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The suburban perimeter blocks of Madrid ten years on: how residents' level of satisfaction relates to urban design qualities

In the 1990s the suburbs of Madrid saw the substantial development of new housing. New plans provided for 200,000 new homes over 7,200Ha of land. These developments eschewed earlier modernist forms of suburbanisation in favour of the perimeter block that superficially echoed the 'traditional' built form of the city. But the new perimeter blocks and neighbourhood design varied from their inner-city counterparts and have been the subject of near universal criticism. Some ten years after their occupation we reappraise the development importantly adding the perspective of residents. While many of the design failings identified in the past are confirmed we also reveal qualities that residents value. The study demonstrates the value of post hoc evaluation after residents have settled in and leads us to argue for the importance of better integrating the everyday life (lived experience) perspective into evaluations to achieve better places.

Keywords: urban design, design criteria, Sanchinarro, Madrid, perimeter blocks

Introduction

In the early 1990s the city government of Madrid modified the 1985 city plan.¹ This facilitated a major change in housing and development strategies that entailed the planning of areas previously designated as land reserved for development in the 'distant future' into mainly residential areas, so promoting their development.² These sites were 'unprogrammed' within the city plan land use classification, but were rendered

¹ Plan General de Ordenación Urbana de Madrid PG85.

² See for example: Julio Fernández Portela, "Los nuevos barrios de Madrid: en busca de su identidad. Ciudad, Territorio Y Paisaje: Reflexiones," *Para Un Debate Multidisciplinar* (2010); Dolores Brandis, "El estancamiento de los últimos desarrollos urbanos de la periferia madrileña. crisis inmobiliaria y estrategias de ordenación. Las Ciudades Y El Sistema Urbano," *Reflexiones en Tiempos de Crisis* (2012): 111–20; D. Brandis, 2014. *La periferia inacabada madrileña. el penúltimo capítulo de una historia interminable*, (Figura 1), 1–12; R. López De Lucio, 2013. *Vivienda Colectiva, Espacio Público y Ciudad: Evolución y Crisis en el Diseño de Tejidos Residenciales, 1860-2010*. Nobuko.

developable through an urban instrument called *Programa de Actuación Urbanística* (PAU). These six resulting areas are now known colloquially as PAUs. They total an area of 22.16 km sq, equal to 60% of the size of the consolidated centre of Madrid within the first ring road (M30), and are home to nearly one million people besides myriad services and economic activities. These neighbourhoods share core design guidelines giving them similar characteristics beyond mere aesthetics³. Their similar urban design employs the same building typologies and the same rules that define the distribution of land use. Given the substantial area of land they occupy and their similar attributes the PAUs represent, intentionally or not, a model new city form. While the basic building form echoes the traditional perimeter blocks of Madrid, the neighbourhoods offer a radically different canvass for human interactions; impacting the way people relate to each other, commute through the city and enjoy both public and private spaces. This alone makes the PAUs a relevant case for study.

Our aim was to find out how these neighbourhoods work more than ten years after first being inhabited by bringing together design criteria and the experience of residents. In so doing we reflect on the role of formalised design criteria in the development process. While recognising the limits of design codes and criteria, and that these are part of a wider decision making process, we argue they have value. We argue the case for bringing together standard design criteria and the everyday experience of residents; drawing on Lynch's classic work '*Good City Form*', we organise resident experience using two key themes; quality of life and, public life. This allows for insights into how these spaces have been adapted and how residents have adapted to them.

³ Portela, "Los nuevos barrios de Madrid"; Sigfrido Herraiz Rodriguez, *Ensanche de Vallecas: ¿un Ensanche Diferente?* (2003).

Relatively few developments are subject to post-hoc evaluation of their urban design and, "...almost never is a systematic view taken across the entire process of creating or recreating places"⁴. Capturing "the entire process" may represent more an 'ideal type', given the sheer complexity of the processes of urbanisation and the diversity of ways of reading them. Therefore, we seek to place the development of the PAUs in a broader socio-economic context but do not claim to explain every element influencing their development. Therefore, we offer a systematic, but not a systemic, assessment of the PAUs.

The design context of the research is the perimeter block that has become the standard for residential urban developments in Spain. A rationalization of this model happened in many Spanish cities in the 19th century. Strong migration from the countryside towards the cities required a more efficient unfolding of the urban structures and, by the laying on of a grid, the perimeter block typology assumed a geometric figure. Chueca Goitia⁵ has classified Madrid as a classical city where the street and the square are the stage for human interactions. Spread out around the Mediterranean, this sort of city is normally more compact than the Anglo-Saxon type and private property – usually buildings and facades – clearly define the public space, the scene for public life. The influence of CIAM (International Congresses of Modern Architecture) architects and planners together with the Spanish Civil War (1936-1939) and the subsequent post-war period, under the Franco regime, changed the traditional conceptualization of the classical city⁶. The presence of Le Corbusier on the cover of

⁴ Matthew Carmona, "The Place-Shaping Continuum: A Theory of Urban Design Process," *Journal of Urban Design* 19 (2014), 4.

⁵ Fernando Chueca Goitia, *Breve Historia del Urbanismo* (Madrid: Alianza Editorial, 1968).

⁶ See for example: J. J. Bataller, R. López de Lucio, D. Ribera, and T. Tejera, (2004). *Guía del urbanismo de Madrid: siglo XX. Gerencia Municipal de Urbanismo Ayuntamiento de*

the national architecture magazine⁷ in 1951 is a clear sign of the influence CIAM had on the cultural movements among architects at the time. Madrid's population grew rapidly between 1940 and 1970, multiplying its population by nearly three times, from 1,096,466 to 3,146,077⁸. The municipality of Madrid greatly increased its area due to the annexation of thirteen adjacent towns between 1948 and 1954, from 68.41 km² to 607.09 km². However, those municipalities that would become the periphery of the city and in which Sanchinarro and all other PAUs are located, only accounted for just over 330,000 inhabitants⁹. The response to the large housing demand generated from the 1950s through to the 1980s was mostly accommodated in this periphery, by and large taking the shape of modernist blocks 'standing on grass'. This eschewing of the perimeter block in favour of a modernist alternative also took place in other Spanish cities.

Starting in the 1970s but especially one decade later, there was a change in the perception of the modernist block and increasing attention was given to the often negative outcomes of this urban form¹⁰. A new plan for the city, PG85¹¹, was initiated as a result of the Spanish transition to democracy (after the death of Franco in 1975), and developed by a strong generation of architects and urbanists. It was the first plan

Madrid; Ramón López De Lucio and Agustín Hernández-Aja, *Los Nuevos Ensanches de Madrid La morfología residencial de la periferia reciente, 1985-1993* (Madrid: Ayuntamiento de Urbanismo, 1993); Carlos Sambricio, *Madrid, Vivienda y Urbanismo*, vol. 28 (Madrid: Ediciones Akal, 2004).

⁷ Revista Nacional de Arquitectura (num. 119), November 1951

⁸ INE: Instituto Nacional de Estadística.

⁹ J. M. G. Alvarado and M. Á. A. Moratilla, "Cambios municipales en la Comunidad de Madrid (1900-2003)/Municipal changes in the Comunidad de Madrid (1900-2003)," *Anales de geografía de la Universidad Complutense*, In (Madrid: Universidad Complutense de Madrid, 2005) 25.

¹⁰ López De Lucio and Agustín Hernández-Aja, *Los Nuevos Ensanches de Madrid*.

¹¹ *Plan General de Ordenación Urbana 1985*. translated as the 1985 Madrid Plan.

under democracy and the new autonomous regional system, which largely shifted the weight from Franco's metropolitan bodies to municipalities. PG85 also brought the traditional perimeter block back through developments including *Madrid-Sur*, *Valdebernardo* and *Ensanche del Este*. They were termed New Extensions/ *Nuevos Ensanches* by Ramón López de Lucio¹², in reference to the 19th century developments nationwide. The 'New Extensions' recover the classical city (or more precisely the perimeter block), as a response to the criticism of the modernist urbanism of previous decades (Figure 1). The modernist period had seen the over-scaling of public spaces, which had led to a loss of urbanity and a perceived decline in the quality of the urban form. Ever since, the perimeter block seems to be the paradigm; the elemental tool with which to create the city. However, in the PAUs the perimeter block and wider urban form were adjusted to lower population densities leading to their being criticised for failings similar to those of their modernist predecessors.

[FIGURE 1 NEAR HERE]

There are several studies of the six PAUs that were planned at the beginning of the 1990s. Most focused on their morphological aspects¹³ and the political conditions

¹² López De Lucio and Agustín Hernández-Aja, *Los Nuevos Ensanches de Madrid*.

¹³ See: Herraiz Rodriguez, *Ensanche de Vallecas*; Juan C. García Palomares and Javier Gutiérrez Puebla, "La ciudad dispersa: cambios recientes en los espacios residenciales de la Comunidad de Madrid," *Anales de Geografía de La Universidad Complutense* 27 (2007); A. Miret García, "Criterios para cualificar y valorar los nuevos espacios públicos de la periferia metropolitana desde la perspectiva de la diversidad a través del estudio de caso de los paus de madrid. Ciudad, Territorio Y Paisaje: Reflexiones," *Para Un Debate Multidisciplinar* (2010); Ramón López De Lucio, "Morfología y características de las nuevas periferias," *Nueve Paisajes Residenciales en La. Región Urbana de Madrid, Urban (Universidad Politécnica de Madrid, 2011)*. A very extensive investigation of the

that allowed these structures to emerge¹⁴. Some also pay attention to the architectural parameters, alongside the impact of social housing¹⁵, and related demographic trends in the region¹⁶. There is a common ground within this literature, PAUs are criticised in nearly every aspect and it is difficult to find positive remarks about them. Some positive assessment of aspects of the architecture exist, but these refer to the buildings and not the relation of the building to its environment. And even in these cases the positive judgement is justified by the high price that units achieve in the market¹⁷.

It is remarkable that only one of the studies¹⁸ went into a PAU to try to obtain the perception of their inhabitants. And even then only to seek views on the innovative architecture of social housing in the neighbourhood, *Ensanche de Vallecas*, as part of wider work on the social-political/economic implications of the new periphery in Madrid. This represents a gap in the literature that this research aimed to address, “[as arguably], greater understanding of the interconnection between household dynamics and urban structures is the key to exploring the very nature of modern cities”¹⁹.

morphological and functional attributes of Sanchinarro can be found in López de Lucio, *Vivienda Colectiva*.

¹⁴ See: Portela, “Los nuevos barrios de Madrid”; J. M. De la Riva Ámez, A. J. Palacios García, and J. Vinuesa Angulo, “Demanda De Vivienda, Crecimiento Residencial Y Segregación Socio-Espacial: El Caso De Los Paus Madrileños,” 11261 (2011); Brandis, “El estancamiento de los últimos desarrollos”; Brandis, “La periferia inacabada madrileña”.

¹⁵ See: López De Lucio, *Vivienda Colectiva*; Elena Vaquerizo Gómez, “La arquitectura de la «nueva periferia»: dinámicas socioculturales urbanas en el PAU de Vallecas,” *Revista de Dialectología y Tradiciones Populares* 70 (2015).

¹⁶ See: Palomares and Gutiérrez Puebla, “La ciudad dispersa”; Miret García, “Criterios para cualificar”; R. Calvo, E. García, P. Molina, and N. Rieznik, *La Explosión Urbana de la Conurbación Madrileña* (2007).

¹⁷ López De Lucio, *Vivienda Colectiva*, 249.

¹⁸ Vaquerizo Gómez, “La arquitectura”.

¹⁹ Helen Jarvis, Andy C. Pratt, and Peter C. C. Wu, *Secret Life of Cities: the Social Reproduction of Everyday Life* (London: Pearson Education, 2001), 74.

The rest of the article is structured as follows; first, we discuss the role of design perimeters. Here we look both at the experience of and responses to modernism. Through this we highlight the distinction between the architecture of the buildings and the design of the neighbourhood. We also consider different means to achieve the urban form characterised as a difference between planning and urbanismo. From this basis we argue the case for design principles, but cognisant of their limitations. One way of addressing these limitations is, we argue, to have the residents' voice inform future criteria. To develop the argument we next turn to the case study of Sanchinarro which we assess by bringing together Lynch's principles and the voice of residents. We conclude that the absence of the voice of everyday experience is a lacuna of technical evaluations of urban design as here its inclusion reveals both agreement with, and alternative views to extant professional assessments.

Assessing design, from modernism to PAUs

In focusing on the urban design of modernist estates, Monclús and Díez Medina²⁰ identify a common tendency for these schemes to have become ever-more extensive in scale generating unforeseen challenges which many failed to meet. This is significant as while the PAUs have seen a move from the architecture of Gropius and Corbusier their execution represents more a continuity, having been planned at scale, with their design/planning reflecting similar treatments, providing oversized open space and illegible neighbourhoods. This highlights a distinction between the architecture of the blocks and the urban design/planning of the neighbourhood. A related but different distinction is developed by Hebbert²¹ who traces historical variations in the processes of

²⁰ Javier Monclús and Carmen Díez Medina, "Modernist Housing Estates in European Cities of the Western and Eastern Blocs," *Planning Perspectives* 31 (2016).

²¹ Michael Hebbert, "Town Planning Versus Urbanismo," *Planning Perspectives* 21 (2006).

developing the city, expressed as a difference between the traditions of town planning and *urbanismo*. In practice this is not a distinction between having and not having written plans but of differing emphasis within the planning processes including where roles and responsibilities are seen as either more, or less distinct (reflecting planning and urbanism/*urbanismo* respectively). Distinctions between architecture and urban design and town planning and *urbanismo* inform but do not answer the question of how we should seek to refine a systematic approach to city making.

Even as modernist planning and its associated architecture laid waste to swathes of the traditional city it was subject to criticism - and not just in Europe. Modernist views of the city from Moses' express ways to Corbusian inspired blocks 'standing on grass' were increasingly opposed with an earlier historical period providing a template for the future. Emerging from this critique was a focus on the beneficial role of the traditional street and density where the two were at times related to one another. For example, blocks 'standing on grass' were criticised both for being less dense than street based options and also for removing the positive social aspect of the street, in other words they had sacrificed the benefits of streets without producing any discernible benefit in terms of density. This criticism has common ground with New Urbanism, which focused on the undervaluing of the 'traditional' city form represented by very low density suburbanization in North America. While responding to a very different architecture and urban design than the critics of modernism, New Urbanism also foregrounds the prioritisation of street and density. Since the 1980s²² it has represented

²² See: Emily Talen and Cliff Ellis, "Beyond Relativism," *Journal of Planning Education & Research* 22 (2002); J. Jacobs, *Death & Life of Great American Cities* (Vintage Books, 1961); Kevin Lynch, *Image of the City* (Cambridge: The MIT Press, 1960); Kevin Lynch, *Good City Form* (Cambridge: The MIT Press, 1981); Allan Jacobs and Donald Appleyard, "Toward an Urban Design Manifesto," *Journal of the American Planning Association* 53 (1987): 112–20; Jan Gehl, *Life*

a significant attempt to set a normative theory for urban design²³. There have been some recognised voices that have tried to develop a system able to comprehend the complexity of urban structures and make them work, “[s]ince this process was formalized at the beginning of the 20th century as urban design”²⁴. However, in responding to existing conditions²⁵ it might itself go too far in prescribing certain design principles. As Ellis cautions us, “[m]any of the worst urban landscapes of the twentieth century were carefully planned. So, the process must be permeated by a pattern language that actually produces high-quality places”²⁶.

Urban design has been criticised for focusing too much on the final product and not enough on the process that leads to it. The urban design process is all too often separated from the use and management phases that come after the design. Countering this approach Tonkiss argues, “[c]ity-making is a social process”²⁷ which requires all sorts of social agents to be involved besides architects, planners and engineers; a theme also developed by Carmona²⁸. It is a social act that implies the interaction of different

Between Buildings: Using Public Space (Chicago: Island Press, 2011); Alexander R. Cuthbert, “Urban Design: Requiem for an Era - Review and Critique of the Last 50 Years,” *Urban Design International* 12 (2007); Reza Banai and Melanie A. Rapino, “Urban Theory Since A Theory of Good City Form (1981) – a Progress Review,” *Journal of Urbanism: International Research on Placemaking & Urban Sustainability* 2 (2009).

²² For a deeper review see Jacobs and Appleyard, “Toward an Urban Design Manifesto”; Cuthbert, “Urban Design”; Banai and Rapino, “Urban Theory”.

²³ For an extended assessment see Michael Southworth, “New Urbanism and the American Metropolis,” *Built Environment* 29 (2003).

²⁴ Cuthbert, “Urban Design,” 177.

²⁵ Jacobs and Appleyard, “Toward an Urban Design Manifesto”.

²⁶ Cliff Ellis, “Process and Principles in Urban Design,” *Journal of Urban Design* 19 (2014), 47.

²⁷ Fran Tonkiss, *Cities by Design: the Social Life of Urban Form* (Cambridge: Polity Press, 2013) 1.

²⁸ Carmona, “The Place-Shaping Continuum”.

members of society to which Montgomery²⁹ argues for a further dimension; the process needs to be stretched through periods of time to achieve successful results. While a holistic, 'social' approach may be desirable this does not rule out the validity of a set of *a priori* design principles that, depending on the context, would provide better quality places or, at least, contribute to a framework under which suitable results can be achieved. Steiner advocates for design as an instrument to make urban policies work, "design can provide a valuable link between policy and implementation"³⁰. Therefore, while city making is better regarded as a multidisciplinary and holistic social process it includes planning and design professionals and their contribution to city making may benefit from developing appropriate codes or criteria. This responds to the earlier concerns of Talen and Ellis who describe a discipline which is indecisive in defining a theory of good city form, or which doubts whether this is even necessary. Accordingly, they claim that good urban theory, informed and supported by 'Radical Center Theory', 'Urban Design Theory', and 'Future Development' should be included alongside mainstream planning theories such as 'Instrumental Rationality', 'Equity', 'Procedural' and 'Communicative'³¹ planning.

The danger remains that any chosen criteria may produce suboptimal results; that, in a systems sense, problematic input will produce problematic output. But the possibility of bad criteria does not mean we should have no theory or idea of what *might* produce better places. Rather, following Popper³², we must proceed through trial *and*

²⁹ John Montgomery, "Making a City: Urbanity, Vitality and Urban Design," *Journal of Urban Design* 3 (1998).

³⁰ Frederick Steiner, "Commentary: Planning and Design - Oil and Water or Bacon and Eggs?," *Journal of Planning Education & Research* 31 (2011) 215.

³¹ Talen and Ellis, "Beyond Relativism," 39.

³² Karl Popper, "The Open Society and Its Enemies," In *High Tide of Prophecy Hegel, Marx, & the Aftermath* vol. II (London: Routledge, 1945) 78.

error. Contra the more dogmatic aspects of New Urbanism (or CIAM before), we should proceed sensitive to the possibility of fallibility and, consequently, with a preparedness to test and refine any given criteria. One contribution to achieving this is to find out how places are experienced in practice, over time. Notwithstanding the distinction between the architecture of buildings and the design/planning of the neighbourhood, both will, of course, come together through the experience of residents. We seek to illustrate the insights this can produce through a case study to which we now turn.

Research design

The purpose of the research was to find out how residents in the PAUs perceive their environment and how their level of satisfaction and acceptance relates to the urban design qualities of the built environment where they live, in order to draw conclusions about the extent to which the PAU design matches the population's needs and demands. Sanchinarro was selected for being arguably the most representative of the PAUs. It is the largest of a group of four at the north end of the city and since the beginning, it has included some representative/landmark buildings that serve as a territorial marker and destination – i.e. building *Mirador* and the commercial centre *Hipercor* respectively. It is also the furthest developed of the northern four with a total of 98.76% of homes having obtained building permits as of May 2015³³. Therefore, the findings are likely to be more transferable to other PAUs and especially to the three others located at the north of the city (Figure 2).

³³ “Ayuntamiento de Madrid.” *Seguimiento de la gestión en los nuevos desarrollos urbanos*. [Situación a 31 de mayo de 2015.”] (Area de Gobierno de Urbanismo y de Vivienda, 2015).

[FIGURE 2 NEAR HERE]

Semi-structured interviews were carried out with twenty-two residents of Sanchinarro, contacted through; the residents association³⁴, public facilities, small businesses, and encounters in public spaces. The aim was to obtain a wide range of ages (adult) and backgrounds. Interview data were first coded to produce a list of basic themes that were organized into two overarching themes, “[to act as] clusters of signification that summarize the principal assumptions of a group of Basic Themes, so they are more abstract and more revealing of what is going on in the texts”³⁵. A hybrid approach was utilised as the themes arose not only in an inductive way – i.e. data-driven – but also some came from the research questions and the theoretical framework. Direct quotes from the interviews have been translated where they are employed to illustrate the topic³⁶. Limitations of this method include the objectivity of respondents that could be skewed. Interviewees have valuable information, however, as they are part of the neighbourhood they are describing they might try to protect it in their answers. Interviews are not, therefore, a transparent reflection of an interviewee’s thoughts as they might take a role that is not neutral. Employing an analytical framework to temper the subjectivity of both interview questions and answers mitigated these limitations. A survey might have captured a wider range of residents but would have offered less detail. Therefore although the sample size is modest it allowed for use of the preferred

³⁴ AVS: Asociación de Vecinos de Sanchinarro.

³⁵ Jennifer Attride-Stirling, “Thematic Networks: an Analytic Tool for Qualitative Research,” *Qualitative Research* 1 (2001) 389.

³⁶ Bogusia Temple and Alys Young, “Qualitative Research and Translation Dilemmas,” *Qualitative Research* 4 (2004).

method. The claim for the research is, therefore, as an exploratory piece seeking to develop a case for more extensive research where resources permit.

The design criteria were informed by Kevin Lynch's seminal book *Good City Form*³⁷ that includes 'A theory of Good Urban Form'. Here he defined five 'performance dimensions' which are "as general as possible" to be useful in any culture and which "refer primarily to the spatial form of the city"³⁸. These dimensions are vitality, sense, fit, access, and control, and they are controlled by two 'meta-criteria', efficiency and justice, which "are involved in each one of the basic dimensions"³⁹. Accordingly, the interview questions were divided into five groups and designed to match Lynch's five performance dimensions. We have drawn on Lynch's criteria of good place making not because they are definitive but because they were designed to be adaptable over space and are established.

Additionally, informal interviews were conducted with two UPM (*Universidad Politécnica de Madrid*) professors in urban planning, and the director of PG97 (The 1997 Madrid Plan) between 1992 and 1995, to obtain a better understanding of the origin of PAUs. Secondary data concerning the physical parameters of the area were extracted from official publications and previous research works.

Thematic analysis

We start with a general overview of the urban form of Sanchinarro where the new suburban perimeter blocks produce a different urban form from their city predecessors – which informs much of the criticism levelled against them. After this we turn to the thematic analysis where we include the voice of residents.

³⁷ Lynch, *Good City Form*.

³⁸ *Ibid.*, 112.

³⁹ *Ibid.*, 119.

Introducing Sanchinarro

These parameters for the PAUs were defined by planning instruments, working together with PG97 to set the provision of land and its conditions. These common guidelines and the scale mark a clear illustration of the ambitions of the council to design ‘the city of tomorrow’. Because every site was defined with just one plan, proper phasing was not considered as it would be under current practice. There was not any margin for adaptation to future trends as they were designed as was understood to be appropriate at the time. Furthermore, all 7,000 hectares – i.e. being the addition of six PAUs and all other areas planned in PG97, were designed at once (see Figure 2).

The housing density of the latest plans for Sanchinarro ranges from 20 to 44.5 u/Ha, notably lower than 89.3 u/Ha in Madrid-Sur and 49.8 u/Ha in Valdebernardo⁴⁰ (which came before Sanchinarro). Furthermore, while the area of green space is 17% of total land use or 20 m² per housing unit in Madrid-Sur, it is 31% in Sanchinarro, or 92 m² per housing unit⁴¹. The size of the city blocks has also increased, from 0.5 Ha in Valdebernardo to 1.25-1.5 Ha in Sanchinarro, which allows the buildings to find the space to step back from the street plot line changing the natural interface between public and private property of the classical city. Likewise, the private space in these blocks grew from 0.25 Ha in Valdebernardo up to 0.5-1 Ha in Sanchinarro⁴² (Figure 3).

[FIGURE 3 NEAR HERE]

⁴⁰ López De Lucio et al. *Madrid, 1900-2010: Guía de Urbanismo y Diseño Urbano* (Madrid: Área de Gobierno de Desarrollo Urbano Sostenible del Ayuntamiento de Madrid, Departamento de Difusión y Cooperación Institucional, 2016), 304, 320.

⁴¹ López De Lucio, *Vivienda Colectiva*, 247.

⁴² *Ibid.*, 249.

With the recognition of the perimeter block as the unit from which to start constructing the city's new suburbs, the reduction in densities (the 'suburbanization' of the perimeter block), was helped by the presence of shopping centres that attracted the retail away from the perimeter blocks. With regard to the relation between density and people's behaviour, it is normally assumed that lower values; create commuter towns⁴³, lead to the absence of a community identity⁴⁴, and reduces the number of pedestrian trips⁴⁵. However, these beliefs are not always supported by research. Pozueta and Lamiquiz⁴⁶ in their walkable city study concluded that a lower density correlates with a lower rate of pedestrian trips. Nevertheless, they took Sanchinarro as one of the case studies, and found that it performed similarly to, and sometimes better than, the traditional city block typology, and much better than more suburban neighbourhoods. They found that some of the more influential contributors to pedestrian trips included the width of the sidewalk and the presence of trees, and thus shade. These points are revisited as we turn next to the voice of residents and our thematic analysis of Sanchinarro.

Findings

After a comprehensive thematic analysis of the information extracted from the interviews, two organizing themes, quality of life and public life, were identified and employed to organise all the other sub-themes frequently raised in the conversations

⁴³ Portela, "Los nuevos barrios de Madrid."

⁴⁴ De la Riva Ámez, Palacios García, and Vinuesa Angulo, "Demanda De Vivienda," 10.

⁴⁵ Mirret García, "Criterios para cualificar," 224.

⁴⁶ J. Pozueta and F. Lamiquiz, "Modelos urbanos orientados a los modos no motorizados: la ciudad paseable," Unpublished manuscript (Departamento de Urbanismo y Ordenación del Territorio, Universidad Politécnica de Madrid, 2007) VI.18

(Figure 4).

[FIGURE 4 NEAR HERE]

Quality of life

In urban economics, quality of life (QoL) is often defined as the aggregate of amenities and possible dis-amenities of a given territory. To determine its value, both natural and urban (dis)amenities matter⁴⁷. Together with wage and transport costs, it is also part of the function⁴⁸ that defines the utility of an urban area, which will be a key factor influencing the size of the city (under market conditions). In the case of Sanchinarro and its inhabitants, aspects commonly mentioned in relation to the quality of life of the neighbourhood (positive or negatively), were; its pleasantness, the air quality, the private common space in the enclosed communities, and public transport - although they were only part of the reason to move to this particular area.

Why Sanchinarro?

A way to deduce the attractions of an urban area is to find out the reasons why people decided to move there⁴⁹. Location plays a crucial role, and although not being such a central location, it is the road accessibility that is remarked in the interviews. When ask

⁴⁷ David Albouy, Are Big Cities Bad Places to Live? Estimating Quality of Life across Metropolitan Areas (working paper, NBER Working Paper No. 14472, 2008).

⁴⁸ $U = f(\text{QoL}, w, t)$

⁴⁹ See for example Ignacia Torres, Margarita Greene, J., and de D., "Valuation of Housing and Neighbourhood Attributes for City Centre Location : A Case Study in Santiago," *Habitat International* 39 (2013).

about the incentives to move to the area, half of the participants remarked on the proximity to their work location. In fact, during recent years multiple companies have established their offices along important motorways nearby Sanchinarro – i.e. A1, M11, M30, M40. It is an area with a high density of roads, near the airport and the trade-fair site, which makes it a desirable place for enterprises to locate. Challenging the criticism of insularity, López de Lucio⁵⁰ describes these developments, and especially Sanchinarro, as enjoying high accessibility with major roads nearby, together with proximity to employment locations, creating conditions that are attractive to people when assessing residential areas.

In general, there were not strong motivations for people to choose Sanchinarro over other neighbourhoods also with good access to the road network. The choice was often a combination of factors with the opportunity to purchase new-build housing and the services/activities this provides being important. A third of the interviewees confirmed this with, for instance, activities like dancing or Pilates, given within the block, being a great help in meeting and interacting with new people⁵¹. Being part of this type of community facilitated relations with neighbours especially coming from a different region. Furthermore, given the demographic characteristics of the residents in Sanchinarro, the enclosed perimeter blocks reportedly offer significant advantages for young families compared to other sectors of the city. Miret⁵² shows that in 2009 the average age of residents across all PAUs was thirty years, whereas in the city as a whole it is forty-two. Moreover, 40% of the population is between twenty-five and thirty-nine, and 20% is younger than nine. This reflects a demographic profile where young families are strongly represented. Accordingly, participants find it very convenient to have their

⁵⁰ López De Lucio, *Vivienda Colectiva*, 250.

⁵¹ Blanca, personal communication, July 9, 2016

⁵² Miret García, “Criterios para cualificar,” 227.

children playing in the courtyard of their buildings with neighbour's children, safe from traffic. The attribute of having a swimming pool and a private common space, enclosed within one block, or shared by a few buildings is certainly a quality that people seek, especially families with young children and is something very expensive to find in the centre. That is why, being still in a relatively central location some families moved to the area attracted by these aspects.

The third most common incentive to move to Sanchinarro, also reflects how mundane these decisions can be. A third of the interviewees decided to move to the neighbourhood after coming across a good purchasing opportunity. Normally linked to public housing, applicants were offered a dwelling in one of the new developments without having to choose the area and assigned by a points system. Also, capped price housing (VPT) played a role as did cooperative housing. These provided a means to find a home at a lower price than in the standard market in a context of the real estate boom; with prices increasing constantly homes were seen as an investment but affordability was an issue. In most of these cases, the decision had nothing to do with the urban design qualities of the area. Only one of the participants mentioned how the neighbourhood was sold via a marketing video in which the green spaces were dominant and conferred a strong character to the development. However, it seems clear that this sort of decision involves other parameters such as location within the metropolitan area and quality of the residential units rather than the characteristics of the built environment.

Pleasant

The importance attached to pleasantness was notable, with 90% of the interviewees describing the area as a pleasant place to live although it was not directly referenced in the interview questions. People have a strong appreciation of certain parameters of the

built environment, such as the dimensions of the public space which is contrary to the academic criticism of the PAUs. The width of the sidewalk and the distance between buildings produce a feeling of spaciousness that has become a reference for the residents. Interestingly enough, one of the respondents provided a comparison with a neighbourhood designed in the 1980s, *Ensanche del Este*, from his point of view, “They designed broad streets, but they are small compared to these. When I go there I feel too enclosed. You get used to spaciousness. Personally, I am used to it and I like it”⁵³. Furthermore, some participants argued this should always be done with common references to the openness to the sky and the comfort derived from the openness of the streets, for example,

“I think they [the streets] are good, it is a delight. Given the population density, the height of the buildings, and the width of the streets it is a delight because you have air, you have light, you see the sky, at night you see the moon. There is a lot of contact with your surroundings and we are grateful for that”⁵⁴.

Air quality

Another factor that contributes to the residents’ positive perception of the area, is air quality. More than half of the participants observed that Sanchinarro enjoyed better air quality than the centre of the city. While this perception may be driven by the openness of the built environment, in this case popular perception is not backed by the evidence. The municipality, under pressure from the European Commission to comply with the Union’s standards, has reinforced control systems with a new protocol since March 2015⁵⁵. Accordingly, the traffic was restricted in November and December of that year,

⁵³ Javier, pilot, personal communication, July 9, 2016.

⁵⁴ Asela, architect, personal communication, July 4, 2016.

⁵⁵ “Ayuntamiento de Madrid,” 2015, *Memoria 2015 Calidad del Aire. Area de Gobierno de Medio Ambiente y Movilidad, Subdirección General de Sostenibilidad*.

after the maximum levels of NO₂ were exceeded. The associated monitoring system has twenty-four control stations, one of them at the intersection of two streets in Sanchinarro; *Princesa Éboli* and *María Tudor*, a central location albeit next to a green area.

An annual report⁵⁶ shows the data gathered during the year, which allows us to compare the air quality around the intersection to that in the centre of the city. In the last three years Sanchinarro scores low in the maximum pollution registered for SO₂. However, the average is within the highest grades and above very centrally located stations like *Plaza de España* or *Plaza del Carmen*. This is probably the result of Sanchinarro being surrounded by national motorways that keep a very constant flow of cars alongside the ‘internal’ traffic which is not insignificant (although not so evident given the dimensions of the infrastructure). For NO₂, Sanchinarro has the third highest number of days above the maximum permitted⁵⁷.

Public transport

Since the 1980s, incentivising the use of public transport has become a conventional policy for an increasing number of cities. While Madrid has followed this approach, in practice this is not clearly the case for Sanchinarro. There has been a substantial increase in development throughout the region in recent decades⁵⁸ and this has been accompanied by road and metro extensions. However, less than half of the participants reported using public transport regularly, with a majority of the remaining group not having used it at all. One of the few participants using public transport on a daily basis,

⁵⁶ Ibid., 10.

⁵⁷ The highest is another PAU, *Ensanche de Vallecas* – see “Ayuntamiento de Madrid,” 25.

⁵⁸ See: Eduardo de Santiago Rodríguez, “Madrid ‘ciudad única’ (II). La explosión urbana en la región madrileña y sus efectos colaterales,” *Urban Universidad Politécnica de Madrid* 13 (2008); Calvo et al., *La Explosión Urbana*.

noted that there is an unbalanced situation in the area. There are substantial differences in public transport accessibility levels that seem to be derived from the distance to the train station *Fuente de la Mora*. The light rail⁵⁹ does not fulfil people's expectations and colloquially it is called the 'slow rail' or the 'turtle rail', it is too slow for people to find it convenient and only connects with *Pinar de Chamartín* station where one must change to the main metro in order to go to the city centre. People tend to avoid light rail and they even use their private car to reach *Pinar de Chamartín*.

Likewise, bus lines only connect to the northern transport hub *Plaza de Castilla*, terminating there. There is a need for continuity as changing modes increases commuting times; illustrated by the problems one interviewee described, "It takes one hour to get anywhere"⁶⁰. In the end, it seems only the train provides a desirable connection to the centre and the rest of the city, yet the train station is located outside the boundaries of Sanchinarro and next to an older part of consolidated urban area, *Virgen del Cortijo*, at the edge of M40 ring road. This means that only residents in the immediate area can reach it easily, given the large dimensions of the neighbourhood it leaves many residents without convenient access.

Public life

This second organizing theme includes aspects concerning the public space in relation to the residents. The thematic analysis of the interviews uncovered recurrent themes like identity, orientation, safety and public space design, which therefore form part of this category.

⁵⁹ Metros Ligeros de Madrid, www.melimadrid.es

⁶⁰ Ana, student, personal communication, June 30, 2016.

Identity

When asked about the identity⁶¹ of Sanchinarro, an overwhelming majority stated that the neighbourhood has no such thing, though this did not seem to be an issue for respondents. Only three of the respondents provided a positive response, “the area is like a small town which has everything”⁶² and, “what makes Sanchinarro distinguishable is the people who inhabit it, as a representation of the middle class and professionals that live in Madrid”⁶³. In the same spirit, one interviewee noted that what makes Sanchinarro different is the amount of young families that reside in the area. The last two quotes bring to the fore the importance of the people who occupy any given urban area, which is reinforced by the theoretical framework informing this paper, “[w]e know the quality of a place is due to the joint effect of the place and the society which occupies it”⁶⁴. Indeed, it has also been argued that material factors are secondary to social aspects in relation to residential satisfaction,

“A case in point is a study aimed at deriving the predictors of residential satisfaction in public housing of the city of Madrid (a study conducted by Amerigo et al. [sic]). The results show that psycho-social aspects such as relationships with neighbors and the degree of attachment to the residential environment are stronger predictors than physical features such as infrastructure and equipment of the house and neighbourhood”⁶⁵.

⁶¹ Lynch describes identity as follows: ‘[a] workable image requires first the identification of an object which implies its distinction from other things, its recognition as a separable entity. This is called identity, not in the sense of equality with something else, but with the meaning of individuality or oneness.’ Lynch, *Image of the City*, 8.

⁶² Laura, chemist, personal communication, June 29, 2016.

⁶³ Jesús, professional, personal communication, July 14, 2016.

⁶⁴ Lynch, *Good City Form*, 111.

⁶⁵ C. C. M. Adriaanse, “Measuring Residential Satisfaction: a Residential Environmental Satisfaction Scale (RESS),” *Journal of Housing & the Built Environment* 22 (2007): 291, Maria Américo and

This might be the reason why even though there are several problems with the physical dimension of the area, some residents still have a positive appreciation of their environment. And in this sense, the enclosed communities and the cultural centre seem to play a role in enhancing social relations, arguably the main factor for the success of residential areas.

With regard to the elements of the built environment that make Sanchinarro different from the surroundings, two controversial buildings stand out from the homogeneity of bricks and useless bow-windows but their potential to contribute to the urban environment is not fully realised. The first of these, the residential building *Mirador* (Figure 5), designed by the architects MVRDV and Blanca Lleó, has been criticised by neighbours and experts. People reject this high-rise and they are aware of its construction and maintenance problems, which stigmatise the building. In the case of another PAU, *Ensanche de Vallecas*, Vaquerizo has argued how innovative architecture, coming from a top-down governance, creates indifference and rejection⁶⁶. The building lacks urban sensibility, it tries to be a landmark, freeing space in the ground floor⁶⁷, without providing functions in the building to support any sort of public activity⁶⁸. The second, and commonly mentioned, is the department store *Hipercor*. This building also fails to create a representative public space around itself, missing the opportunity to connect with the rest of the area but still providing a high-quality environment⁶⁹. This approach is part of a more general model of expansion that the city of Madrid has carried out in recent decades. New land is made accessible and serviced by big

Juan Ignacio Aragonés, "Residential Satisfaction in Council Housing," *Journal of Environmental Psychology* 10 (1990).

⁶⁶ "Ayuntamiento de Madrid," 522.

⁶⁷ Open 'public' space which was recently fenced off to separate public from private land.

⁶⁸ López De Lucio, *Vivienda Colectiva*.

⁶⁹ *Ibid.*

infrastructure projects, it is then developed with a residential scheme accompanied by a big commercial centre, which often militates against small commercial space in the vicinity of the residential units⁷⁰. Still, these two structures function as a distinguishing element of the neighbourhood.

[FIGURE 5 NEAR HERE]

Orientation

It is precisely these two buildings, *Mirador* and *Hipercor*, which act as landmarks within the area. Orientation is not only a matter of knowing how to reach a specific address, it is about knowing where you are in relation to the context, named by Lynch as ‘structure’, “a form of sense”⁷¹ (Figure 6). Given the topography and the way the PAU is shaped, these marks are not always visible and secondary ones emerge. People utilise the cultural centre and certain local businesses as reference points, such as pharmacies and banks that have been present since the area was inhabited. Nevertheless, as the commercial spots are highly concentrated in a few areas – i.e. the street *Príncipe Carlos* – the reference points are reduced to these specific streets. And this implies that the vast majority of the borough is lacking orientation points. This was reflected to a certain extent among the interviewees, with half of them arguing orientation is an issue. This number could be expected to be higher, given the extreme homogeneity of both architecture and public space. However, as most of the participants had been living in

⁷⁰ see: Palomares and Gutiérrez Puebla, “La ciudad dispersa”; Miret García, “Criterios para cualificar”.

⁷¹ Lynch, *Good City Form*, 134.

Sanchinarro for over eight years, orientation has become less of a problem for them.

[FIGURE 6 NEAR HERE]

Safety

Although this theme appeared in a deductive manner being part of the interview questions, there are important aspects that emerged inductively. Interviewees agreed they had a feeling of safety in the area and only two of them showed doubts in this regard. However, several of them mentioned the twenty-four-hour private security they keep in their blocks as part of this sense of safety. It was the first communities to arrive that felt it necessary to hire protection services due to the isolation of the buildings and the absence of a police station. There remains no police station, probably due to the inability of the municipality to afford all the investments planned in much of the reserved land set aside for public purposes. Once the first communities had engaged private security, subsequent ones felt they had no alternative other than to do the same in order not to be in a disadvantageous position. The result is that almost the whole development counts on private services as a means of protection, resulting in the privatization of security in the area paid for directly by the residents.

Besides allusions to vandalism or low level crime, the main concern reflects the social division that some respondents observed in Sanchinarro. The re-allocation of disadvantaged social groups together with the accumulation of social housing and a fragmented urban fabric (i.e. the spatial division created by the conjunction of semi-open spaces such as the *Adolfo Suárez* school, the park along the streets *Príncipe Carlos* and *Conde de Mayalde*, plus the presence of several vacant plots), create a sort of ghetto

at the east end of the neighbourhood (Figure 7). This is evidenced by some interviewees stating they avoid going to certain areas or walking in some streets, but also by the refusal of some food delivery companies to take orders to this part of the development, as an interviewee described,

“I know this because I worked for Telepizza. This was the street where no one wanted to go because they were being robbed. In fact, they stopped delivering to that street because there had been many problems.”⁷²

[FIGURE 7 NEAR HERE]

Public space design

As discussed, the green area ratio is far larger in Sanchinarro than in previous developments. Yet, this is not perceived by residents who were surprised to learn of this. The most recurrent complaints about the design of public space were the lack of shade and the absence of maintenance of green areas (Figure 8). Although, in principle, only the former can be attributed to faulty design, the latter could also be the result of poor planning decisions. It could be argued that the deficient upkeep of the landscape was rooted in planning having defined too many green areas for the city to maintain at a decent level, even though the direct reason is the economic turndown. Regarding the lack of shade, trees were not planned on secondary streets to cast shade on pedestrians, despite this being very common in the rest of Madrid, and arguably necessary given the climate. A further limitation was the usefulness of the parks that have been provided

⁷² Javier, music student, personal communication, June 29, 2016.

where design parameters have been influenced by planning decisions. The location of the PAUs is linked to their being surrounded by motorways. This has resulted in linear parks planned between the city and these roads. This results in parks of odd geometries, often of large extent but not perceived to be so, and which are not as useful as they would be otherwise. For instance, “the only useful park is Felipe VI, in Valdebebas”⁷³, an adjacent development.

[FIGURE 8 NEAR HERE]

Furthermore, the perception of green areas is often confused by the presence of so many vacant plots which are the result of overoptimistic planning. Most of them belong to the city to provide public facilities that the city now cannot afford, depriving people of a market and sport facilities that were initially planned (Figure 9). They now damage the image of the neighbourhood by undermining the continuity of the urban fabric.

[FIGURE 9 NEAR HERE]

There were also references to modernity, this type of urbanism seems to be perceived as a sign of modernity, although it is not. It has been decades since strong propositions for compactness and certain densities arose as a response to suburbanization. Even from official establishments this direction has been encouraged,

⁷³ Javier, architect personal communication, July 14, 2016.

“The European Commission (Commission of the European Communities 1990) has promoted the 'compact city' on environmental and quality-of-life grounds”⁷⁴. This shows that exactly at the same time the PAUs were being shaped, there was a trend in the western world towards a lower consumption of land that has materialised into policies in the European Commission. This apparently did not reach certain spheres of the Spanish administration, “the belief at the time was [in] a low floor area ratio”⁷⁵. Although the purpose of this paper is not to discuss the compact city⁷⁶, the contradictions in planning between Spain and comparable countries in the 1990s is surprising. Part of the contradiction is the specialization of transportation. The strong emphasis on the road network and its generous dimensions seems characteristic of a comprehensive planning from the mid-twentieth century when the introduction of the automobile transformed the shape of cities and is far from modern sensibilities. However, as noted it is not an inconvenience for the respondents and indeed, it seems to match their lifestyle.

Conclusion

The objective of the research was to analyse the contribution of the everyday experience

⁷⁴ Michael Breheny, “The Compact City and Transport Energy Consumption,” *Transactions of the Institute of British Geographers* 20 (1995), 81.

⁷⁵ Luis Rodríguez-Avial, personal communication, July 4, 2016

⁷⁶ For an overview of the debate on the compact see: Nancy Holman, Alan Mace, Antoine Paccoud, and Jayaraj Sundaresan, “Coordinating Density; Working through Conviction, Suspicion and Pragmatism,” *Progress in Planning* 101 (2015); Michael Neuman, “The Compact City Fallacy,” *Journal of Planning Education & Research* 25 (2005); Elizabeth Burton, “The Compact City: Just or Just Compact? A Preliminary Analysis,” *Urban Studies* 37 (2000); Yosef R. Jabareen, “Sustainable Urban Forms,” *Journal of Planning Education & Research* 26 (2006); Breheny, “The Compact City”; Marcial H. Echenique, Anthony J. Hargreaves, Gordon Mitchell, and Anil Namdeo, “Growing Cities Sustainably?” *Journal of the American Planning Association* 78 (2012).

of residents to design criteria as applied to Madrid's PAUs – now ten years old. This tells us both about the experience of living in one of the PAUs, but our core purpose has been to look at the role of the residents' voice as feedback into design criteria. We start with some general points about the PAUs before turning to conclusions specific to this study. At the outset we distinguished between a systematic approach to bringing together design criteria and the residents' experience of place, and a systemic study of the PAUs. Insofar as the shortcomings of the PAUs are rooted in design criteria these are partly informed by systemic, including historical, circumstance which we have referenced but not led on. This also includes a shortage of designers available to the administration at that time which led to poor commissioning practices. Moreover, the macro-economic picture is also important. These developments were conceived at the time of a real estate boom when optimism displaced any attempt at phasing development, and where public facilities and parks were largely oversupplied. Multiple plots were reserved in all PAUs for public facilities and a great number of them remain un-built. These two aspects result in fragmented and badly maintained areas, as the city cannot now afford to develop and/or upkeep the original planned level of public provision. A system-wide analysis would have to include the macro-economic picture as well as the way agents of governance utilise external advice and services in order to make relevant decisions in order to understand the significance of both. One immediate conclusion is that the scale of the all PAUs needs clear justification given the current decreasing demographic trends and the available housing stock.

Notwithstanding the importance of a systemic understanding of the PAUs, we provide an insight in to the contribution that design criteria might make to improved place making. There is a standard story of the inadequacies of the PAUs measured against established design criteria. Their low density, the focus on road infrastructure and private modes of transportation are contrary to contemporary received wisdom on

compact city development and will likely have damaging consequences in the long term. The existing literature, critical of the PAUs, stresses the lack of urban life and a design model that defines ‘streets’ that are eight lanes wide, roundabouts with a diameter greater than 170 metres, and sidewalks that are 20 metres broad. The street is not designed to be attractive and to create encounters other than through “necessary activities”, so hindering the emergence of “optional” and “resultant” activities⁷⁷ leading to them becoming then a mere system of traffic flows. A simple conclusion would be that we know what the correct design criteria are and in this case the problem was a failure to apply these. However, the work with residents both lends support to this conclusion, but importantly, also challenges it.

Given the PAUs are suburban extensions to the city, it is noteworthy that residents were unwilling to trade-off the PAU’s spaciousness in order to achieve other characteristics considered in the literature as factors for urbanity. Residents prefer airiness to a more compact city that could provide more local commerce, better protection to weather conditions, better maintained green areas, and even, to a certain extent, a higher passive safety in the street. They appreciated wide sidewalks, the relation with green areas and spaciousness in general. A sense of community was reportedly established and maintained through hybrid private-public spaces, the residents value communities with swimming pool and other services because it allows them to meet people and creates a safe environment for children. Moreover, residents also appreciated mobility and particularly the use of the private car in managing the demands of households to access various locations across the city. This reflects other studies of compact city development and suburbia where the complex lives of

⁷⁷ Gehl, *Life Between Buildings*, 13.

households often stand in contrast to received design wisdom on planning out the car⁷⁸. This is not to argue for surrendering to the car, but rather, is to make a case for sensitivity to household needs as we seek to decrease car use.

A key cause of dissatisfaction lies not with the original design criteria but rather the failure to deliver all the public services that were planned and to maintain fully those that have been delivered. These are failures of design insofar as the city authority failed to future proof the plans. However, this failure of management is discrete from the designs which, had finance been available to deliver and sustain them, residents would likely have been happy with. As the PAUs mature, further research is then needed to understand how much land should be kept for public facilities in order to satisfy the population's needs while having in mind the city's capability to undertake the required investment.

While the study has shown a very high degree of satisfaction with the area among the interviewees, it could also be claimed that meeting people's needs could be done in a different way and that we should not simply be led by people's expectations based on current norms. As the case of air pollution showed, public perceptions can simply be factually incorrect. Beyond this, customs and expectations can be shaped through social and political initiative and over time communities can adjust to the new conditions of twenty-first century compact city urbanism. While we don't deny this possibility, or that we should seek to challenge norms and expectations, there is always the danger of hubris. We may wish to reduce the dominance of the car in the city but we must also listen to the importance of mobility for residents. We may seek to promote community but we should not assume that this can only be achieved in public spaces. This study casts doubt on previous expert verdicts on the PAUs which have criticised

⁷⁸ Jarvis, Pratt, and Wu, *Secret Life of Cities*.

them in the absence of the residents' voice. However, we have argued this does not make the case for disregarding design criteria. Rather, as the academy and city governance seek to refine design criteria, sometimes seeking to reshape opinion in the process, this study shows the importance of this being a reflexive process that integrates residents' values and experience to ensure the city better meets the complex and diverse demands of everyday life.

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References

“Ayuntamiento de Madrid,” 2015. *Memoria 2015 Calidad del Aire. Area de Gobierno de Medio Ambiente y Movilidad, Subdirección General de Sostenibilidad.*

“Ayuntamiento de Madrid,” 2015. Seguimiento de la gestión en los nuevos desarrollos urbanos. [Situación a 31 de mayo de 2015.]. Area de Gobierno de Urbanismo y de Vivienda.

- Adriaanse, C. C. M. “Measuring Residential Satisfaction: a Residential Environmental Satisfaction Scale (RESS).” *Journal of Housing & the Built Environment*. National Bureau of Economic Research 22 (2007): 287–304.
- Albouy, David. “Are big cities bad places to live? Estimating quality of life across metropolitan areas” (working paper, NBER Working Paper No. 14472, 2008). DOI: 10.1007/s10901-007-9082-9.
- Alvarado, J. M. G. and M. Á. A. Moratilla. “Cambios municipales en la Comunidad de Madrid (1900-2003)/Municipal changes in the Comunidad de Madrid (1900-2003).” In *Anales de geografía de la Universidad Complutense*, vol. 25. (Madrid: Universidad Complutense de Madrid, 2005).
- Amérigo, Maria and Juan Ignacio Aragonés. “Residential Satisfaction in Council Housing.” *Journal of Environmental Psychology* 10 (1990): 313-25. DOI: 10.1016/S0272-4944(05)80031-3.
- Attride-Stirling, Jennifer. “Thematic Networks: an Analytic Tool for Qualitative Research.” *Qualitative Research* 1 (2001): 385–405. DOI: 10.1177/146879410100100307.
- Banai, Reza and Melanie A. Rapino. “Urban Theory Since A Theory of Good City Form (1981) – a Progress Review.” *Journal of Urbanism: International Research on Placemaking & Urban Sustainability* 2 (2009): 259–76. DOI: 10.1080/17549170903466095.
- Bataller, J. J., R. López de Lucio, D. Ribera, and T. Tejera, (2004). *Guía del urbanismo de Madrid: siglo XX. Gerencia Municipal de Urbanismo. Ayuntamiento de Madrid*.
- Brandis, Dolores. “El estancamiento de los últimos desarrollos urbanos de la periferia madrileña. crisis inmobiliaria y estrategias de ordenación. Las Ciudades Y El Sistema Urbano.” *Reflexiones en Tiempos de Crisis* (2012): 111–20.

- Brandis, D. (2014). *La periferia inacabada madrileña. el penúltimo capítulo de una historia interminable, (Figura 1)*, 1–12.
- Breheny, Michael. “The Compact City and Transport Energy Consumption.” *Transactions of the Institute of British Geographers* 20 (1995): 81-101. DOI: 10.2307/622726.
- Burton, Elizabeth. “The Compact City: Just or Just Compact? A Preliminary Analysis.” *Urban Studies* 37 (2000): 1969-2006. DOI: 10.1080/00420980050162184.
- Calvo, R., E. García, P. Molina, and N. Rieznik (2007). *La explosión urbana de la conurbación madrileña* (223–326).
- Carmona, Matthew. “The Place-Shaping Continuum: A Theory of Urban Design Process.” *Journal of Urban Design* 19 (2014): 2–36. DOI: 10.1800/13574809.2013.854695.
- Chueca Goitia, Fernando. *Breve Historia del Urbanismo*. (Madrid: Alianza Editorial, 1968).
- Cuthbert, Alexander R. “Urban Design: Requiem for an Era - Review and Critique of the Last 50 Years.” *Urban Design International* 12 (2007): 177–223. DOI: 10.1057/palgrave.udi.9000200.
- De la Riva Ámez, J. M., A. J. Palacios García, and J. Vinuesa Angulo. “Demanda De Vivienda, Crecimiento Residencial Y Segregación Socio-Espacial: El Caso De Los Paus Madrileños” 11261 (2011): 1–10.
- de Santiago Rodríguez, Eduardo. “Madrid ‘ciudad única’ (II). La explosión urbana en la región madrileña y sus efectos colaterales”. *Urban Universidad Politécnica de Madrid* 13, 2008: 138–64.
- Echenique, Marcial H., Anthony J. Hargreaves, Gordon Mitchell, and Anil Namdeo. “Growing Cities Sustainably?.” *Journal of the American Planning Association* 78 (2012): 121-37. DOI: 10.1080/01944363.2012.666731.

- Ellis, Cliff. "Process and Principles in Urban Design." *Journal of Urban Design* 19 (2014): 47–8. DOI: 10.1080/13574809.2014.854680.
- Fernández Portela, Julio. "Los nuevos barrios de Madrid: en busca de su identidad. Ciudad, Territorio Y Paisaje: Reflexiones." *Para Un Debate Multidisciplinar* (2010): 378–92.
- García Palomares, Juan C. and Javier Gutiérrez Puebla. "La ciudad dispersa: cambios recientes en los espacios residenciales de la Comunidad de Madrid." *Anales de Geografía de La Universidad Complutense* 27 (2007): 45–67.
- Gehl, Jan. *Life Between Buildings: Using Public Space*. (Chicago: Island Press, 2011).
- Hebbert, Michael. "Town Planning versus Urbanismo." *Planning Perspectives* 21 (2006): 233–51. DOI: 10.1080/02665430600731153.
- Herraez Rodriguez, Sigfrido. *El Ensanche de Vallecas: ¿un Ensanche Diferente?* (2003).
- Holman, Nancy, Alan Mace, Antoine Paccoud, and Jayaraj Sundaresan. "Coordinating Density; Working through Conviction, Suspicion and Pragmatism." *Progress in Planning* 101 (2015): 1–38. DOI: 10.1016/j.progress.2014.05.001.
- Jabareen, Yosef R. "Sustainable Urban Forms." *Journal of Planning Education & Research* 26 (2006): 38-52. DOI: 10.1177/0739456X05285119.
- Jacobs, Allan and Donald Appleyard. "Toward an Urban Design Manifesto." *Journal of the American Planning Association* 53 (1987): 112–20. DOI: 10.1080/01944368708976642.
- Jacobs, J. *The Death and Life of Great American Cities* (Vintage Books, 1961).
- Jarvis, Helen, Andy C. Pratt, and Peter C. C. Wu. *The Secret Life of Cities: the Social Reproduction of Everyday Life* (London: Pearson Education, 2001).

- López De Lucio, Ramón. “Morfología y características de las nuevas periferias.” *Nueve Paisajes Residenciales en La. Región Urbana de Madrid. Urban Universidad Politécnica de Madrid* 9 (2011): 56–80.
- López De Lucio, R. (2013). *Vivienda Colectiva, Espacio Público y Ciudad: Evolución y Crisis en el Diseño de Tejidos Residenciales, 1860-2010. Nobuko.*
- López De Lucio, Ramón and Agustín Hernández-Aja. *Los Nuevos Ensanches de Madrid La morfología residencial de la periferia reciente, 1985-1993* (Madrid: Ayuntamiento de Urbanismo, 1993)
- López de Lucio et al. *Madrid, 1900-2010: Guía de Urbanismo y Diseño Urbano* (Madrid: Área de Gobierno de Desarrollo Urbano Sostenible del Ayuntamiento de Madrid, Departamento de Difusión y Cooperación Institucional, 2016).
- Lynch, Kevin. *The Image of the City* (Cambridge: The MIT Press, 1960).
- Lynch, Kevin. *Good City Form* (Cambridge: The MIT Press, 1981).
- Miret García, A. “Criterios para cualificar y valorar los nuevos espacios públicos de la periferia metropolitana desde la perspectiva de la diversidad a través del estudio de caso de los paus de madrid. Ciudad, Territorio Y Paisaje: Reflexiones.” In *Para Un Debate Multidisciplinar* (2010) 221–33. 2010.
- Monclús, Javier and Carmen Díez Medina. “Modernist Housing Estates in European Cities of the Western and Eastern Blocs.” *Planning Perspectives* 31 (2016): 533-62. DOI: 10.1080/02665433.2015.1102642.
- Montgomery, John. “Making a City: Urbanity, Vitality and Urban Design.” *Journal of Urban Design* 3 (1998): 93–116. DOI: 10.1080/13574809808724418.
- Neuman, Michael. “The Compact City Fallacy.” *Journal of Planning Education & Research* 25 (2005): 11–26. DOI: 10.1177/0739456X04270466.
- Popper, Karl. “The Open Society and Its Enemies.” In *High Tide of Prophecy Hegel, Marx, & the Aftermath*, vol. II (London: Routledge, 1945).

- Pozueta, J. and F. Lamiquiz, 2007. “Modelos urbanos orientados a los modos no motorizados: la ciudad paseable”. Unpublished manuscript. Departamento de Urbanismo y Ordenación del Territorio, Universidad Politécnica de Madrid.
- Sambricio, Carlos. *Madrid, vivienda y urbanismo: 1900-1960*, vol. 28 (Madrid: Ediciones Akal, 2004).
- Southworth, Michael. “New Urbanism and the American Metropolis.” *Built Environment* 29 (2003): 210–26. DOI: 10.2148/benv.29.3.210.54281.
- Steiner, Frederick. “Commentary: Planning and Design - Oil and Water or Bacon and Eggs?.” *Journal of Planning Education & Research* 31 (2011): 213–6. DOI: 10.1177/0739456X11403596.
- Talen, Emily and Cliff Ellis. “Beyond Relativism.” *Journal of Planning Education & Research* 22 (2002): 36–49. DOI: 10.1177/0739456X0202200104.
- Temple, Bogusia and Alys Young. “Qualitative Research and Translation Dilemmas.” *Qualitative Research* 4 (2004): 161-78. DOI: 10.1177/1468794104044430.
- Tonkiss, Fran. *Cities by Design: the Social Life of Urban Form* (Cambridge: Polity Press, 2013).
- Torres, Ignacia, Margarita Greene, and J. de D. Ortúzar. “Valuation of Housing and Neighbourhood Attributes for City Centre Location : A Case Study in Santiago.” *Habitat International* 39 (2013): 62–74. DOI: 10.1016/j.habitatint.2012.10.007.
- Vaquerizo Gómez, Elena. “La arquitectura de la «nueva periferia»: dinámicas socioculturales urbanas en el PAU de Vallecas.” *Revista de Dialectología y Tradiciones Populares* 70 (2015): 503–26. DOI: 10.3989/rdtp.2015.02.010.



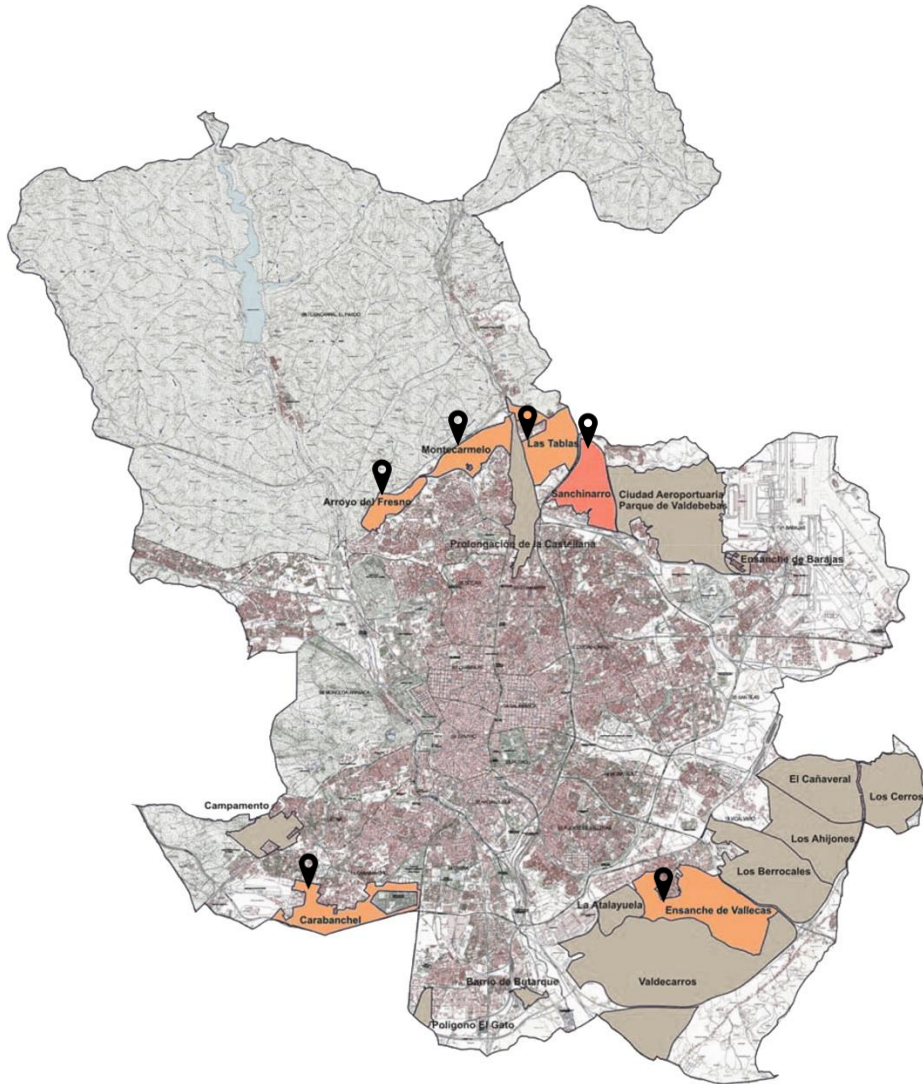


Figure 2: Municipality of Madrid. Sanchinarro plus the five other PAUs pinned, developments proposed by PG97 in flat grey. Adaptation from City Hall.



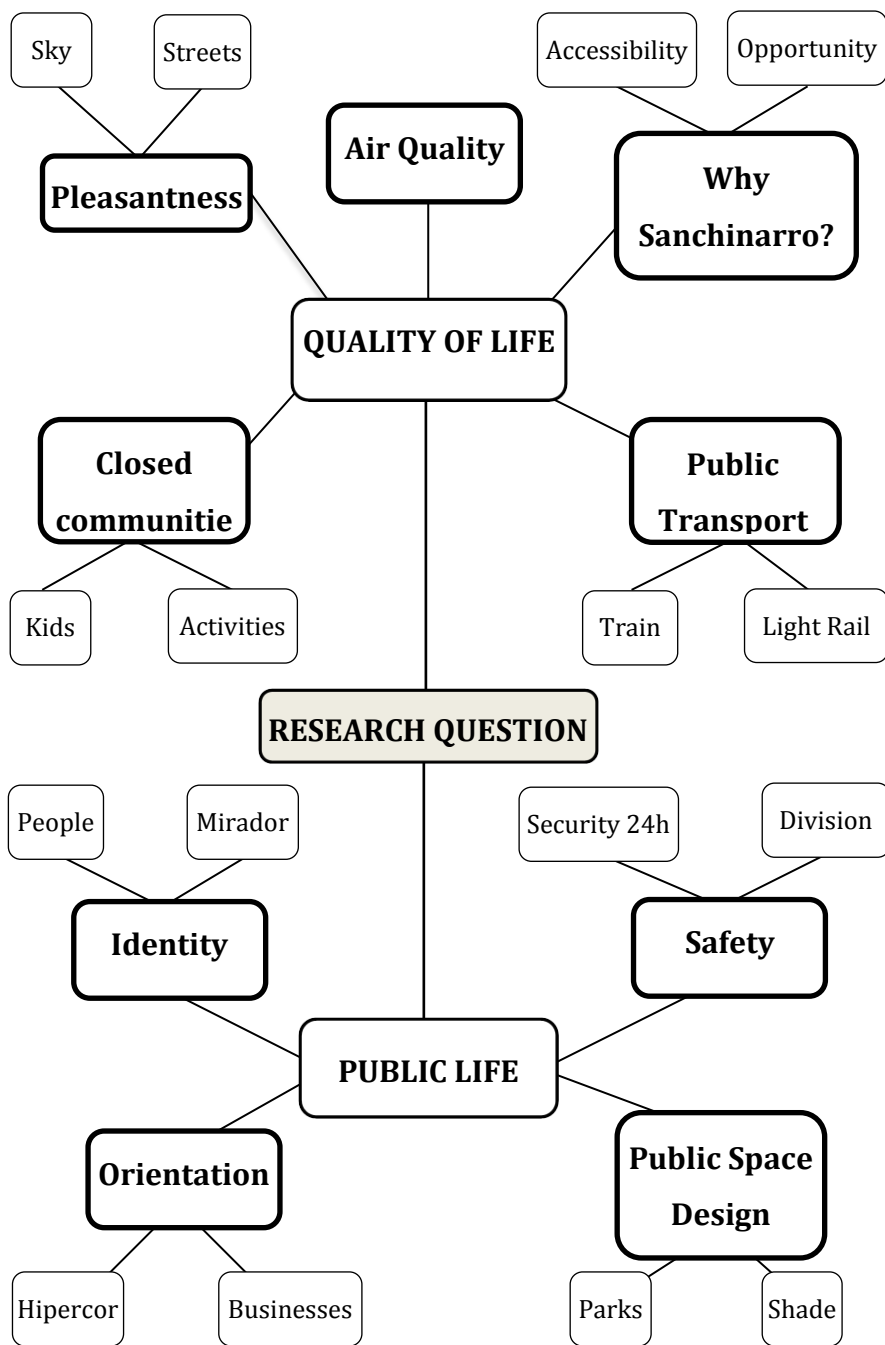
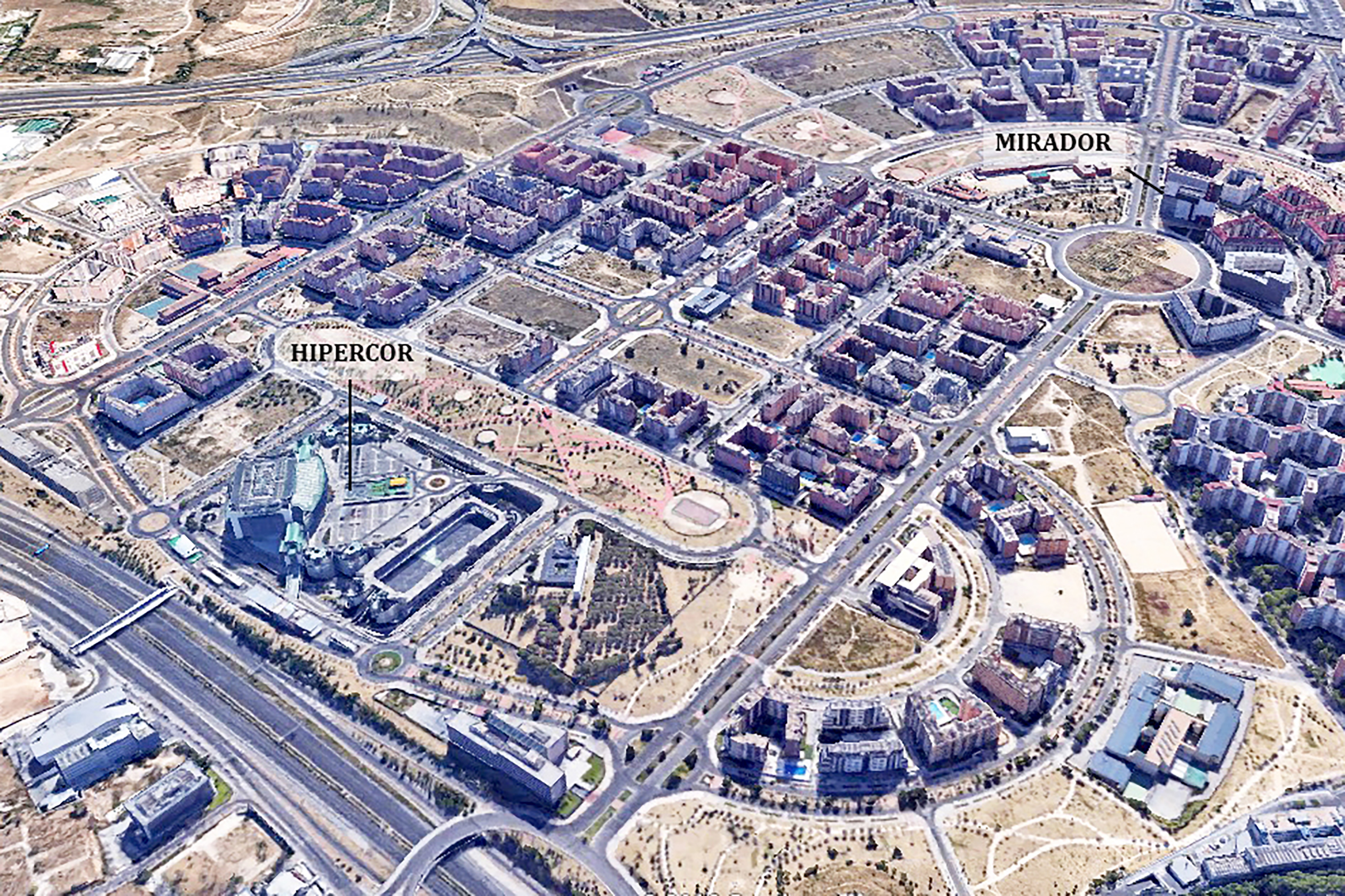


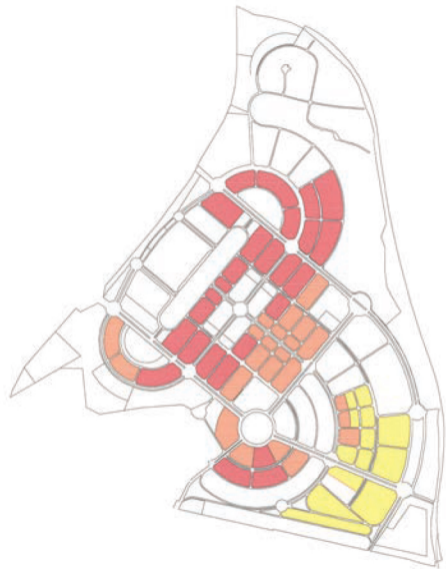
Figure 4: Thematic Network








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-  Free Housing
-  VPT (capped price)
-  VPO (social housing)



