium services, one collector and one footpath with low services. In this configuration the plots are joined by a belt from the third level. The basic number of belt plots is defined on the second plan level.

Figure 2
The Hierarchy of purposes



Source: author

Level I

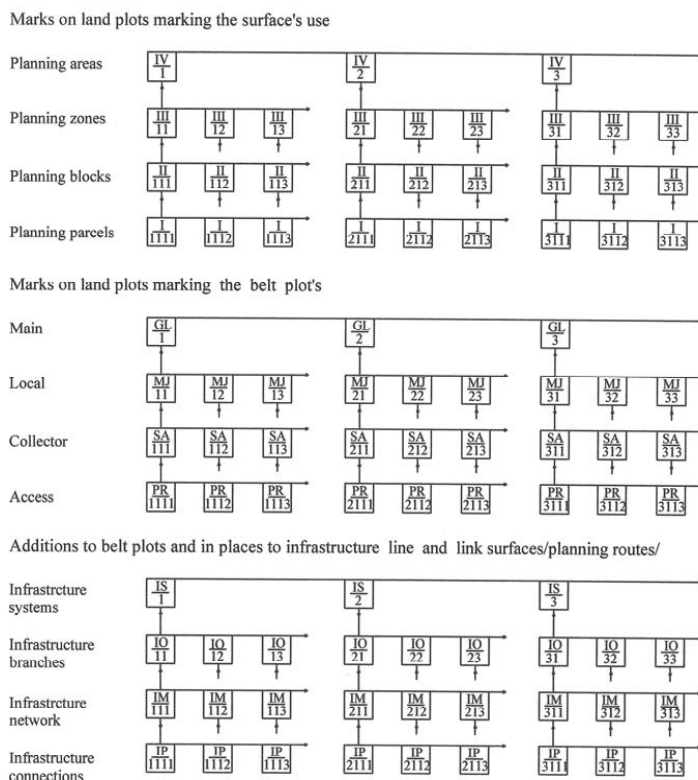
The planning parcel is formed by the division of land in the planning block. It can be a number of plot surfaces or a planning parcel within the plot of the planning block. It is given as a view and additional belt plots which form a town square plot, public parking lot and their pedestrian links and in some places a small park. The remaining plot belts from the second level are joined in the first planning level.

3.3.2. IDENTIFICATION DESIGNATION FOR PLOTS

A matrix of three groups of identification symbols which symbolise planning characters has been determined (fig. 3). At the level of territorial local government around the world, planning areas should be classified and individually modelled and then identified hierarchically in four levels. In particular, a matrix should be established for the identification of the purpose of the surface, belt as well as the identification of terms of planning routes. The first group symbolizes the identification of surfaces in four hierarchical levels of land plots. This means that the territory of the lowest form of local government (fourth level) should be divided into several planning areas (plots) in terms of their purpose so that they can be globally differentiated as well as differentiated amongst themselves. This is not an act of division but is merely a condition for the globalisation of the field (plot) for long-term projections of population development as well as economic and social activities for the balanced and quality of life of the local residents. Long-term development projections should take into account the rationalization and reservation of space and surfaces on Earth for the development and life of future generations. The prerequisite for this is the scientific analysis of the conditions for the identification of terms of the planning area and its modalities.

Figure 3

Matrix of indicators



Source: author

Plot surfaces and belts are generally organised for the elaboration of the terms purpose, classification and categorisation. The development of terms for purpose is joined by plot elements and features. The given land's elements are loaded from the cadastral-geodetic database with regard to cadastral parcels and include properties for: producing land, barren land (construction), buildings and especially barren land and water, while the land plot characteristics are the users of space, quantity, size, proportions, capacity, pollution, and protection¹⁶ anywhere, especially in spatial standards.¹⁷ Additions to belt plots and in places surfaces are infrastructure lines and links (underground or above-ground) as planning routes. Plots which contain planning routes are in addition to their primary use also "servicing" and the same rules for use apply for use if the land is privately owned. The first group of features symbolize the identification of the surface into four hierarchical levels of land plots.

In the hierarchy one term surface purpose is followed by a related division. At each level surfaces are classified (sorted) into different terms of purpose. At the fourth level of the surface purpose we find lots IV/1, IV/2, IV/3.... Similarly, they are also divided in terms of their purpose at other levels.

In the hierarchy of superiority to the inferior, planning area (IV/1), is divided into several planning zones (III/11, III/12...), then the individual planning zone (III/11) into a number of planning blocks (II/111, II/112...) and the individual planning block (II/111) into a number of planning parcels (I/1111, I/1112...). Appropriate related division also applies to the hierarchy of other terms of purpose in the planning area (IV/2, IV/3 ...), belt plot use (GL/1, GL/2 ...) and planning relationships (IS/1, IS/2...).

For more information see the examples.

In our classification,

- ❖ Planning the area of a settlement - a small town needs additional symbols for the following data: amount, capacity and pollution in long-term development projections (more than 20 years).
- ❖ Planning residential zones need additional symbols for the following data (as elaborated from level IV): amount, capacity, pollution and size and height of the area as well as ratios of density in projections of medium-term development (10-20 years)
- ❖ Planning block groups of family homes need additional symbols for the following data (as elaborated from level III): amount of users and amount of functional units, the size of the area and height as well as plot division density in a projection of short-term development (5-10 years);
- ❖ Planning parcels for family homes need additional symbols for the following precise data: size, amount of users, the ratios for the range of development and utilization, the capacity of connections, functional units and types of parcels. The period for land preparation up to five years.

Special symbols generally determine the properties of essential information for certain purposes. They are the basis for certain elaboration, so they differ, however in places they corroborate depending on the identity of the purpose. At the surface level, the use of special appropriate symbols is related to the hierarchy of other terms of purpose. This must especially be elaborated after defining the other planning areas which are not residential.

The second group of features symbolise the identification of belts as well as the first group of four hierarchical levels of plots. In order for the global surfaces to be brought to life, they need a global link or element of linking, flow tissue.

Elements of flow tissue are classified belt plots at the fourth level, within which the main transit traffic takes place. In the present circumstances, transit traffic is intended for main roads (roads, streets), the main railway (railway, subway) and the main water routes (shipping lines), etc. Fourth-level land plot belts are parts of the planning area which are

elaborated at the third level of use. The former principle of use also classifies main belts which are then elaborated at the lower levels in a similar manner.

The third level takes the main belts and elaborates local traffic for linking parts of settlements or other uses within individual planning areas and in parts of the surface. These are local street traffic, footpaths, larger services, local railway lines (trams), local water, forest and other pathways.

The second level practically takes over the third and fourth levels of the resulting belts and creates collector belts in the development of the planning zone. These are collector belt plots for roadway to pedestrian traffic: collector and access roads, footpaths with middle services, collector, footpaths with low services. A network of these basic belts exists at the second level.

The first level takes up the network of all the basic belts. In developing the plots for the planning block, additional belts are intended for public parking, town squares and their pedestrian links and in places small parks. By classifying belts above their different terms of use, special symbols for the size of the width and amount of traffic vehicles as well as the capacity for flow join the original symbols.

The third group of marks symbolizes additions or infrastructure inserts on the belt plot and in places the surface plot. These additions are generally planning route lines and connections. Four levels of planning routes are hierarchically defined on the same principle as belts. Each plot level is accompanied by corresponding levels of infrastructure lines and links which are classified according to their terms and meaning. Infrastructure lines and links with associated purposes are developed at the necessary plot level depending on their meaning and hierarchy as compared to infrastructure systems, branches, networks all the way to connections.

Additions are classified in the same manner as the other groups of symbols above the different terms of identification, and special symbols for amount, capacity (power, flow, wires, sewage) etc. are included.

Examples

Term for the use of land plot surfaces:

IV / 1 = village – mid-sized town;

III/12 = hospitality and tourism;

II/121 = “group of villas”, II/122 = “group of hotels”, II/123 = “group of boarding houses”;

I/1211 = tourist villa-****; separate I/1221 = hotel - ****: separate,

I/1231 = boarding house ***: singly joined.

Terms for the use of belt plots:

GL / 1 = main roads - alleys;

MJ/11 = local roads;

SA/111 = collector roads;

PR/1111 = access roads.

Terms for the use of planning routes

IS / 1 = main water supply line,

IO/11 = water supply line branch;

IM/111 = water supply line network;

IP/1111 = water supply line connection.

Source: author

3.4. CRITICAL REVIEW

The symbols for planning areas that have been used to date are planning symbols with respect to textual terms and graphic symbols. The prominent symbols are used for the creation of various plan levels. Individual terms are repeated in up to seven spatial planning

levels (Poropat, 2010). The differences included in this work are the organisation of the hierarchy and general terms of use as well as the associated markings and elements of plots. Without this hierarchy there is no government, no administration, no management. Planning without a hierarchy of purpose is a deficit in our profession and estranges spatial planners while the deficit strengthens administrative government to tailor space according to its own measures without responsibility for the consequences of this type of management. Individual spatial solutions which are not the product of accepted spatial standards are replaced by the power of the individual in the hierarchy of administrative government. This is demonstrated in a number of relevant examples, such as the cases of “Detaljni plan uređenja” (DPU), “Cvjetni trg”, “Rogoznica” and others.

The procedure to pass the detailed urban plan for Saladink Sv. Martin is at a standstill even though it has been being prepared since 2003.¹⁸ The reason for this is that the highest administrative government conditions the measures of capacity and consolidation of plots so that it exceeds the size of the land owned by a significant number of owners and these owners are forced to sell. The consolidation of all these estates for the sale of real estate is largely unachievable. The majority of owners insist on family estates on which their families will work for the entire year and will include the highest accommodation category. This is a great contribution to the quality of the development of manufacturing jobs, with less money for the administrative apparatus of the state government. A similar situation is present in other land uses, such as residential, sport etc.

With the introduction of a hierarchy of planning purposes the preconditions for balanced and sustained development of the area have been created, thus reducing the power of administrative authorities to think of locations and sizes backed by the hierarchy of authority and power of the individual which has consequences on the hospitality industry, the short time span of capacity use (only in the summer), questionable productivity for unknown big business capital and unforeseeable consequences for the survival of native inhabitants and the fertility of the land of their ancestors.

There are cases where the competent administrative authorities destroy buildings then seek to legalise most of the illegal construction through spatial plans (Rogoznica).¹⁹ This infiltration of bid solutions with large content among traditional architecture (Cvjetni trg in Zagreb) has been accepted by the competent authorities. This has resulted in protests and unrest among the population regarding the “destruction of Cvjetni trg” and the immense traffic pressure for the wider area which will result.²⁰

This state in space is the result of regulations which are flawed, superficial and give great authority to the administration and little space for the profession to plan the wider spatial area for long-term aspects such as quality, rationality and spatial standards. In other countries we find “slums” (a devastation of space – abandoned settlements) but also measures for spatial standards for the scaling of settlements, which have yet to be devised in Croatia.

By introducing plot matrices the conditions have been formed for the development of a planning script. The structure of general terms and features for spatial planning have been confirmed with the use of a hierarchy of use for three groups of plots and their classification. In this way the hierarchy of plots is equally valid for administrative bodies and the profession and represents a rule which must be respected by users. What do we get with this? First, the foundation for the quality of the work of spatial planning is created. In addition, the rationalisation and balanced development of space is guaranteed. Furthermore, greater prosperity and less state concerns and most importantly, the passage and application of spatial standards as a condition for the quality of life in a healthy environment.

4. CONCLUSIONS

At the international literature level a significant scientific contribution was directed to studying fractals or outlines of areas zoned for construction. The scientific contributions are facts on the state of cities with regard to their time, structure, hierarchy, function, identification as well as their problems. Relevant research on the state of cities and their characteristics are a consequence of the problem, while the causes are sociological problems for which planning rules for quality of life are lacking.

The basis for proper spatial planning is the constitution of units of use and their application in the development of spatial planning plans. The application, creation and shaping of units of use as well as solutions to sociological problems and responsibility for the state of cities belong to the Spatial Planner. This is a prerequisite for the quality of life of inhabitants where the policies of the relevant authorities will give incentive and not be intrusive and irresponsible.

Planning intent is a unit or identity of use of real estate in the scope of a land plot which is documented in spatial planning plans and represents conditions of use or the manner in which they are used.

Matrices of surface and belt lots and their adjoining planning infrastructure routes have been confirmed in the hierarchy of general terms of use. This is a picture of the generalisation in terms of planning in theoretical and practical conditions as well as experience and new scientific knowledge, which confirms the hypothesis stated in the introduction.

With the introduction of a matrix of plots the conditions for the preparation of a planning script have been formed. The organisation of general terms and marks for spatial planning have been determined with four levels with the application of a hierarchy of use for three groups of plots and their classification. In this way the hierarchy of plots is equally valid for government and professionals and forms a rule which must be respected by users.

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