

ROMANIA

Reimbursable Advisory Services Agreement on the District 5
Urban Development Program (P167042)

Deliverable 3.1

Key Urban Interventions for Raising the
Attractiveness of the
Antiaeriana Area

May 2019



DISCLAIMER

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ACRONYMS AND ABBREVIATIONS

BNR	National Bank of Romania
BPO	Business Process Outsourcing
CEE	Central and Eastern Europe
CNAIR	National Company of Road Infrastructure Administration
CPI	Consumer price index
DYI	Do it yourself
EU	European Union
FX	Foreign Exchange rate
GDP	Gross domestic product
GDV	Gross Development Value
GLA	Gross Leasable Area
ILO	International Labour Organization
IT	Information Technology
IT&C	Information technology and Communications
PPP	Public–private partnership
UN	United Nations
VAT	Value added Tax

Table of Contents

Chapter I. Background.....	7
1.1 Engagement	7
1.2 Sources of Information	7
1.3 Assumptions.....	7
1.4 Content of the Report.....	7
Chapter II. Executive Summary.....	9
2 Executive Summary	9
2.1 Current Situation	9
2.2 Commercial Real Estate Perspective	9
2.3 Approach.....	11
Chapter III. Macroeconomic Overview.....	15
3 Romanian Economy.....	15
4 Bucharest	17
4.1 Location and Population.....	17
4.2 Economic Environment	18
4.3 Infrastructure.....	20
4.4 Affordable housing.....	23
Chapter IV. Real Estate Markets.....	25
5 Office Market.....	25
5.1 Overview	25
5.2 Office Supply	25
5.3 Office Demand	27
5.4 Rents & Vacancy.....	28
5.5 Forecast.....	28
6 Retail Market.....	29
6.1 Overview	29
6.2 Ownership and Developers.....	29
6.3 Retail Supply.....	30
6.4 Retail Demand.....	33
7 Residential Market.....	35
7.1 Overview	35
7.2 Main areas	36
7.3 Trends, Stock and Price	37
7.4 Residential market situation.....	39
7.5 Residential market forecast	39
7.6 Residential developers.....	41
8 Hotel Market	42
8.1 Overview	42
8.2 Bucharest	44
8.3 Hotel deals.....	46
8.4 Hotel Rates.....	47
9 Investment Market.....	49
Chapter V. Subject Analysis	52
10 Sector 5 Overview	52
10.1 Economic framework	52
10.2 Labour Force	53
11 Land Plot Analysis.....	55
11.1 Site Overview.....	55
11.2 Current planning	56
11.3 Tenure.....	58
11.4 Planning.....	60

11.5	Surroundings.....	62
12	Transportation Infrastructure	63
12.1	Current transport connections.....	63
12.2	Infrastructure Development	64
13	Public Facilities Analysis.....	67
13.1	Overview	67
13.2	Education facilities.....	67
13.3	Entertainment	71
13.4	Healthcare facilities	72
13.5	Green areas and recreation.....	74
13.6	Sport facilities	75
13.7	Public sector offices.....	75
13.8	Conclusions	75
14	Real estate fundamentals in the analyzed area	77
14.1	Office Market.....	77
14.2	Retail Market.....	80
14.3	Residential Market.....	84
14.4	Other markets	85
15	Conclusions & Challenges.....	86
15.1	Functionalities for the proposed development	86
15.2	Proposed Development Phases – V0 (initial view).....	90
15.3	Financial Assumptions	91
Chapter VI. Potential Development		92
16	Site Development	92
16.1	Framework.....	92
16.2	Guiding Questions.....	92
16.3	Architect’s view	92
17	Scenario Analysis	95
17.1	Report proposal vs. Initial PUZ Antiaeriana	98
17.2	Version 1 – Cluster / Ideal Scenario.....	101
17.3	Version 2 - Interconnectivity.....	102
17.4	Version 2 - Interconnectivity.....	104
17.5	Municipality Strategic Consideration	105
Chapter VII. Appendices		109

Chapter I. Background

1. Background

1.1 Engagement

Antiaeriană, a vacant site, is one of the city's flagship urban revitalization initiatives with significant potential to catalyze follow-on private sector investment. Recognizing the transformative potential of this site, the Sector 5 Municipality intends to initiate efforts to redevelop this site as quickly as possible.

This Report has been prepared for the purposes of assisting the municipality of Sector 5 with a site-specific real estate market assessment to understand the real estate market conditions in particular, the demand and the asset classes that should likely be targeted in the proposed development.

The study is prepared to inform Municipality on potential development strategies to adopt for the site and on how to coordinate land use planning, public investments and land disposal strategies to maximize the public sector's return on investment.

This is part of the redevelopment strategy of the site, aligned to their respective city's social, fiscal, environmental and economic goals. Strategic planning is a phase participatory process of the 'actors' involved, under a framework cooperation with the same scope – urban regeneration. The main parameters are the through economic revitalization, social cohesion and equity as well as the reconstruction of the ecosystem as answer to an urban decline or abandoned buildings and sites.

1.2 Sources of Information

The current study is based on the information provided (electronic, hard-copy or interviews-based) from the Municipality of Sector 5 and from the World Banks publications, all complementary to support the scope of works. This study refers to the actual real estate market background to support development opportunities, but the team does not accept any responsibility pertaining to other specific elements discussed, including technical, effective implementation, legal, environmental, procurement or similar and note that also the real estate markets are subject to change and therefore it is recommended to keep this under review, aligned with the market evolution and project development changes.

1.3 Assumptions

For the purpose of this study, the site is assumed as freehold, without easements, right of passing or other issues which may impact legally to the potential development. It was assumed that the site is not the subject of any listing and does not lie in a conservation area. Other than those discussed, the team is not aware of development proposals in the It was assumed have assumed that local regulations, ordinances, governmental policies or similar as not having any negative consequences to arise and influence the site development.

1.4 Content of the Report

The following Chapter II summarizes the findings with the Current situation and the Real estate market perspective pointing out an Approach and commentaries related to the Subject site development and the reasoning which is further detailed into various analysis of the general and particular markets and projects which may have an impact to the Subject development.

The following Chapters III and IV presents details of a macro analysis of the specific economic and real estate markets with indications and commentaries in conjunction with the Subject Site.

Chapter V – Subject Analysis discusses the actual situation, real estate markets and infrastructure affecting the Subject development and provide guidelines for specific development detailed in the Chapter VI – Potential Development where strategic view of the development are discussed.

Chapter II. Executive Summary

2 Executive Summary

2.1 Current Situation

- The Sector 5 Municipality has currently an administration right over the Subject Property, a typical situation for the subordinated local sector municipalities in Bucharest.
- From the entire subject site of 977,637m² resulted from three cadaster numbers 218807, 218805 and 218798, the title is disputed with the Pasteur Institute concerning around 18 hectares situated to the west border of the subject and in the same site also for around 0.4 hectares overlapping with the property at 14-18 Cooperativei Street. Other around two hectares plot to the south-east of the subject is apportioned for the use of the National Housing Agency.
- The site is not connected with the main access roads and within the land book there are no indications of any right of way.
- The legal situation of the analyzed land and access is essential to any further step in developing the Subject site. Specialist Legal advice should guide the entire process including: solving the existing legal issues, present the legal risks arising from all steps of implementation and assist with solutions and estimation of cost and time to solve the previous mentioned.
- As part of the scope of work scope, it was assumed that the legal aspects as are already solved positively for the Municipality, however as the timeline and resolution of these are not clear, commercial development of the area will be delayed whilst all this is documented.

2.2 Commercial Real Estate Perspective

- The analysis was done starting from the demographics and the existing situation for all possible functions (including inner city logistics, hotel and public sector offices) and amenities. The focus was on the following markets: (i) Commercial Real Estate (including Office, Retail and Industrial sectors), (ii) Residential Market and (iii) Other Real Estate Markets (including healthcare, hotel, education) as the research has shown that these are the functionalities that would benefit the site
- It was considered that the Subject site could only attract developer's appetite as soon as the road infrastructure would be visible. It is believed that this is a first step that the Municipality needs to take to unlock the potential of the site. The details of such steps are addressed in the **Section 17. Scenario Analysis** below.
- The obvious use for the land plot is residential (and plenty of developers would be happy to take on such development) subject to proper road and utilities infrastructure but it was the instruction of the Municipality to use multifunctional area, not another "dormitory" area.
- With the proper infrastructure (road and public transportation), with suitable and modern concept, a new office kernel would attract interest from various occupiers in offices. Commercial developers would be interested of the potential of retail and office elements.
- As demonstrated by the Dimitrie Pompeiu area, located in the vicinity of Pipera metro station, an area of Sector 2 which has doubled the administration's revenues over the past ten years, the major factors to consider are delivering suitable building permit along with the availability of the site and a good transportation infrastructure, ideally an easy access to the metro network.
- Sector 5 has several large sites for development available with the potential to rapidly obtain permits once the new Coordinating Urban Zoning Plan of Sector 5 is approved, an advantage that the established submarkets no longer have. The lack of Metro connectivity of the analyzed site and

in Sector 5 as a whole, is the main reason for the lack of office development in the area. This can be mitigated for the site by the extension of Tram 41 as a rapid line on the main boulevard. Please see **Section 12. Transport Infrastructure** for details.

- Two residential areas are developed close to the subject site including the north, along Prelungirea Ghencea and the west and along Safirului Street, Bragadiru area to the ring road. Developed over the past 15 years, Prelungirea Ghencea is an already well-known area for small to medium raised residential. The millennial generation is looking for a different standard of comfort based on fit for purpose, minimalism, social responsibility, environmentally friendly which appears to be the buyer profile of tomorrow. This generation appreciate more also the rental market, particularly following the real estate price recent increases and the proposed scenarios take this into account as a starting point. Please see **Section 7. Residential Market** and **Section 14.3 Residential Market in the analyzed area** for details.
- It was advised against the dominant retail scheme (shopping center type) on the land plot in the next 10-25 years as there are several such assets in the catchment area. The retail element on the plot is expected to provide services for the occupiers – ground floor retail in the residential and office buildings in stages of development. Please see **Section 14. Real Estate Fundamentals in the analyzed area** for details. Another retail element typical format for catchment areas of below 70,000 inhabitants (the catchment area under discussion) would be a strip mall type anchored by a medium size food anchor, featuring a farmers market and brands like Takko, DM, etc. Please see **Section 6. Retail Market** for details.
- Based on the market analysis, it has been concluded that:
 - Apartments in the area are at the moment selling at an average price of under €870 / sqm net. The first phases of apartments will most likely sell at a comparable market price but with a premium, given the envisaged entire development. The subsequent phases, as the project will take shape, will stimulate the overall demand, and will sell at an increasing price each year, reaching to a high of €1,179 / sqm in a conservative scenario.
 - Initial value of the office rents in the area must compensate for the lack of other fundamentals. It must be stressed, again, that without visibility and public transportation brought by the main boulevard development, no office development can be reasonably envisaged. To gain a competitive advantage over more established sub-markets, the rents must be lower. The €10 / sqm / month value will be one of the lowest in Bucharest and is suitable to attract tenants especially from the BPO sector. As the area will become more established the rent will increase, however, to a high of €12 / sqm / month that will be lower than in other sub-markets. Please see **Section 5. Office Market** and **Section 14.1 Office Market in the analyzed area** for details;
 - Keeping in mind the increasing interest on the local market for acquiring office projects, the achievable yields in the area will be around 8.5% for the initial phases. As the area will establish and rental demand will increase, highly-recognizable corporate tenants will take office space for extended lease terms, which will also compress the yields to around 8% starting from the second half of the development. It was envisaged that this is going lower meaning it increases the worth if the development takes shape and the public infrastructure is in place. Please see **Section 15. Conclusions and Challenges** for details along the explanation of General **Real Estate Terms within the Appendix 2 – Terminology** and the comments within the **Section 9. Investment Market**.
 - A small strip mall or a retail park with a clever tenant mix will prove to be a good destination for customers in the greater catchment area including the heavily populated Drumul Taberei

and Prelungirea Ghences neighborhoods. The €9 sqm / month value is relatively close to market standard now in Romania, keeping in mind that a food anchor (i.e. Kaufland Supermarket), which will take the gross of the leasable space in such a project, will pay in-between €8-10 /sqm/month. The 8.5% yield is current market value and will continue to be for the next years. Please see **Section 15. Conclusions and Challenges** for details along the explanation of General **Real Estate Terms within the Appendix 2 – Terminology** and the comments within the **Section 9. Investment Market**.

- Retail at the ground floor is fundamental to residential units, offering amenities to an area which suffers from this point of view due to its location. Seizing the opportunity, retail tenants, especially from the services sector, will enter the area, paying rents around the €8 /sqm/month mark. As the project will take shape, and the apartment blocks will be developed in the second plan (not directly on the large boulevard), with direct access to the walking promenade, restaurants, bars and boutiques will look for space, trying to serve more than 20,000 new inhabitants without any of these services in the immediate proximity. This will increase the demand and subsequently the rent. Please see **Section 15. Conclusions and Challenges** for details along the explanation of General **Real Estate Terms within the Appendix – Terminology** and the comments within the **Section 9. Investment Market**.
- However, delays in providing the infrastructure and a weakened project image may impact over the quality of the investors, interest of the potential occupiers or buyers therefore in the income return and development values.

2.3 Approach

- The philosophy of the approach is to phase the development in such a way that after the first infrastructure and two phases are in place, the development will evolve naturally, organically driven by normal market appetite - It is believe this is a healthy way to avoid investments that will go to waste.
- It was assumed in all the calculations that the land is freehold - it cannot be analyzed at this point the legal, liquidity and general implications of either a PPP or a leasehold.
- The research shows successful attempts to develop large plots in Europe - please see Appendix “Rieselfeld Case Study” for reference, a project developed over a period of 16 years, as a public initiative of the local Municipality and involving private investors. The recent failed attempts to achieve the same goal were also considered, and the appropriate lessons were drawn from that. Informal and non-engaging interviews were conducted at a strategic level with the largest developers in the commercial offices and residential sector in order to understand their concerns and address them in the strategy - the main two sector outlines below
 - Developers’ expectations – Residential; please see **Section 7. Residential Market** and **Section 14.2 Residential Market in the analyzed area** for details.

A plug and play solution in terms of major infrastructure and zoning

Road and public transport infrastructure are important

Parking solutions that do not interfere with the pedestrian feel and are not costly to the developer

Amenities such as school and kindergarten in the vicinity to serve families as well as sports facilities

The trend towards communities as a way of life drives the interest of developers to create the feel of a community environment

Development phasing and lot sizes need to take into account that once the development is complete, it needs to be in a clean environment in order to make use of the opportunity. Having a development (however well thought) in a perpetual building site will not help increase the appeal of the project or the location

- Developers' expectations – Offices; please see **Section 5. Office Market** and **Section 14.1 Office Market in the analyzed area** for details.

A plug and play solution in terms of major infrastructure and zoning

Road and public transport infrastructure should be in place at no more than 10 minutes walk and they might be happy to contribute to its development if needs be

Metro is advisable but light rail line and potentially shuttles to Metro could be an alternative option

Assurance that there is a coherent master-planning that will be followed and not amended in the next 10 years to ensure continuity of the project

The integrated project should include public amenities in terms of sports, entertainment, schooling etc. that would allow them to maximize the use of their plot without providing for such functions

Development phasing should ensure that the once completed, an office building is surrounded by other completed buildings – another thing to be included in the Book of Rules/Schedule of Conditions

Happy to contribute to the public amenities as long as this is a requirement for all developers

Development phases size envisioned is of no more than 15,000 - 20,000 m² GLA.

- Due to the project size, it is thought that experienced developers would undertake development per phases, functions and lots. This appears to be the view of the municipality and has the advantage of managing better the smaller parts. The authority would be able elaborate requirements for tender per lot, can manage better the schedules and limit the risk of ceasing the entire project, rather putting on hold a phase with issues. This assumes the authority has the capacity of dealing property, in a transparent way with the tendering procedures and returning fair compensation and social benefits for the municipality's assets.
- Public benefit may involve higher costs of building or/and lower intensity of gross build area from the site area. However, the residential market is now mature with increasing demand for better living areas.
- It is expected for the Subject site to benefit from a good transport infrastructure with bus and/or tram lines with excellent availability, large boulevards, green areas including gardens, cycling infrastructure, green parking solutions, leisure, events and sport premises, in a quality environment supporting people connection and the social life.
- Considering the existing entertainment, leisure and cultural facilities within the Subject area, it is considered that more diversity is required:
 - More green areas are needed, considering that Sector 5 has the lowest green area per capita in Bucharest. Also, the existing parks, except Izvor, are rather small, with 2-3 hectares at most. A second large park could be envisioned in the southern part of Sector 5;

- Sport facilities required – multifunctional hall as well as smaller outdoor playgrounds to be immediately accessible for all age category of people to play sports in a green environment;
 - They should include entertainment facilities or amusement parks or water parks in vicinity of the Subject and such elements would be of real support to both the Subject development and the surrounding areas. include recreation facilities such as amusement an playing areas, swimming pools, wading pools, spas,, etc.;
 - Kindergartens are compulsory in the proximity of recent developed residential areas;
 - Schools are required within the proximity of newly developed residential areas, also to serve the area in Bragadiru situated between Sector 5 and the ring road;
 - The building of a new general hospital on the Antiaeriana plot is a must;
 - It was considered that several public sector or municipality offices can relocate to the Subject new developed area and this would add an element to generate traffic and increase attractiveness, especially in incipient stages of development.
- Development phasing and lot sizes need to consider that once the development phase is complete, it needs to be in a clean environment in order to make use of the opportunity. Having a development (however well thought) in a perpetual building site will not help increase the appeal of the project or the location.
 - DEVELOPMENT SCENARIO
 - Looking to the current demand one could envisage a few potential occupiers looking to locate the headquarters in this part of the city; however if the market-oriented and advanced model of development would be applied and managed in line with the newest evolutions, it will fuel the demand as more tenants will look to setup their office within a trendy area.
 - All road and utilities infrastructure will be put in place by the municipality at their own cost, but priorities were discussed here in more detail. The north vicinity will benefit from Prelungirea Ghencea road infrastructure upgrade and a new metro line M5, both serving the Subject to the northern boundaries: metro within 1.5km distance and the boulevard within 0.5km distance. The first phase of the construction would be therefore expected to start from here as soon as the main boulevard is developed or at least its first section – to the north, connecting the site to Prelungirea Ghencea. This investment is expected to be supported by the Municipality of Bucharest. The Subject may potentially benefit also from an adjacent development more advanced – PUZ Dedeman for the alternative road access, a private investment situated in Sector 6 area. The alternative road access is planned to connect Prelungirea Ghencea with Dedeman premises but also further to route over the subject site for about 1.5km and exit to the west limits to a vacant plot, also part of the Sector 5 connecting to Gladiolelor Street – a narrow street at the administrative limit between Bragadiru and Sector 5 municipalities. It is connected to Alexandriei Road but through Safirului Street also to the ring road. It is understood that this alternative road can be supported by Sector 5 Municipality for the area where the Sector 5 has the control.
 - The project has been divided in phases and plots of land to be proposed to developers. In the first phases, until the area is stabilized, no developer should have at any given point more than 400 apartments or 15,000 sqm of offices under the same stage of development - this is to avoid capacity problems. Future phases might consider larger allocations based on track record and capacity of the developer. Each developer should have an obligation under the concession

agreement to build according to certain specifications its surrounding allotted green area / amenities and pedestrian circulations, in line with the masterplan. These areas will be donated to the city once the entire project is complete. Condominium type approach to the management of the development until it is complete should be included in the obligations of all the developers as per the concession agreement.

■ DEVELOPMENT SPECIFICATIONS

- Analysis of the development solutions was done according to the conclusion, trends based on an architect's view. Please see the entire **Chapter VI. Potential Development** for details.

Chapter III. Macroeconomic Overview

3 Romanian Economy

Brief information on the national economic conditions, with both historic information and forecasts on the major macroeconomic indicators such as GDP growth, CPI, unemployment rate.

Romania registered in 2018 a GDP growth of over 4%, coming on the back of a strong 2017, when GDP increased with 6.8%. This was the eighth consecutive year of growth.

Retail sales continue to be the main driver of the economy, fueled by the increase in net average wages. According to Oxford Economics, growth was broad-based, but driven mainly by domestic demand. After an expansion of 9% in 2016, retail sales registered a strong 12.3% growth in 2017 and by 7.3% in 2018, one of the highest values in the EU (the 4th highest value registered in the EU).

The macro-economic forecast for Romania continues to be positive, despite some political concerns. Prospects for the local economy are dependent on the EU, which takes over 70% of the Romanian exports.

Romania is influenced by the status of the Eurozone economy, which can transform in a drag. On the financing side, terms and conditions are getting closer to what can be expected in the core CEE markets. The National Bank of Romania increased its policy rate to 2.50% in May 2018 from a historic low of 1.75% set in May 2015, considering the rise in inflation and the high economic growth and the result was a slight increase of the interest rates for borrowings in local currency. The rate is unchanged at 2.5% also in April 2019.

The FX rate has been relatively stable despite the turmoil across EU and United States, in the range of 4.4-4.7 Ron/Euro in the last 5 years. Romania is still aiming to join the Euro zone, but no clear date has been set after postponing the previous 2019 target. Moody's, Fitch and Standard & Poor's are still assessing Romania as recommended for investment with a stable to positive perspective.

Table 1: Romania summary table: economic growth forecast

Key Economic Indicators: 2012-2020	2013	2014	2015	2016	2017	2018	2019 F
GPD (% growth)	3.3	3.5	3.9	4.8	6.8	4.1	5.5
Consumer spending (% growth)	2.7	3.9	5.4	8.0	10.0	3.7	3.5
Construction gross value added (% growth)	2.8	4.1	1.8	13.0	(1.1)	(4.1)	2.9
Total population (thousands)	19,975	19,899	19,802	19,688	19,561	19,428	19,297
Working force population (thousands)	13,011	12,887	12,711	12,575	12,434	12,297	12,167
Unemployment rate (%)	7.1	6.8	6.8	5.9	4.9	4.2	4.2
Retail spending (% growth)	5.3	5.1	6.2	9.0	12.3	7.3	6.9
Central Bank interest rate (%)	4.0	2.8	1.8	1.8	1.8	2.5	3.0
Consumer price index (% growth)	4.0	1.1	(0.6)	(1.6)	1.3	4.6	3.1
Industrial production index (% growth)	7.7	6.2	2.7	3.1	8.6	4.9	3.6
Exchange rate (EUR/RON)	4.4	4.4	4.4	4.5	4.6	4.7	4.6
Exchange rate (USD/RON)	3.3	3.3	4.0	4.1	4.1	3.9	3.9
Exports (% growth)	18.7	8.8	4.3	8.1	10.4	5.4	3.1
Imports (% growth)	8.7	9.0	7.6	9.6	12.0	8.1	2.1
Net average wages (% growth)	7.5	8.2	8.8	10.1	14.3	13.6	9.3

Source: Oxford Economics Forecast, National Commission for Strategy and Prognosis ("CNP")

According to the National Bank of Romania information, during August 2017 – August 2018, the consumer price index reached 5.06%, a high value after a period of deflation, caused mainly by the VAT cuts the government introduced whilst for the entire 2018, this decreased to 4.2%, still the highest in the EU.

The unemployment rate in 2018 was around 4.2% and decreased to 3.3% in February 2019.

Over the longer term, it is quite possible that Romania could suffer from skilled-labor shortages, while the government is trying to create 640,000 new jobs by 2020.

In several counties, especially in the west of the country as well as in Bucharest the unemployment rate is below 2 or 3%, due to the significant foreign investment, especially in services, IT and the manufacturing industry.

In the longer term the already low unemployment rates in the Romania are forecasted to decrease even though they are now significantly below the European average. According to Oxford Economics, ILO unemployment is forecasted to further decrease.

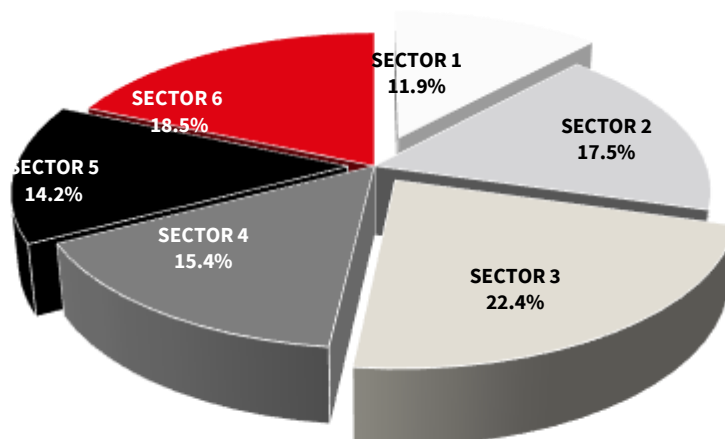
4 Bucharest

The section outlines Bucharest's economic conditions, with both historic information and forecasts on population (including number of inhabitants, average wage, age diversity, GDP per capita etc.), GDP growth. Additionally, here are discussed the main companies based here the major infrastructure works (completed and under construction) and the housing applied to Bucharest average wage level.

4.1 Location and Population

Bucharest is the political, economic, scientific and cultural hub of Romania, a country of around 19 million people. It lies in the southern part of Romania, midway between the Danube River and the Southern Carpathian Mountains. The city is administratively known as the Municipality of Bucharest, and has the same administrative level as a county, being further subdivided into six districts. The six districts are numbered from one to six and are disposed in a radial manner so that each one has under its administration an area of the city Centre. They are numbered clockwise and are further divided into neighborhoods without any form of administration.

Graph 1: Bucharest population split by districts



At the 2011 Census, Bucharest's population was 1,883,425 inhabitants with a density of approximately 8,260 inhabitants per km². Over the last 12 years (since 2002) Bucharest's population recorded only a marginal negative growth of 2%, compared with a national average of over -7%, with the highest drops recorded in District 2 (-3.9%) and District 1 (-2.4%).

Table 2: Bucharest's population by sector according to Census (2002, 2011) and NSI (2017,2018)

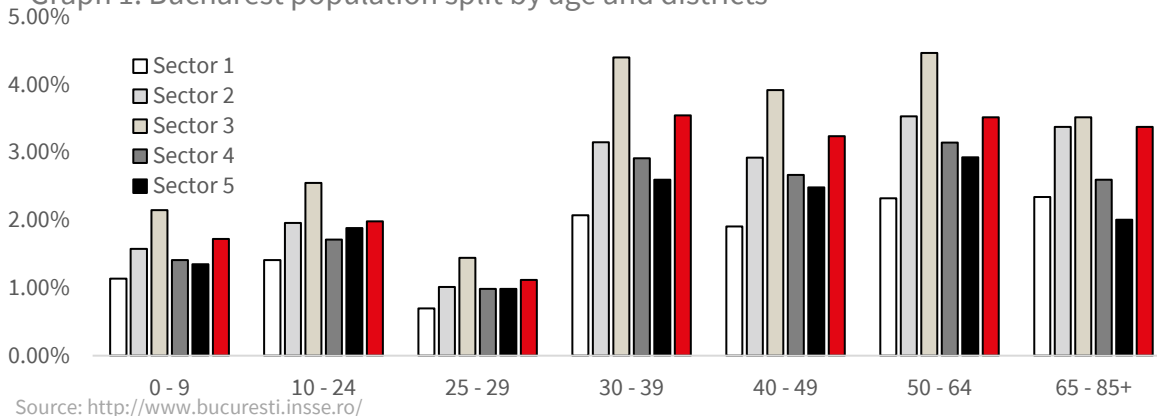
Sector	Census 2002	Census 2011	% 2011 /2002	Density	2017 NIS*	2018 NIS*	% 2017 /2018
1	231,035	225,453	-2.4	3,365	247,591	250,089	1.00
2	359,716	345,370	-3.9	11,143	372,192	371,554	-0.17
3	391,192	385,439	-1.4	12,434	472,848	474,220	0.29
4	292,805	287,828	-1.7	8,722	321,968	325,179	0.99
5	271,242	271,575	0.1	9,365	298,977	300,391	0.47
6	375,761	367,760	-2.1	9,940	389,675	391,050	0.35
City	1,921,751	1,883,425	-2.0	8,260	2,103,251	2,112,483	0.44

Source: Census and * NIS - National Institute of Statistics (Romania)

Considering the provisory data available on the Regional Statistics Department of Bucharest's website, as at 1st of July 2018, a total number of 2,121,794 people had their residence registered in Bucharest.

Bucharest has an area of approximately 228 km² with District 1 capturing almost a third from the city's surface but recording the lowest population density. In 2018, 17.16% from the population that lived in Bucharest was aged between 0 – 19 years old, more than 18% of the population was aged between 30 – 39 years old and 37.12% were aged 50 – 80+ years old. Below we summarized the Bucharest population split by age. The census data shows that the highest population density is recorded in District 3 (12,434 inhabitants/km²), followed by District 2 (11,143 inhabitants/km²) and District 6 (9,940 inhabitants/km²).

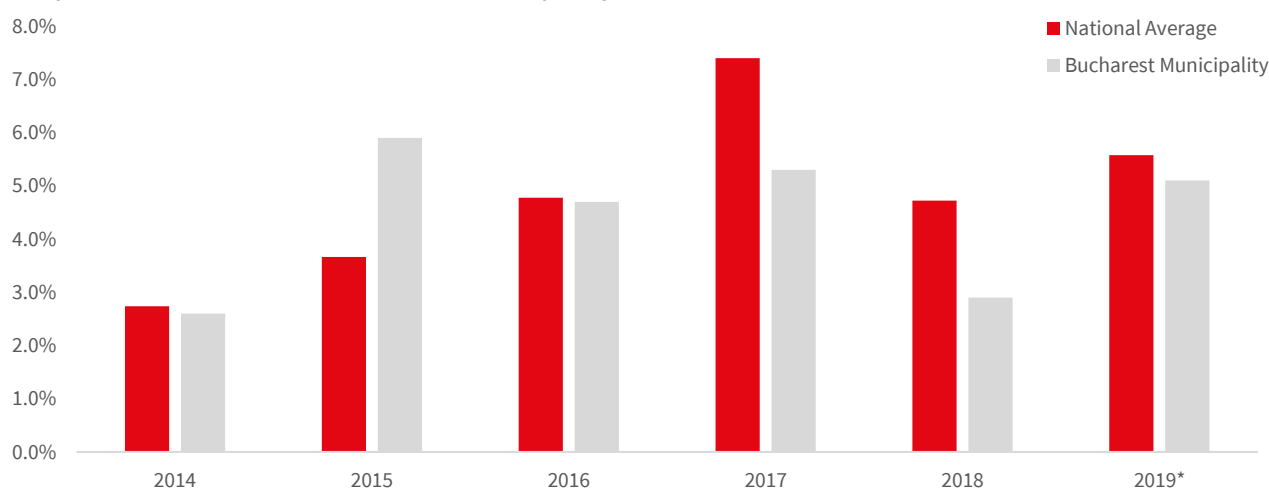
Graph 1: Bucharest population split by age and districts



4.2 Economic Environment

Bucharest contributes with over 23% to Romania's GDP, while it accounts for circa 10% - 11% of the country's population, which makes it the main economic driver of Romania.

Graph 2: Romania and Bucharest Municipality – GDP evolution



Bucharest's economy has developed rapidly during the last years, as the city has achieved significantly higher GDP growth rates compared with the national average (except for 2012 – 2014 period). Below are summarized the main economic indicators for Bucharest:

Table 3: Bucharest summary table: economic forecast

Bucharest Municipality	2014	2015	2016	2017	2018	2019*	2020*	2021*	2022*
GDP (million €)	€ 36,776	€ 39,450	€ 42,503	€ 45,972	€ 49,176	€ 51,356	€ 54,485	€ 57,483	€ 59,439
Real GDP (% yoy)	2.60%	5.90%	4.70%	5.30%	2.90%	5.10%	5.20%	4.30%	4.10%
GDP/capita (€/year)	€ 19,697	€ 21,337	€ 23,154	€ 25,158	€ 26,865	€ 28,886	€ 30,972	€ 32,853	€ 34,602
Unemployment (%)	2.00%	2.00%	1.60%	1.50%	1.40%	1.30%	1.20%	1.10%	1.10%
Net average wage (€/month)	€ 551	€ 607	€ 651	€ 716	€ 792	€ 845	€ 901	€ 962	€ 1,006

Source: National Commission of Prognosis – December 2018

Spectacular projected increase of the net earnings in Romania by 2022 might bring the average Romanian closer to the 1,000 Euro mark. In Romania, the net average earning per employee, of 577 Euro in 2018, is expected to increase by 42% by 2022, reaching almost 820 Euro per month with Bucharest expected to remain on top of the national average level, as mentioned.

Table 4: Projected increase of average net earnings in Romania

Year	Net average earnings in Lei	Net average earnings in Euro	Increase year on year %
2018	Lei 2,685	€577	
2019	Lei 3,085	€663	14.9%
2020	Lei 3,316	€713	7.5%
2021	Lei 3,558	€765	7.3%
2022	Lei 3,811	€819	7.1%

Source: National Commission for Strategy and Prognosis (CNP) assuming a currency of 4.65 lei/ 1 euro

According to the National Trade Register Office, as of end of 2018, the number of active companies registered in Bucharest Municipality increased with 3.9% when comparing with the number of active companies registered as of end of 2017, amounting a total number of 212,538 companies, both international and local. In terms of turnover, the most important companies that have their headquarters in Bucharest Municipality (but which have subsidiaries also in other localities within Romania) are as follows: OMV Petrom Marketing SRL, OMV Petrom SA, Kaufland Romania SCS, Rompetrol Downstream SRL, British American Tabaco (Romania) Trading SRL, Carrefour Romania SA, Lukoil Romania SRL, Orange Romania SA, Auchan Romania SA, Engie Romania SA, Mega Image SRL and Metro Cash & Carry Romania SRL among others. In terms of number of employees, the most important companies that have their headquarters in Bucharest (but which have subsidiaries also in other localities within Romania) are as follows: Compania Nationala Posta Romana SA, Compania Nationala de Cai Ferate “CFR” SA, Regia Nationala a Padurilor ROMSILVA RA, Kaufland Romania SCS, OMV Petrom SA, Societatea Nationala de Transport Feroviar de Calatori – CFR – Calatori SA, RCS&RDS SA, Societatea de Transport Bucuresti RA, Carrefour Romania SA, Mega Image SRL and Auchan Romania SA among others.

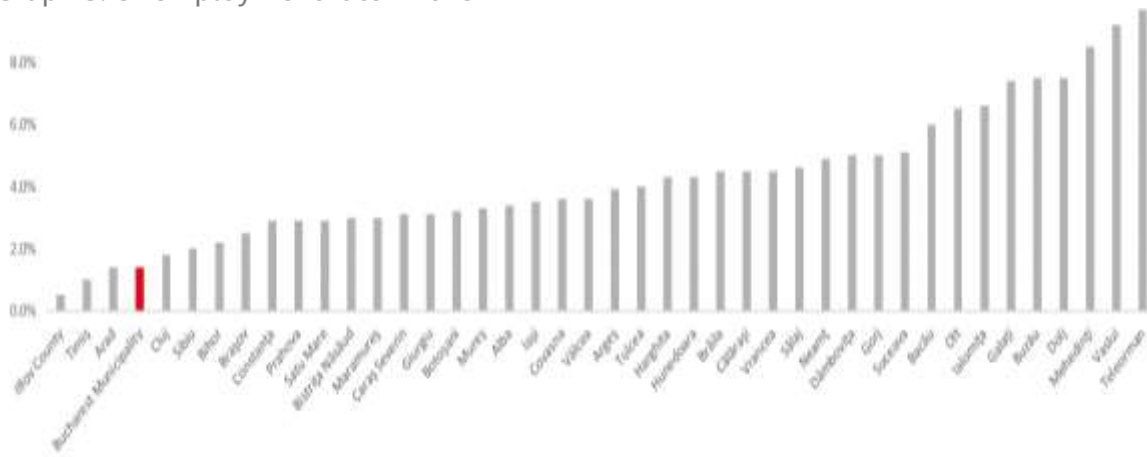
Table 5: Bucharest main companies by number of employees

Company	Industry	Number of employees
1 Compania Nationala Posta Romana SA	Postal activities	~23,400
2 Compania Nationala Cai Ferate CFR SA	Railway transport services	~22,600
3 Regia Nationala a Padurilor ROMSILVA RA	Forestry activities	~16,200
4 Kaufland Romania SCS	Retail sale of food, beverages, etc.	~13,500
5 OMV Petrom SA	Extraction of petroleum	~13,300
6 SNTFC – CFR Calatori SA	Railway transport	~12,700
7 RCS & RDS SA	Telekom	~11,700
8 Regia Autonoma Transport Bucuresti	Public transport	~10,200
9 Carrefour Romania SA	Retail sale of food, beverages, etc.	~9,900
10 Mega Image SRL	Retail sale of food, beverages, etc.	~9,300
11 Auchan Romania SA	Retail sale of food, beverages, etc.	~9,300

Source: Market research, <http://www.mfinante.ro/infocodfiscal.html>, Note: Number of employees as specified reflect the employees working in Bucharest and the branches for those with Bucharest headquarters in Bucharest.

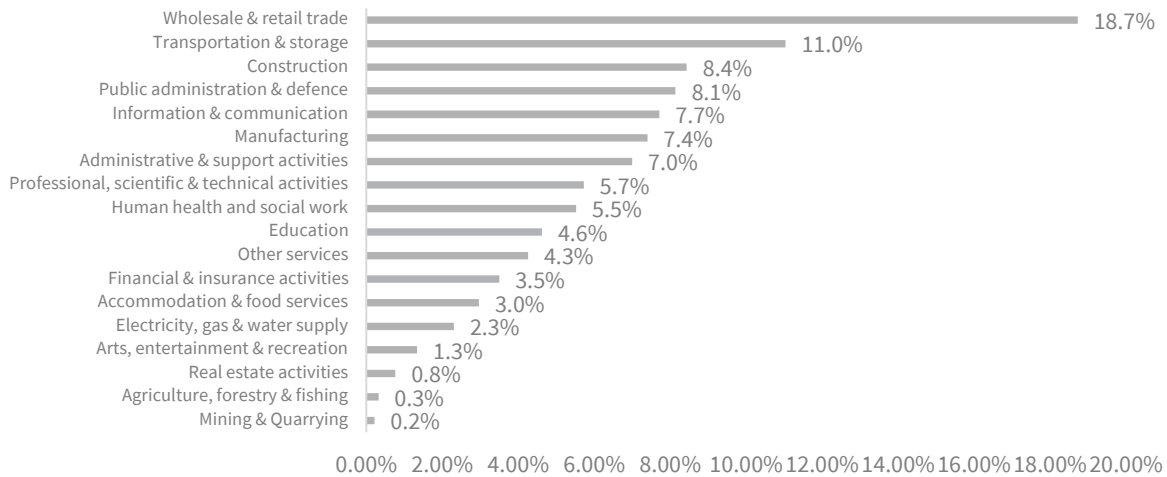
Bucharest is also Romania’s largest centre for information technology and communications and is home to many software companies, which operate internationally. In 2018, Bucharest registered an unemployment rate of 1.4%, one of the lowest rates registered in 2018 in all 42 counties whilst the net average continues to increase vs. the national average.

Graph 3: Unemployment rate – 2018



Source: National Commission of Prognosis – December 2018

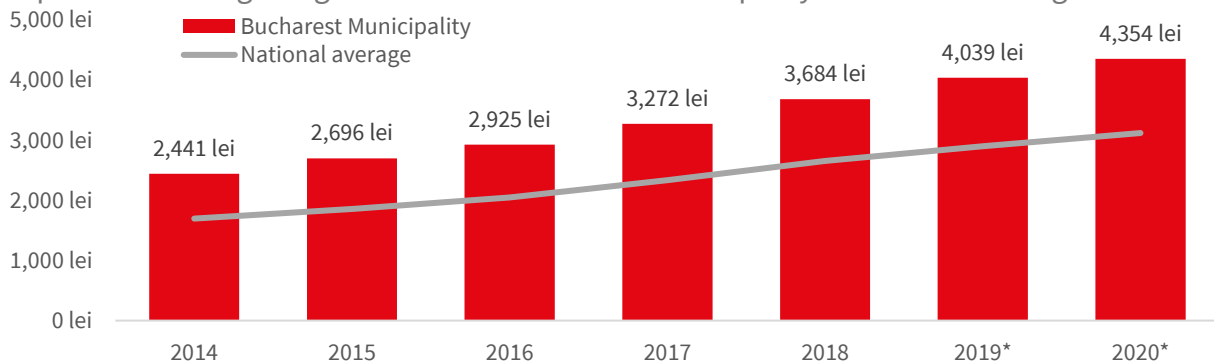
According to Oxford Economics, in 2018, the wholesale and retail trade was the largest employment sector in Bucharest (18.73% of all jobs), followed by the transportation and storage sector that accounted 11.04% of all jobs. However, the most important wholesale and retail trade companies that have their headquarters in Bucharest have subsidiaries also in other cities within Romania.



Source: Oxford Economics

Therefore, the total number of employees registered in Bucharest includes the number of employees that work in Bucharest as well as in many other Romanians cities. An important source for growth since 2000 has been the city’s property and construction boom, which has resulted in a significant growth in the construction sector.

Graph 4: Net average wage evolution – Bucharest Municipality vs National Average



Source: National Commission of Prognosis – December 2018. * Forecast

4.3 Infrastructure

Bucharest has an extensive public transportation system, including the largest metro network in Central and Eastern Europe. In the past 5 years the city witnessed infrastructure upgrades among which:

- DN1 overpasses and underpasses, facilitating the access from the north of the city and the airport to the city centre;
- Piata Presei Underpass improving the access from the north and the airport to the city centre;
- Basarab overpass, part of the inner ring-road of Bucharest, providing easy and fast access from the CBD to the western areas of the city;
- Pipera overpass - easy access from CBD to the northern decentralized locations of Bucharest and Voluntari (including Pipera North office submarket);
- Enlargement of the Buzesti – Berzei Boulevards, connecting the CBD with southern Bucharest;
- Connection Doamna Ghica – Fundeni new road extension;
- Enlargement of the northern half of the city ring-road plus overpasses;
- Mihai Bravu overpass, part of the inner ring-road of Bucharest, facilitating the traffic flow in the south-eastern part Bucharest.
- Bucharest – Ploiesti A3 highway access in Bucharest;
- Piata Sudului underpass, decongesting the main intersection in the south of the city
- Extension of the M4 metro line with Laminorului and Straulesti stations and the building of Straulesti Park & Ride.

Real estate projects have always followed the development of infrastructure. In previous years, the development projects of the public transport infrastructure in Bucharest have led to important private investments. For example, the construction of the Basarab, inaugurated in 2011, has attracted major investment in the area, in office assemblies such as Orhideea Towers, The Bridge and Business Garden Bucharest. Similarly, the realization of the Pipera passage stimulated the development of the Floreasca office area - Barbu Vacarescu.

For the real estate market in general, some projects in traffic arteries are relevant, such as the Bulevardul Expozitiei, Bucharest-Ploiesti Road, Splaiul Independentei, Berceni Road and Ghencea Extension could generate important investments in logistics, office and residential projects. Investing in new public investments and development of transport infrastructure can attract investors' interest in existing poles but also new ones:

- Center

After Buzesti Street expansion which basically connects the Government with the Parliament, major offices have been made or started such as: The Mark of the developer S Immo and Tiriac Tower.

- Expozitiei & North areas

The development of Expozitiei and Baneasa areas in northern part of Bucharest will be stimulated by the beginning of works on the new metro line to Otopeni. The European Commission approved in February 2019 the allocation of more than 500 million euros from European funds for the construction of the first section of the 6th subway line (M6) that will connect Bucharest to Henri Coanda - Otopeni airport. The funding aims to build a 6 km long metro line, with 6 stations. The new section will be located between the existing 1 May station from M4 metro line and Baneasa Shopping City (Tokyo

station). The works for the M6 subway line, section 1 May - Tokyo, are scheduled to begin in the second half of this year in order to be completed by 2023.

Henri Coanda International Airport (Otopeni) will be also extended with a new passenger terminal including platform, access roads, parking and buildings, increasing capacity and providing better services to the customers.

These areas will most likely attract significant investments over the next years, especially in office buildings and residential developments.

■ Splaiul Independentei - Ciurel

An alternative traffic road to Iuliu Maniu Boulevard and A1 motorway linked to the city center will increase the attractiveness of the center-west area and especially for the properties located along the Splaiul Independentei. The first stage of the future link between Splaiul Independentei - Ciurel - A1 is almost finalized. It comprises a bridge that starts from Splaiul Independentei and passes above Dambovită river and Virtutii Road. According to Bucharest city hall's representatives, in February 2019 this construction was 90% finalized. Also, the planning of a new profile from Virtutii road towards the junction with A1 highway through Chiajna Commune was in progress. Subsequently, the expropriation process will begin in order to start the construction works.

The construction of this link will ease the access from the industrial parks located at the beginning of A1 highway in Bucharest, to the office buildings located in centre – west area. The former Semanatoarea platform which has an area of about 25 hectares, will benefit the most from this infrastructure project. The development potential of this site could exceed one million sq. m of office space, comparable with Floreasca – Barbu Vacarescu – Dimitrie Pompeiu area, from the north of the city.

■ Berceni

Berceni area from the south-eastern area of Bucharest has seen remarkable residential developments during the last years that were sold via Prima Casa governmental program. The new infrastructure investments in the area could lead to a diversification in terms of project typologies. Berceni Road was already extended from one lane per way to two lanes per way from Aparatorii Patriei close to the junction with the Ring Road. The plans of the public authorities aim to extend the M2 metro line Pipera – Berceni with an additional station. The added station will be aboveground at halfway between the actual end of line, Berceni station and Bucharest Ring Road. The construction works should begin this year and be completed by mid-2021. Also, the National Company of Road Infrastructure Administration (“CNAIR”) aims to construct two suspended roundabout junctions, one at the junction between Berceni Road and Bucharest Ring Road and another roundabout at the junction between Oltenitei Road and Bucharest Ring Road. It is estimated that these objectives should be ready in about two and a half years.

■ **A0 Southern Ring Road – this will impact significantly the Subject Development**

Further, the plans of the local public authorities aim to expand the Pipera-Berceni subway line M2 with another station, over ground at halfway between the actual end of the line Berceni station, to the southern ring road. The works are expected to begin in 2019 and be completed by mid-2021. The construction of A0 highway in the southern part of Bucharest will create an alternative option to Bucharest Ring Road for linking Bucharest – Pitesti and Bucharest – Constanta highways.

The National Company of Road Infrastructure Administration (“CNAIR”) has recently signed the contract for construction of Plot 2 of A0 highway which will have a length of 16km. The highway is planned to start near the Bucharest – Giurgiu railway line (km 70+600), it will pass south of Magurele and Bragadiru and will be linked with the National Road DN6. The project has a 42-month execution deadline.

These investments will create interest especially for the construction of new logistic and production developments in the southern and south-eastern part of Bucharest, as it will significantly shorten the driving time from Pitesti to Constanta through the highway, as well as improve the connectivity of the peripheral areas with Bucharest and will reduce the traffic jams on the existing Bucharest Ring Road.

■ **Prelungirea Ghencea – this will impact significantly the Subject Development**

Prelungirea Ghencea area from the south-western part of Bucharest could attract new real estate investments considering that the preparatory works for widening the road and the development of an overpass over the Bucharest Ring Road towards Domnesti Commune has started.

According to Bucharest Municipality representative, the widening works of Prelungirea Ghencea Road are expected to start at the end of April 2019 and are expected to be finalized two years after the expropriation procedure is done. The new artery will be widened from one lane per way to two lanes per way and will also have a tram line to the middle.

Correlated with this investment, the feasibility studies for three other related works will be elaborated this year: extension of Brasov Street between Ghencea Prelungirea and Alexandria Road, drawing a strap between Valea Cascadelor Street and Prelungirea Ghencea, respectively the overcalling of Preciziei Boulevard between the Cascade Valley and Bulevardul Iuliu Maniu.

CNAIR has started to build the overpass to Domnesti, planned to deliver in about two years

Also, a M5 metro line connecting the densely populated Drumul Taberei neighborhood with city centre is under construction as well as whilst M6 lines planned to connect the existing metro lines with the Henri Coanda International Airport have no clear delivery dates;

These investments could stimulate the development of new retail and residential projects in Ghencea – Drumul Taberei – Grozavesti areas and other adjacent areas.

Around a million cars were registered in Bucharest – Ilfov area in ten years between 2007 to 2017 with under a quarter being second-hand car, whereas in the rest of the country acquisition of the second-hand vehicles is significant.

These reflects the higher purchasing power in Bucharest. However, the high motor vehicle density puts pressure on the local transport infrastructure and thus there is the need to elevate regulations to protect the damaging environment quality.

4.4 **Affordable housing**

While there is no universally agreed measure of what constitutes ‘affordable housing’, according to the United Nations program UN Habitat, there are three common measures, which are associated with two components: housing costs and household income, detailed below:

- House price to income ratio, calculated by dividing the median house price by the median household income. It shows the number of annual median salaries it takes to buy a median priced house; A benchmark used to define housing affordability at the international level is the one proposed by Demographia International Housing Affordability Survey, using the “Median Multiple” which uses the

ratio of median house price to median annual gross pre-tax household income which if less than 3.0 is considered affordable, a ratio between 3.1 to 4.0 is moderately unaffordable, a ratio between 4.1 to 5.0 is seriously unaffordable and a ratio of more than 5.1 is considered “severely unaffordable”;

- House rent to income ratio, calculated by dividing the median annual rent by the median annual renter household income. It is not a universally agreed ratio or percentage at which owner-occupied or rental housing is deemed unaffordable as traditionally there are more or less active rental markets;
- Residual income assessment indices as a percentage of household income spent to housing-related expenses; it demonstrates the household’s ability to financially service housing without compromising on necessary non-housing expenditure. Although there is no universally agreed percentage, housing is generally deemed affordable when a household spends less than 30% of their income on housing related expenses, such as mortgage repayments (for owner-occupiers), rent payments (for tenants), and direct operational expenses such as taxes, insurance and service payments, according to the same source;

Using the residual income assessment, also employed by the U.S. Department of Housing and Urban Development, it is stated that one should pay for an affordable house no more than 30% of gross household income, including utilities. Applied to Bucharest and to an average wage, an affordable home should cost no more than 590 Euro per month (rent + costs); this should include the mortgage or the rent, and all the other expenses associated with the property, meaning utilities, taxes, and insurance.

With a developed purchase – sale transactions market, the report looks to the amount required to buy a house and applied the Median Multiple for Bucharest.

Assuming the average of monthly nominal gross earnings in Bucharest of 4,497 Lei in 2017, the equivalent of 984 Euro and assuming two such income producers per household, an affordable house in Bucharest should be less than 70,000 Euro whilst above 120,000 Euro, would be considered severely unaffordable.

Chapter IV. Real Estate Markets

5 Office Market

This Section summarizes the current office market conditions that are found in Bucharest, with information regarding the total modern office area (spread per submarket), major office buildings that were completed in the last years and information regarding the demand (derived from the market leasing activity – take-up). This information is useful to analyze the potential of the office development on a city scale and particularly to the BPOs sector which is an initial target for the Subject development.

5.1 Overview

The Romanian economy is slowly shifting into a service oriented one, with IT services registering the highest growth from all components of the GDP in 2015. This raised the need for quality office accommodation that can support a newer generation of white-collar workers. Starting to develop in the late 1990's and becoming more significant by mid-2000's, the Bucharest modern office market had as of the end of 2018, over 2.65 million m², divided in 12 major office sub-markets. The construction generally followed the metro network of the city. The largest office districts remain the areas in the north of Bucharest: Floreasca Barbu Vacarescu (15.5% of the total stock), Dimitrie Pompeiu (15.7%) and North (12.1%). The advantages of the northern areas are numerous, including: proximity to the international airport, higher quality residential neighborhoods with their wider tree-lined boulevards, generous parks, convenient access to the new residential districts such as Pipera, availability of larger development sites and easy access to public transportation means. However, with the recent infrastructure improvements, new areas such as Center West are now attracting the attention of developers. While center locations are preferred destinations to set-up the headquarters of the companies, the northern locations have established as back office locations and in the recent past witnessed the development of larger business parks.

5.2 Office Supply

Office supply reached 125,000 m² in 2018, volume 14% lower when compared with the one registered in 2017. Orhideea Towers (37,000 sqm), Globalworth Campus Phase 2 (28,000 sqm), first phase of AFI Tech Park (22,000 sqm) and Unirii View (18,700 sqm) were the most important deliveries in 2018.

Table 6: Representative office buildings completed in 2017 – 2018

Project	Sub-market	Developer	Quarter	Size
Campus 6.1	Center-West	Skanska	Q4 2018	22,000
Orhideea Towers	Center-West	CA Immo	Q3 2018	37,000
AFI Tech 1	West	AFI Europe	Q3 2018	18,000
Globalworth Campus Phase 2	Dimitrie Pompeiu	Globalworth	Q1 2018	28,000
Globalworth Campus Phase 1	Dimitrie Pompeiu	Globalworth	Q4 2017	29,000
The Bridge	Center-West	Forte Partners	Q3 2017	36,200
Sema Park 4	Center West	Sema Park	Q3 2017	24,000
Timpuri Noi Square	South	Vastint	Q2 2017	33,000

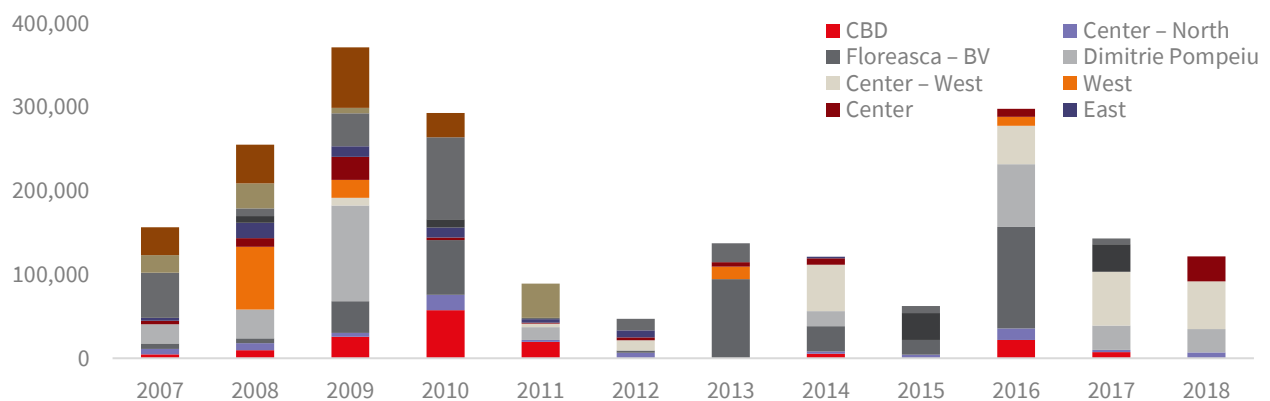
Source: JLL

Table 7: Key Office submarkets in Bucharest

Sub-market	Stock (m ²)	Average rent (Euro/m ² /mth)*
1. CBD	242,122	16 - 18.5
2. Center - North	149,441	15 - 17
3. Floreasca - BV	411,825	15 - 16
4. Dimitrie Pompeiu	415,567	12 - 14
5. Center - West	309,370	14 - 16
6. West	146,900	10 - 13
7. Center	187,466	15 - 17
8. East	84,500	12 - 14
9. South	95,303	10 - 12
10. North	321,962	15 - 17
11. Baneasa	96,500	11 - 13
12. Pipera North	191,600	10 - 12
TOTAL	2,652,556	

Source: JLL; *asking rent

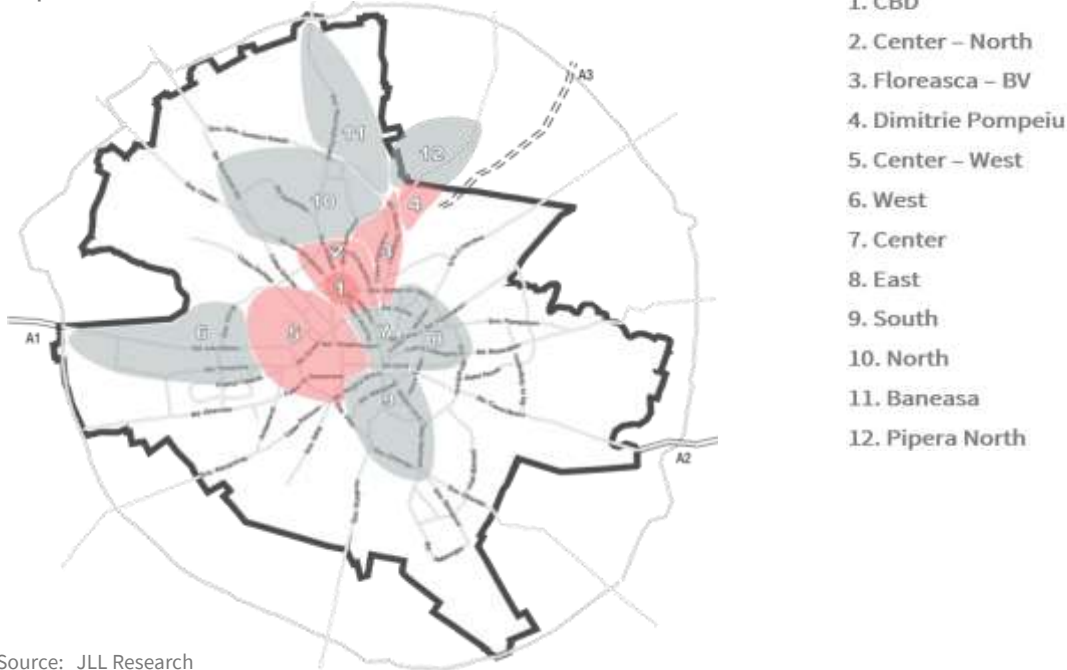
Chart 1: Yearly deliveries in Bucharest by sub-markets – historical evolution



Source: JLL

Another over 300,000m² are announced for 2019, a more than double times higher amount than in 2018. The focus of developers has changed from the crowded north of the city to the center-western and center parts of Bucharest due to the good private and public (metro) accessibility of the area and proximity to student campuses.

Map 1: Bucharest Office sub-markets

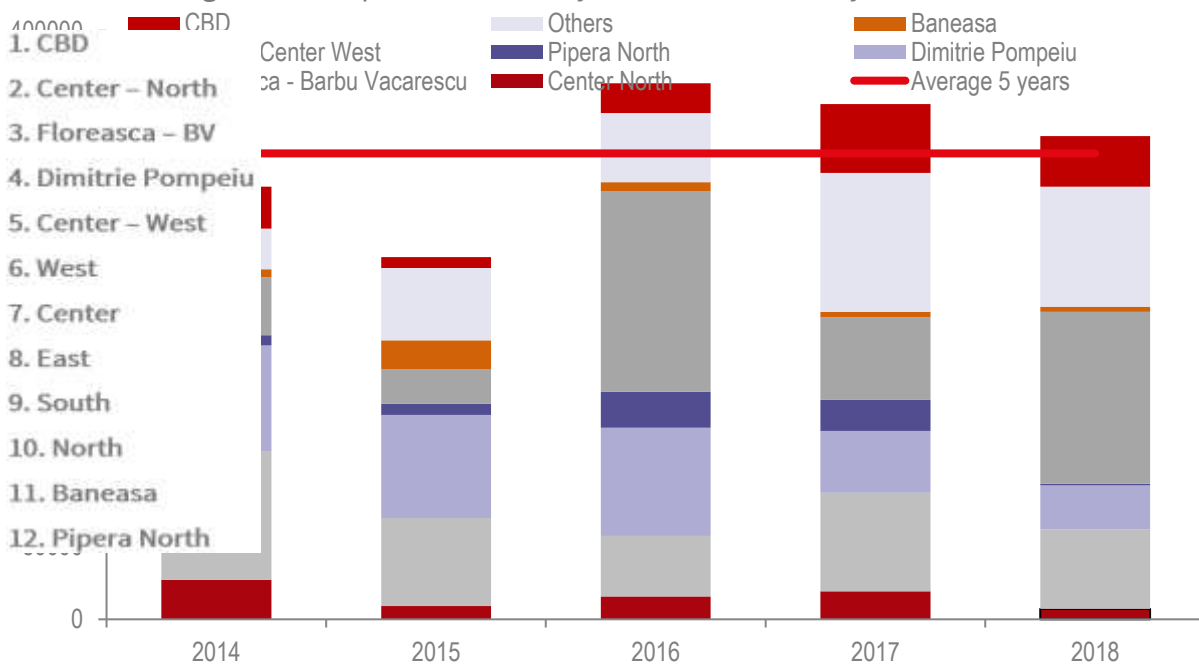


Source: JLL Research

5.3 Office Demand

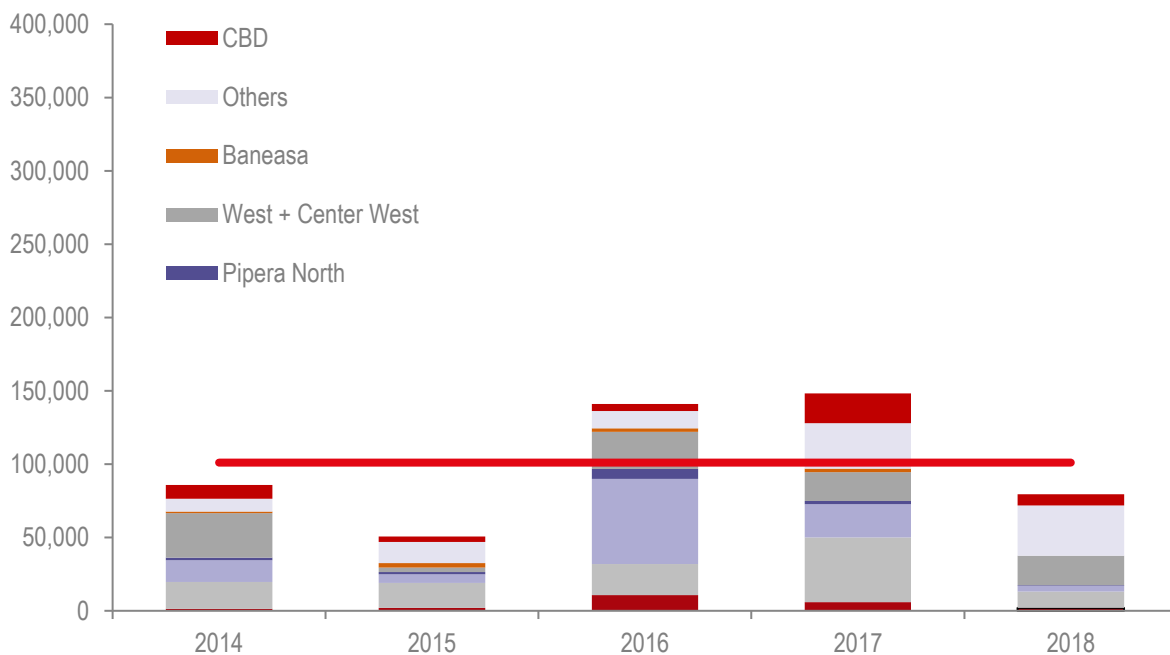
Demand in Bucharest in 2018 reached just 330,000 sq m, a slightly decrease compared with 2017, when 350,000 sq m were signed. However, net take-up (new leases and extensions) represented one third of the total demand (approximately 100,000 sqm) showing that Bucharest is still interesting for new companies or a good destination for them to expand their operations. IT&C and BPO companies were the most active in terms of leases, followed by energy companies. The Center West area of Bucharest attracted the gross of the demand in 2018, with approximately 30% of the total leased space, followed by Floreasca, Barbu Vacarescu and Dimitrie Pompeiu sub-markets, together comprising 26%, Center with 11% and CBD with 10%.

Chart 2: Office gross take up in Bucharest by sub-markets – five years evolution



Source: JLL Research

Chart 3: Office net take up in Bucharest by sub-markets – five years evolution



Source: JLL Research

Looking to the last five years evolution, the average annual volume of the net take up is around 101,000m², almost a third from the average gross take up of around 317,000m². This trend is expected to continue with more companies attracted to the region and slight increase of the gross take up in line with the renewal renegotiation cycles.

5.4 Rents & Vacancy

Prime rents remained stable at EUR 18.50 m² / pm as no new major buildings were delivered in the CBD of Bucharest, but incentive packages have increased slightly. The vacancy rate decreased to a record level of 8.2% at the end of 2018. This is mainly due to the low level of new supply and the relatively strong take-up figures. Vacancy is expected to remain relatively stable to the end of 2019, as the new supply will most likely be met by new demand. Vacancy rates continue to be uneven between sub-markets, which is also reflected in the evolution of rental levels.

5.5 Forecast

Currently, the office supply announced for 2019 reaches approximately 400,000 sq m. On development front, quality projects have been announced, with the majority seeking green certification (either BREEAM, LEED or DGNB certified), as a response to the increased interest of investors and corporates for such office accommodation requirements. Green certification is secured as well for existing buildings, as a response to the occupiers to lower their overall occupancy costs, respectively decrease the service charge costs to a more sustainable level.

6 Retail Market

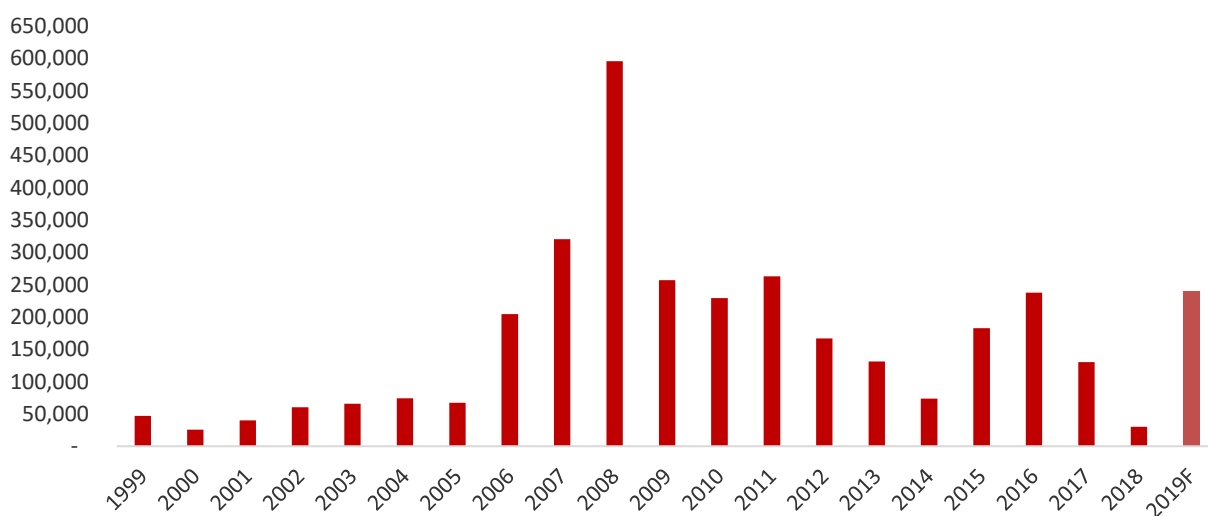
In this Section the retail market in Romania and Bucharest are analyzed. The aim is to understand what type of retail space is suitable for further development in the analyzed Sector 5 area, as well as what would be the achievable rent and how many square meters could be realistically absorbed by the market. Considering the relevant type of development, then the aim is to see what developers could potentially be interested to invest here.

Historical, current and forecasted information were presented as support, with regard to stock, annual supply and demand, as well as prime rents and yields evolution. Also, the main developers and main retail developments were analyzed, looking at what the focus is on currently.

6.1 Overview

Similarly, to other post-communist countries, modern retail developments started to emerge in Romania and in Bucharest in the 1990's. By 2007-2008, the retail market had become one of the most dynamic in CEE and Europe overall. Total modern retail supply in Romania has reached 3.1 million m² as at the end of 2018. Bucharest's modern retail supply currently stands at just close to 1.1 million m². The largest projects delivered to date in Bucharest are Băneasa Shopping City developed by Băneasa Developments (2008), AFI Palace Cotroceni developed by AFI Europe (2009), Sun Plaza developed by S Immo and EMCT (2010), Mega Mall (2015), developed by NEPI and ParkLake Plaza (2016), developed by Sonae Sierra and Caelum Development, each one with leasable areas of between 70,000 – 80,000m².

Chart 4: Shopping center deliveries in Romania



Source: JLL Research; F - forecast

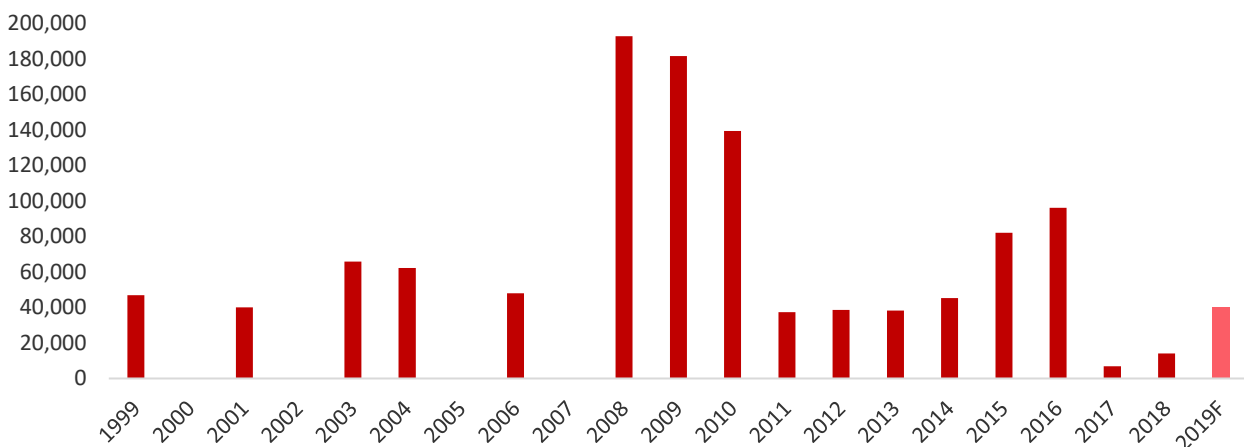
6.2 Ownership and Developers

The most common form of shopping centre ownership in Romania is freehold. The Romanian land registry lists all encumbrances on the property, and as such, title of ownership is rarely an issue. Historically, the market has been driven mainly by local or regional developers, but in the recent past there has been increasing interest from international institutional players. The top five retail owners in Romania have together more than 45% of the total shopping centres stock in the country. The largest is NEPI Rockcastle, with approximately 20% of the entire stock. The South-African investment fund was very active in the recent years, both in terms of acquisitions and development. Other major owners in the country are Iulius Group, Argo Capital, Immofinanz and AFI Europe.

6.3 Retail Supply

The retail market in Bucharest has been initially led by decentralized, large format stores, such as cash & carry, hypermarket and DIY operators, since Metro opened its first unit in 1996 and Carrefour in 2001. After the opening of the first shopping centre in 1999 (București Mall), for the following five years only retail galleries attached to hypermarkets were delivered, and they have been a successful feature of the market. However, starting with 2007, the market turned to shopping centre development and during the next three years the modern shopping centre supply almost doubled. Retail development became limited in Bucharest in 2011 - 2014 and went back to mainly first-generation type of schemes because of the difficult conditions in the market (out of which decreasing rental levels and the lack of available financing were the most important factors). With a current stock of over 1.1 million m², Bucharest accounts for more than 35% of the total stock in the country. Due to the high population density and available plots, the western part of Bucharest has attracted the largest number of notable retail developments such as Afi Palace Cotroceni (90,000m²), Plaza Romania (40,500m²), Militari Shopping Centre (40,000 m²), West Park (incorporating Hornbach – DIY, Kika – furniture and Fashion House Outlet Centre), as well as other retail agglomerations (Carrefour, BricoDepot and Mobexpert on the A1 highway or Dedeman and Selgros on Timisoara Boulevard). The south has also seen a lot of retail development, with Sun Plaza being the dominant shopping centre in the area.

Chart 5: Modern retail space delivered in Bucharest



Source: JLL Research

The Bucharest retail market comprises a wide range of projects. From a size perspective, the 27 modern retail schemes from the city can be split in the following categories:

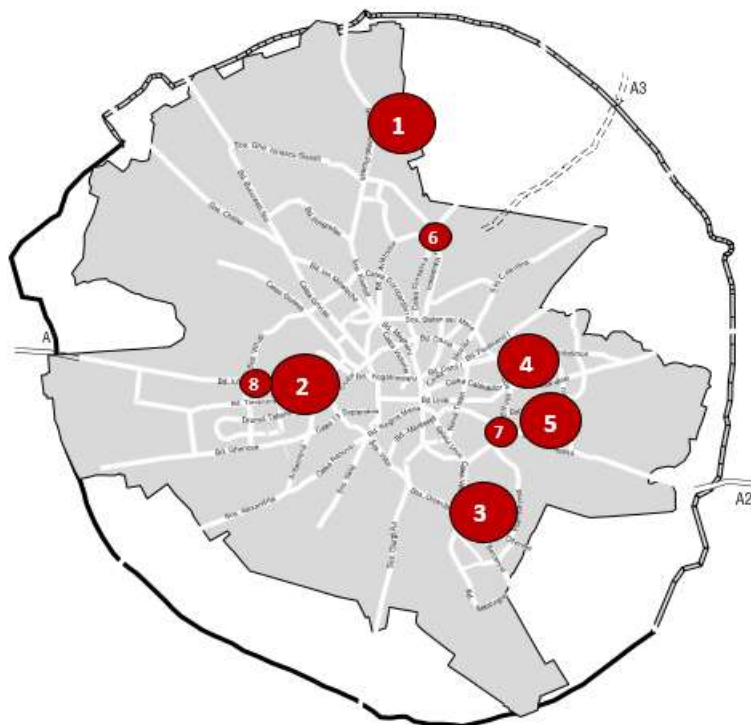
- Seven have GLAs of up to 20,000m² (totaling 93,000 m²),
- Eight have GLAs between 20,001 and 40,000m² (totaling 246,000 m²),
- Eight have GLAs between 40,001 and 60,000m² (totaling 390,000 m²),
- Five largest projects of over 60,000m² (totaling 388,000 m²).

Quality wise, all the retail schemes included in the modern retail stock of Bucharest were selected in accordance with the Jones Lang LaSalle’s definition below. There is no reliable estimation of the old or poor-quality retail space in the city. A shopping centre is defined as a central location where shops, restaurants as well as service companies, leisure operators are grouped together to serve a local or wider population whose conception and management have the following characteristics:

- The building was delivered after 1990 or was significantly refurbished/improved after 1990
- The building/s is/are created and managed as a single entity

- The entity is managed by a single authority whose responsibility is to control the commercial mix, its implementation and adaption
- Retail associations often support the shopping centre management function by coordinating the views of the retail/leisure operators, which are then fed into the marketing and promotional activities organized by the management team.
- The minimum gross lettable area of the shopping centres included for the purpose of the JLL database is 5,000m²
- The building generally respects the main standards required by international retailers

Map 2: Bucharest – Main Shopping Centres

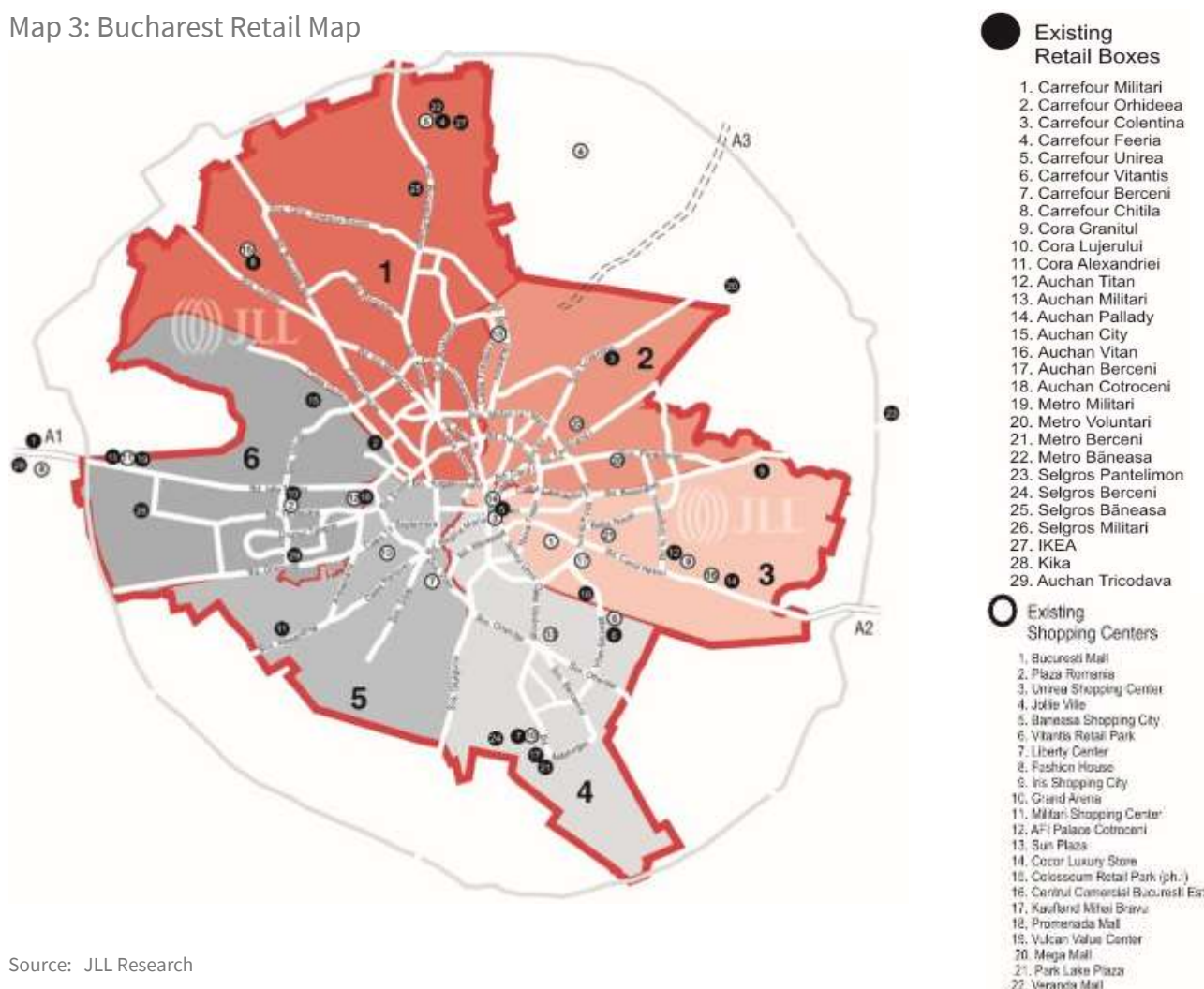


- 1. **Baneasa Shopping City** (55,000 m²; opened in 2008 - part of the largest retail agglomeration in Romania comprising a Metro store, Mobexpert, Brico Depot, IKEA and Baneasa Shopping City (including Feeria shopping gallery and a mid to up market shopping mall of 55,000m²)
- 2. **AFI Palace Cotroceni** (90,000 m²; opened in 2009)
- 3. **Sun Plaza** (81,600 m²; opened in 2010)
- 4. **Mega Mall** (72,000 m²; opened in 2015)
- 5. **ParkLake Plaza** (73,000 m²; opened in 2016)
- 6. **Promenada Mall** (38,000 m²; opened in 2013)
- 7. **Bucuresti Mall** (43,000 m²; opened in 1999)
- 8. **Plaza Romania** (40,500 m²; opened in 2009)

There is a tendency of continuous upgrade of the existing retail schemes. The first completed projects, București Mall, Plaza Romania and Unirea Shopping Center witnessed at least one upgrade. However, there is still a quality gap between the first projects and the prime shopping centres, namely AFI Palace Cotroceni, Băneasa Shopping City and more recently ParkLake Plaza that display a unitary concept. The

upgrades are necessary not only to retain the existing retailers, but also highly important in attracting the new brands entering the market. Historically, very few new retailers opted to open their first units in other than top shopping centres. In 2011 there was only one retail park opened – Colosseum (37,000m² GLA) including a Carrefour hypermarket and the first unit of Leroy Merlin in Romania – and two relatively small size extensions of existing shopping centres – 14,000m² in Băneasa and 1,300m² in București Mall. In 2012, given the lack of new projects, the hypermarket chains which were still eager to expand decided to develop their own schemes such as Cora Alexandriei (18,000m² GLA), Auchan Giulești (7,500m² GLA) and Kaufland Mihai Bravu (12,800m² GLA). In 2013, only one shopping centre was delivered - Promenada Mall of Raiffeisen Evolution (38,000m² GLA). The supply for 2014 consisted of two relatively small projects Vulcan Value Center of NEPI (25,500m² GLA) and Auchan Tricodava of Immochan (20,000m² GLA). Starting with 2015, however, encouraged by the strong growth of retail sales, the increasing demand and the fact that several areas of Bucharest remained relatively undersupplied, developers acted. Thus, Mega Mall was completed in 2015 in the east of Bucharest, followed by ParkLake Plaza, in 2016, in the same geographical area of the capital city.

Map 3: Bucharest Retail Map



Source: JLL Research

In the table below, there is a comparison between Bucharest and the other 3 main capital cities in CEE. Bucharest has the second largest total retail stock after Warsaw, but only third retail stock per capita after Prague and Warsaw. Though the Bucharest retail market has a shorter modern history, the modern retail stock is comparable with the inventory recorded in the other CEE capitals.

Table 8: CEE Capital Cities Retail Stock– as of Q3 2018

Capital city	Retail stock (m ²)	Retail density	Opening of the 1st modern shopping centre	GDP per capita
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Warsaw	1,800,000	951	1994	€ 38,373
Bucharest	1,104,000	584	1999	€ 21,814
Budapest	800,000	445	1993	€ 27,045
Prague	1,100,000	855	1996	€ 40,222

*Source JLL, Density: m2 per 1,000 inhabitants; all modern retail formats; GDP per capita – calculated, GDP source: Oxford Economics

Bucharest lacks a single dominant retail high street location downtown. The prime retail pitches are along Magheru/Bălcescu Boulevard and Calea Victoriei. A number of international retailers have opened flagship stores along these streets. Calea Victoriei mainly attracts up-market brands.

The historic centre and especially the Lipscani area are also important to mention. After major redevelopment works it has become the main destination in Bucharest for bars, coffee shops and restaurants. The area could become attractive for fashion retailers as well and has huge potential to become a retail hub of the city, provided the municipality continues to make all efforts to reach this aim. Last year Adidas and H&M closed their store located in the historical centre.

6.4 Retail Demand

Bucharest is clearly the most attractive retail destination in Romania due to its large population and the significantly higher spending power than in the rest of the country. Demand in Bucharest remains focused on the best performing projects where, during the last five years, retailers interested to expand were able to find available space as several brands with a significant presence have experienced financial and/or operational issues and were forced to close down units.

Encouraged by the surge in retail sales (13.9% in 2016, the strongest growth in EU, 12.3% in 2017 and 7.3% in 2018) the overall demand for retail space is picking-up. Starting with 2014, approximately 50 new retailers entered the local market. Major brands which decided to choose Romania included luxury ones such as COS, Marc Cain, Roche Bobois, Cerruti 1881, Michael Kors, Liu Jo or Chopard, the mass-market retailers Forever 21, Decimas, Pepco, Debenhams as well as Marks&Spencer Food and Nespresso.

Several strong international brands with a direct presence in Romania are aggressively expanding, eager to take advantage of the still favourable commercial conditions and to gain market share. Among these most active retailers on the local market we can mention hypermarkets, supermarkets and discounters such as Kaufland, Carrefour, Mega Image, Profi and Lidl and fashion brands such as H&M, Takko, Deichmann or Inditex. The low to mid-market retailers try to cover most of the market from a geographical point of view, while mid to up-market brands are very selective and only looking at the prime centres in Bucharest and the main secondary cities and therefore opening few new units. In the short term, the forecasted improvement of the economic environment in Romania and the pick-up in retail sales should trigger a further increase in the retail stock.

However, it was considered that Bucharest generally could currently accommodate another major shopping centre in the following 5 years. The interest of the retail developers has now moved towards the tertiary cities, of under 200,000 inhabitants, and towards projects of reduced dimensions, adapted to the population. In the last two years Prime Kapital was the most active developer of the kind, opening mainly small retail parks (Value Centers) of up to 10,000m2 GLA across the country, adjacent to a Kaufland unit, to benefit from the created synergy. La Strada is another developer, active on strip malls concept, so far having developed three schemes in Popesti Leordeni, Militari and Brasov, in areas with recent residential development, and another scheme in Militari area is in plan.

- La Strada is a concept of street mall providing a small food anchor (up to 1,000 m2) and around 30 retail units of between 20-50m2 GLA each;

- Value Center is a retail park concept developed by Prime Kapital which generally adds retail boxes adjacent to an already existing Kaufland hypermarket; excluding Roman and Baia Mare Value Centers, both anchored by a Carrefour hypermarket and with a total area of around 20,000 m², Value Centers provide in between 5-10 boxes each, with total areas of between 3,000 – 7,000m² and with rents ranging from €6-€15 euro per month, the weighted average rents per centre being of between €7-€9 euro per sq m per month. The small format hypermarket, discounter or supermarket also have an average rent of €6-€9 euro per sq m per month.

7 Residential Market

This section provided a guideline of the market evolution in Bucharest, stock, areas, developments and developers.

In details, it starts with a brief history of the residential activity following 1990 and summarizes the major neighborhoods' structure, followed by a statistical data on the residential construction volumes over the past 15 years along with brief information on some of the most important economic aspects that impacts the residential market.

Furthermore, the major developers that are active in this sector in Bucharest have been listed.

7.1 Overview

Prior to the mid-1990s there was no developer's market existing in Bucharest. Before the boom period started in 2005, the annual scale of supply levelled at approximately 1,300 apartments which were easily absorbed. The small level of supply in these years was focused on affluent homebuyers. With some delay compared to its CEE peers, the residential market of Bucharest started to develop more rapidly from 2006 onwards. Private developers, both Romanian and foreign ones, started their activities 2-3 years earlier on. The year 2006 saw some 4,000 units launched for sale, followed by an even higher new supply of approximately 6,000 and 7,000 units in 2007 and 2008, respectively.

At the same time, the level of real demand combined with speculative demand and unsatisfied demand in these years was only partly covering the new supply.

The excess of supply caused a fast increase of prices. However, real sales were in substantial part based on demand by investors and not by end users. With the excess of global capital, lack of clear rules and questionable transparency as well as the "gold rush" approach, land prices as well as apartment prices were pushed far above the affordability level of local buyers. The dependence on foreign capital made the market much more vulnerable for the impact of the global financial crisis.

By mid-2008 foreign capital demand gradually left the marketplace and eventually the market offering proved not to be adjusted to local homebuyers' preferences, needs or financial capabilities. As a consequence, sales stagnated and from Q3 2008 the growth of prices for residential units started to reverse. The global financial crisis hit Romania's economy hard in 2009. The drop of GDP, the decline in purchase power of households and the increase in mortgage interest rates impacted negatively the residential market. In response to the credit crunch and the sales slowdown, developers also drastically reduced the number of newly launched units, resulting in a slow decrease of the market offering. The number of newly supplied apartments was minimal in 2009. The years 2010 and 2011 have noted slight improvement over 2009. Though the improvement was observable in the delimitation of the market offering and in the deceleration of the price decline, there was less evident improvement in sales and new supply in both years. In 2012, the supply side – most of the projects have been completed in 2008-2009, built on quite expensive land for relatively high costs. The supply was estimated at some 4,000 units by developers, while investors – speculators were trying to sell a similar number of new flats. The prices were rather stable or increased (nominally) in the range of 0.5-1.0%. The year 2013 brought an increase (by 15% y/o/y) of completed units. The developers were still, however, struggling to sell the pre-crisis units and were reluctant to start new projects. In 2013 there were building permits issued for construction of approx. 5,000 new residential units. New projects were also limited by quite high land prices, making potential new developments hardly feasible. In summer 2013, the interest rates of the National Bank of Romania were set at historically lowest level. There were no signs, however, of any growth in number of transactions. It was confirmed by a slight decrease (by ca. 1.0-2.0%) of prices in Bucharest.

In 2014 the number of building permits in Bucharest-Ilfov increased again y/o/y, this time by 25%, and reached 6,179 units. It definitely showed a wave of optimism in the developers' society. The majority of new projects were designed according to the Prima Casa criteria. The number of units completed increased as well. The demand was driven both by the low interest rates as well as by the buyers withdrawing savings from the banks (because of very low interest rates on deposits). Although many commentaries pointed out for the stabilization of prices, apparently according to the numbers they decreased moderately in Bucharest, at ca. 2.0% per annum. In 2015 permits both in Bucharest and in Ilfov stayed at the level similar to 2014 (Bucharest: 681 building permits and Ilfov: 5,318 building permits). The mortgage interest rates have stabilized at the historically lowest level of 4.0-4.5%. Prima Casa program was supporting the sales at even higher level and the buy-to-let demand increased in central and sub-central locations. High sales pace continued in H1 2016, driven both by low interest rates, increased price limits for both Prima Casa and preferential VAT rate and by good consumer mood caused by increase of income. In 2016 the number of building permits decreased slightly (Bucharest: 786 permits, Ilfov: 4,688 building permits). In the same time the number of permitted square meters picked up by 5%, which means that the average permission was issued for a higher number of dwellings. In 2017 the number of permits issued for Bucharest and Ilfov increased by 14% and the number of permitted square meters picked up by almost 40% when comparing with 2016. According to the National Institute of Statistics, in Romania, in 2018, a total number of 42,694 building permits were issued for residential buildings, out of which 90.6% represented building permits issued for development of individual housing. In Bucharest – Ilfov area a number of 5,756 building permits were issued for residential developments (Bucharest: 745 permits, Ilfov: 5,011 permits).

7.2 Main areas

From the residential point of view Bucharest market can be divided into the following categories: high-end use such as: Primaverii, Aviatorilor, Dorobanti, Domenii, Herastrau or Pipera/Voluntari and middle class residential areas, more detailed as follows:

- Unirii – along with Cotroceni it is one of the oldest neighborhoods of the city established in late in the 19th century suffered the most during the communist regime, in 80's when over 10,000 houses were demolished to leave space for the development of The House of the People, currently Palace of Parliament. The area is mixed with block of flats along the Unirii Blvd. while older houses can still be found on the secondary streets, the majority of which are obsolete but with large potential as urban regeneration. Unirii area is very centrally located but lacks green areas in the immediate surroundings, larger plots are available but there might be some issues with the ownership titles.
- Drumul Taberei – is a mixed area with middle to low income inhabitants as well as middle to upper income inhabitants. It is part of district 6 of Bucharest. The area has a high population density, together with Militari contributing with more than 300,000 inhabitants to the Bucharest's population. Even though the area has a high population density it also has large boulevards and generous green areas (Drumul Taberei Park). Drumul Taberei is well served by all kind of facilities (modern retail formats such as shopping mall, hypermarkets, supermarkets, fresh markets, e.g.). The major weakness of Drumul Taberei area is the lack of metro station, although a new metro line is under construction, being estimated that it will be functional by the end of 2019.
- Militari - located in the western part of the city, Militari attracted the interest of the residential developers. The area is well served by public transportation and a number of large plots of land are available. Militari together with Drumul Taberei contribute over 20% to the total proposed projects to be developed in Bucharest.

- Dristor/Titan – located in the central eastern part of the city, Titan is well served by public transportation facilities. Existing residential block of flats are ensuring a high population density. New residential project rarely exceeds 1.000 residential units/project.
- Vitan – eastern location with easy access towards A2 Highway to Constanța. The area is well served by public transportation (metro) as well as retail facilities (shopping centre, hypermarket, retail park). Vitan established as a desirable residential area after the launch of Asmita Gardens. The project is one of the largest in the area and will offer up to 758 residential units spread over 7 blocks (GF+16/20/24 floors).
- Tei / Colentina – is enjoying a northern-eastern location as well as availability of larger plots of lands. A number of larger residential compounds such as NeoPeninsula (2,700 units), Sigma Residence (1,500 units) Planorama (1,048 units), Rose Garden (908 units) have been proposed in this area.
- Bucurestii Noi – located in the north western part of the city Bucurestii Noi is part of sector 1. Locations such as Victoriei Square are easily reached by cars/buses and newer metro, as the last 2 metro stations planed were delivered in 2017. With numerous former industrial sites available for further development, Bucurestii Noi is lagging behind other residential submarkets. Existing residential units are represented either by private houses or block of flats (4-10 floors). The area is poorly served by retail facilities with 1 larger project.
- Ionescu Sisesti – located in the north-eastern part of the city currently enjoys easy access to the city centre. Availability of larger plot of lands encouraged local developers to propose small-to medium scale residential developments. To date there are only few newly blocks of flats while the most representative residential development.
- Rahova – located in the south-west of the city, the area still has several large land plots that could be developed. The local urbanism plans are allowing medium to high rise residential projects. To date, just several new blocks of flats were built there. The main drawback of the area is the lack of proper means of public transport and most importantly metro.
- 13 Septembrie – Panduri – central western area has witnessed modest development in recent years, despite its land plots on the former industrial sites. Due to the lack of metro connection, the area did not register the same increase in new developments.

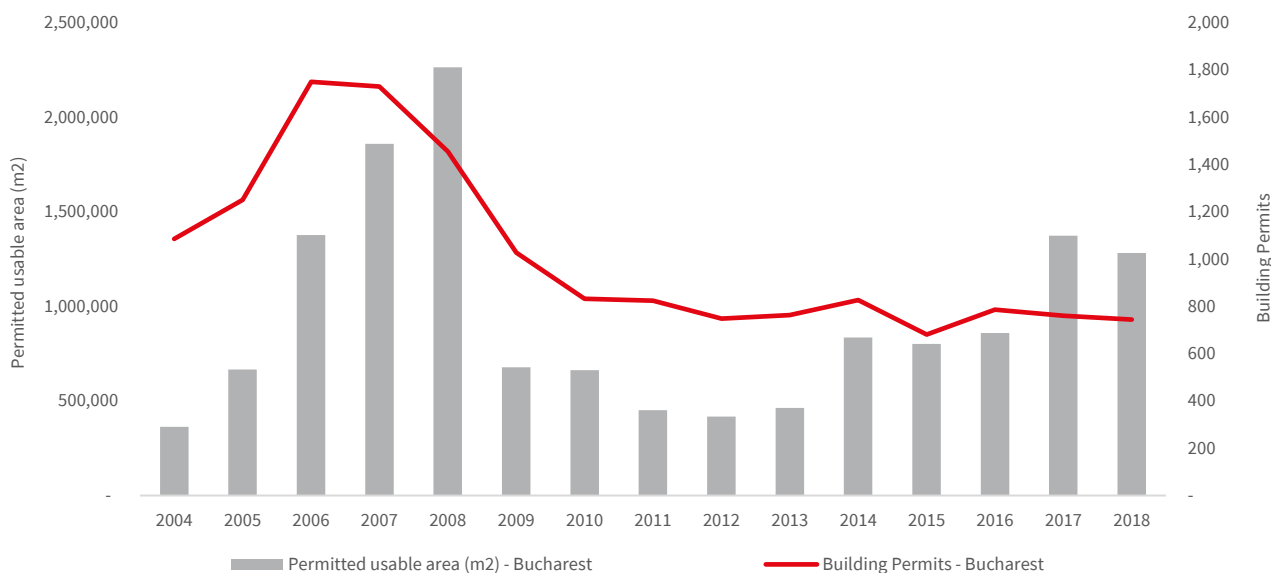
In addition to the above two categories, others should add, mainly out of town preferred locations, longer established residential areas: Pipera/Voluntari, Corbeanca or more recent poles: Otopeni, Mogosoaia, Chiajna, Domnesti, Bragadiru, Popesti-Leordeni, Pantelimon, Dobroesti or Stefanesti which became of interest for the residential developers for attractive land selling prices and large plots;

7.3 Trends, Stock and Price

The statistics of completed units show a moderate decline but it may be a result of extended administrative procedures. The same problem may impact the new building permits.

The statistics for 2017 show a slight decrease in number of permit decisions in Bucharest, while the usable area has increased by 60%, indicating that developers applied for permits of much larger projects. It is quite often that developers start the first phase of the project with approx. 100-150 units while the whole project is three-five times bigger. In 2018, total usable area of permitted buildings got close to 1,300,000 sq m.

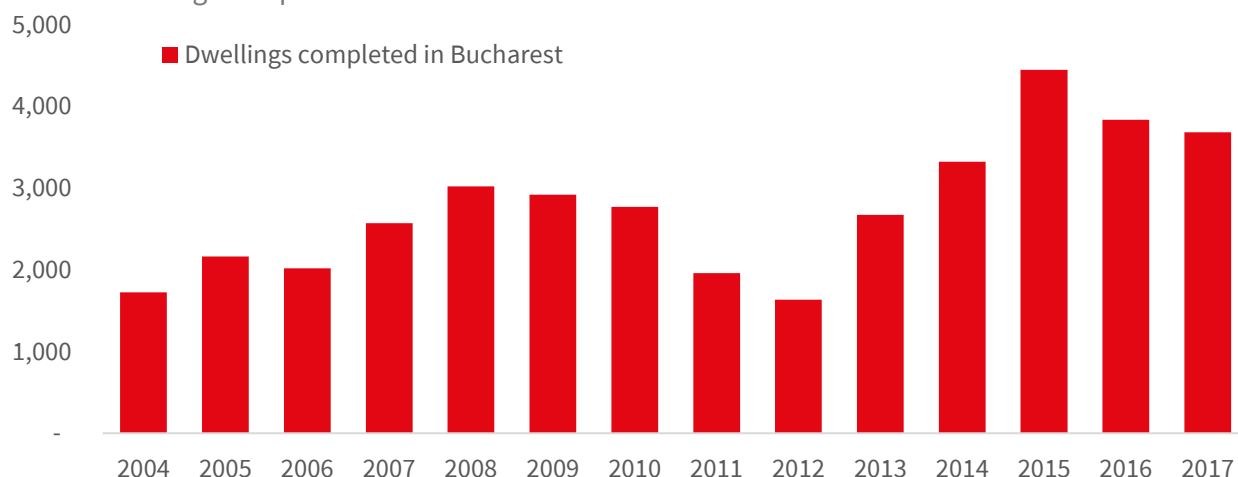
Chart 6: Building permits number, permitted useful areas in Bucharest 2004-2018 (collective buildings)



Source: National Institute of Statistics

It can be estimated that it allows to build more than 14,000 residential units within the city of Bucharest itself. In January and February 2019, a number of 72 permits were issued, with 11% less permits than in the corresponding period of 2018. In terms of usable area, it was with 99% more than in the corresponding period of 2018. In 2018, the usable area per one permit was still at a high level, exceeding 1,700 sq m.

Chart 7. Dwellings completions in Bucharest between 2004 – 2017



Source: National Statistical Institute

The north-eastern sectors 1, 2 and 3 remained the most expensive parts of the city, mainly thanks to projects located near the city center (in case of sector 3) and located in the neighborhood of the Colentina river (in the northern parts of sector 1 and 2).

The price per m² usually exceeds under €1,400 per m², opposite to the cheapest sector - Sector 5 with an average asking price under €1,100 per m², but also a limited number of units offered. The second half of 2018 confirmed the trend of growth of supply in the upper-middle market segment, as well as an increase of the average asking prices in the low-end segment and growth of its share on the offer at the same time. The price of low-end projects with a price of under €1,000 per m², was rather stable over the past months, majority of the located within the city borders, consist of relatively small space per room, repeatable multifamily buildings, sold within a small marketing period and therefore a relatively limited stock is available in a specific moment compared to the developed amount.

7.4 Residential market situation

- Approximately **60% of potential buyers look for newly built apartments**. In addition to the huge difference in quality between old communist blocks and new projects there is also the issue of the earthquake resistance. Thus, the general level of the demand should in long-term at least be stable, if not increase.
- The year 2017, especially the first half, was the best period on the local market: both number of transactions, as well as asking prices, were increasing. Demand was supported on the one hand by very low mortgage interest rates combined with Prima Casa loans, on the other hand by record-high GDP growth and fast increasing incomes.
- The last years brought also an increase of new office developments, targeted mostly at BPO tenants. **Young employees of these companies are one of key target groups for residential developments** in the low-end and lower-middle market segments.
- The prices in Romania are quoted in EUR per sq. m of usable area or total built area, without VAT. The room for price negotiations in the last months is still rather low, indicating a **certain surplus of demand over supply**.
- As the prices increase gradually, **a higher percentage of the units exceeds the EUR 100,000 threshold** obliging the sellers to apply 19% VAT, instead of 5%. As the VAT limit is defined in RON (up to 450,000 RON), while the prices are in most cases set in EUR, the weakening of RON against EUR effectively lowers the pool of units sold with 5% VAT. It has a growing impact on decreasing affordability in the middle-market segment and may push some clients towards secondary market or individually built single-family homes.
- In the second half of 2017 and throughout 2018 the demand started weakening. The main reasons were:
 - Higher prices of apartments, increasing faster than average income growth;
 - Higher interest rates and less Prima Casa loans;
 - Decreasing offer, especially in the mass market segment;
 - the debt-to-income rates were of 47% (average of the market) for mortgage loans and 45% for consumer loans;

Starting from 1st of January 2019, the National Bank of Romania (BNR) decided to limit the debt-to-income rates for all individuals taking loans from financial institutions to a maximum of 40% of the net income for the loans in local currency LEI and maximum 20% of the net income for the loans in another currency.

7.5 Residential market forecast

- Bucharest is one of the largest cities within CEE and it has one of the lowest numbers of dwelling stock per inhabitant. The Romanian capital still shows a surprisingly low housing production. At the same time, comparing the current prices with the prices at its peak in 2008, they seem to stay at relatively low level.
- Mid-term forecast of the GDP growth for Romania are still very positive. EU Commission predicts 3.8% GDP growth in 2019 and 3.6% in 2020. Also, the World Bank expects the Romanian economy to slow down in the next two years, estimating a GDP growth of 3.5% for 2019, and 3.1% for 2020.
- According to the most recent projection of The National Bank of Romania (NBR), the annual CPI inflation is projected to reach 3.0 percent at the end of 2019.

- According to the official announcements of Romanian government The Prima Casa program will continue at least until 2021. For the years 2018-2020, the allocation will be annually RON 2 billion, targeting to diminish to RON 1.5 billion by 2021.
- In Bucharest, in the second half of 2018, the number of apartments available for sale increased with 6% comparing with the first semester of 2018, reaching a total number of approximately 12,000 apartments.
- In the same period, the number of the apartments removed from sale increased with 18% comparing with the first half of 2018, reaching a number of 9,115 apartments.
- The average asking price of the apartments available for sale increased by 3% in the last 6 months and respectively by 6% in the last 12 months, reaching €1,320 per m².
- In H2 2018, the cheapest apartments were offered for sale in Bucharest had an asking price of around €870 per sq m, while the most expensive ones had an asking price of up to €2,400 per sq m. The average asking rent of the rented apartments was of €7.9 per m².
- Sales throughout 2019 should reach a slightly lower level than in 2018, however higher than in 2016. The main demand constraints over the period 2016-2018 were: higher prices and growing share of units requiring the payment of 19% VAT as well as smaller than expected supply due to both delays in administrative procedures and higher construction costs. The forecast of such a decrease is based on the following assumptions:
 - A slight decrease of the demand due to the increase of prices and growing share of units with total prices exceeding either Prima Casa threshold or 5% VAT limit,
 - Higher interest rates and more cautious mortgage lending policy,
 - Limited offer – there is no excess of supply,
 - Slightly lower buy-to-let demand due to higher interest rates and lower yields due to higher prices.
 - There is limited chance for the supply to start increasing fast – on the contrary, it seems most likely that the demand and supply will remain close to a balance. It should allow the prices to increase slowly in order to reflect higher construction costs and higher financing costs.
 - The statistics on building permits as well as the research confirm that there are in pipeline many new multistage projects which can be launched gradually, phase by phase, during the next few years. In such circumstances, the new supply that will be coming in 2-3 years will roughly match the expectations of the buyers. On the other hand, it seems unlikely that the oversupply could increase at a pace fast enough to cause the decrease of prices.
 - There are no reasons to predict any positive changes as far as inefficiency of the municipality in terms of granting permits is concerned. The impact of this phenomena on demand/supply relation will be, however, less important.
 - Bucharest follows the pan European trend of converting newly built (or used) apartments in good locations into short-term rental alternative to hotels. These apartments appear widely at booking.com site or other similar portals. In case of central and northern locations the “buy-to-rent short-term demand” is an important target group. There is also a growing share of foreign buyers in this category.

7.6 Residential developers

- There are many residential developers building large scale residential projects and active in Bucharest. Some of these main developers and sectors where they are most active have been listed below:

- Metropolitan (Sectors 1, 3, 4)
- Conarg (mainly Sector 1),
- Oscar Downstream (mainly Sector 4),
- One Group (mainly Sector 1),
- Impact (mainly Sector 1),
- Capatana family (Chiajna),
- Opus Land Development developer of own site in Stefanesti - Cosmopolis,
- Gran Via (mainly North and Sector 6),
- Metalurgiei Park developers
- Hassanain Mohamed and Saddiq Omar Abu Seedo (Moghioros Park Residence at Brasov Street)
- ARDC Residential (Cooperativei Street)
- Confort Urban (Sector 5)
- Dimri Group (Sector 6, Pipera)
- Eden Capital (Sector 1, 5, Pipera)
- Eskiocak family (Sector 6)
- Anchor Grup (Sector 3),
- Cordia (Sector 1),
- AFI Europe (Sector 1, 6),
- Vastint (Sector 1),
- Hagag (Sector 2),
- Hercesa (Sector 2)
- Israel Land Development Company ILDC (Sector 2)
- Imobiliare Solutions Group ISG (Sector 5)
- H4L (Sector 6)
- Morad Group (Sector 2)
- Nusco Imobiliara (Sector 2)
- Prime Kapital (Pipera, Sector 1)
- Shikun & Binui and Red Sea Group (Sector 2, Pipera-Voluntari)
- Tagor (Pipera, Bragadiru)
- Cityring Property (Sector 1)
- Avangarde Rezidential (Sector 6, Chiajna)

Also others were involved in the past in other large projects including Negoita family (Popesti area) and Stoiculescu family (Cartierul Latin), etc.

8 Hotel Market

Hotel Market analysis is conducted in order to provide an indication of the attractiveness of this market to to the larger scale of Bucharest and the presence of this element in the Subject area.

It starts with the analysis of the hotel market in Romania in terms of units and overnight stays and Bucharest's hotel market with information on overnight stays, average rooms prices along with information on the major hotels that were either recently delivered or are under construction and of the recent transactional activity. Two relevant hotels were identified within the Subject area but there is still limited interest for this part of the city compared to the city center where the main hotels are located.

8.1 Overview

The Romanian hospitality market has currently about 16 International hotel chains which activate in 16 Romanian counties. These international hotel chains have around 60 hotels within Romania, most of them being 4 Star Hotels which activate in Bucharest.

At least 14 new hotels affiliated to international hotel chains are planned to be opened in Romania in the next two years, out of which 7 in Bucharest (planned to have around 1,056 guest rooms), 2 in Otopeni (303 guest rooms), 2 in Brasov (around 232 guest rooms), 2 in Timisoara (360 guest rooms) and 1 in Sibiu (around 85 guest rooms). Also, the recently opened Ibis Styles Bucharest Erbas Hotel (2018), located in Otopeni, plans to extend its capacity with 40 additional rooms in the following years.

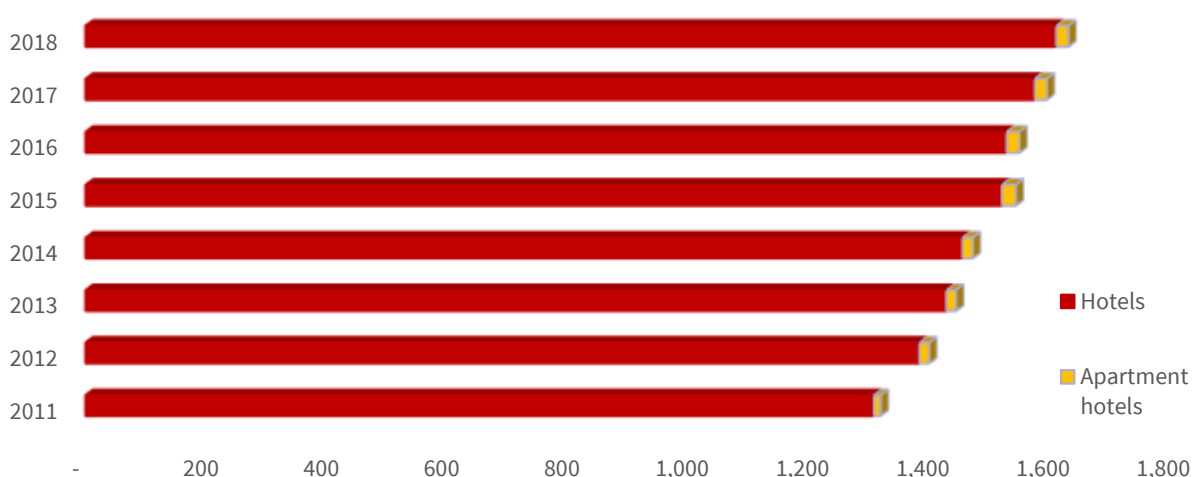
Table 9: Romania - Number of hotels and apart hotels (including local hotels)

	2011	2012	2013	2014	2015	2016	2017	2018
Hotels	1,308	1,384	1,429	1,456	1,522	1,530	1,577	1,613
Apartment hotels	11	16	16	17	23	21	20	20
TOTAL	1,319	1,400	1,445	1,473	1,545	1,551	1,597	1,633

Source: <http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table>

The total number of hotels located in Romania (including the local ones and those affiliated to an international hotel chain), increased from a number of 1,319 hotels in 2011 to 1,633 hotels in 2018.

Chart 8: Romania - Number of hotels and apart hotels (including local hotels)



Source: National Institute of Statistics Romania

Overall across the country, in 2017 a percentage of 23% from the total number of overnight stays in hotels were represented by foreigners. More details are presented in the following table:

Table 10: Romania - Overnight stays considering the hotel type

2017	5-star hotel	4-star hotel	3-star hotel	2-star hotel	1-star hotel	Unclassified hotel	5 star apart-hotel	4 star apart-hotel	3 star apart-hotels	Total
Romanians	35%	65%	84%	95%	96%	98%	15%	42%	72%	77%
Foreigners	65%	35%	16%	5%	4%	2%	85%	58%	28%	23%
Romanians	424,962	4,052,896	6,732,711	3,991,600	300,671	23,252	1,633	19,638	37,054	15,584,417
Foreigners	797,607	2,227,511	1,242,022	205,935	13,254	359	9,397	27,653	14,760	4,538,498
TOTAL	1,222,569	6,280,407	7,974,733	4,197,535	313,925	23,611	11,030	47,291	51,814	20,122,915

Source: National Institute of Statistics Romania

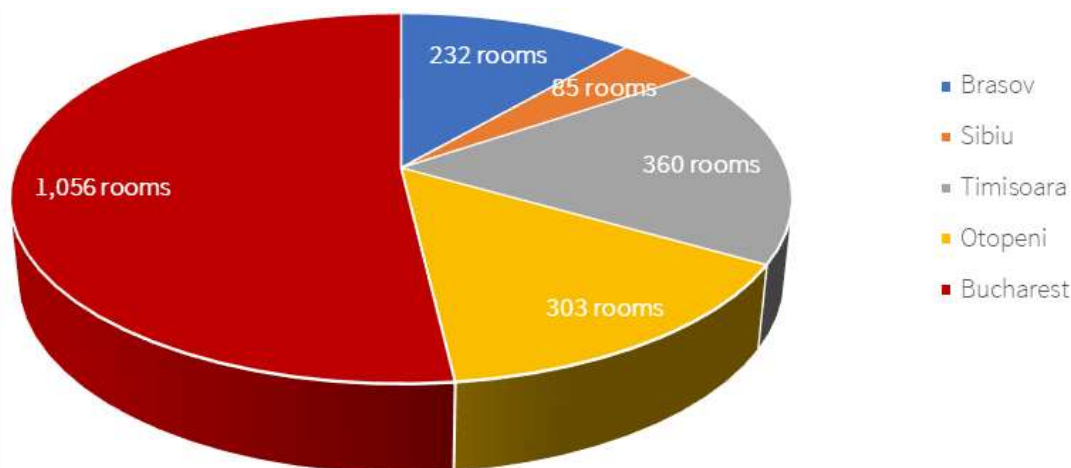
As statistics shows, preference of foreign people goes towards 4-5 Star Hotels and Apart hotels. As such, in 2017, foreigners' occupancy represented 65% from the total overnight stays at the 5-star hotels, and 85% from total overnight stays at the 5 star apart-hotels. In 2017, in terms of hotel type preferences, the highest amount of overnight stays was registered at the 3-star hotels (39.6% from the overnight stays in 2017). The number of overnight stays at the 3-star hotels located in Romania (including international hotel chains as well as local hotels) reached 7.9 million, out of which 1.2 million were represented by foreigners (16%) and 6.7 million (84%) by Romanians.

Table 11: Romania - Overnight stays Evolution by hotel type preferences

Hotels	2011	2012	2013	2014	2015	2016	2017
5 -star hotel	6.0%	6.0%	6.2%	6.4%	5.8%	5.7%	6.1%
4 -star hotel	18.6%	20.7%	22.9%	24.0%	26.4%	28.5%	31.2%
3 -star hotel	31.9%	34.7%	39.1%	39.8%	39.9%	39.4%	39.6%
2 -star hotel	39.7%	35.0%	29.1%	26.9%	24.5%	23.8%	20.9%
1-star hotel	3.0%	2.3%	1.9%	2.1%	1.9%	1.8%	1.6%
Unclassified hotel	0.6%	0.6%	0.7%	0.7%	0.5%	0.2%	0.1%
Subtotal	99.8%	99.4%	99.8%	99.8%	98.9%	99.4%	99.5%
Apart-hotels	2011	2012	2013	2014	2015	2016	2017
5 -star apart-hotels	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%
4 -star apart-hotels	0.0%	0.4%	0.0%	0.0%	0.5%	0.2%	0.2%
3 -star apart-hotels	0.2%	0.1%	0.2%	0.2%	0.6%	0.4%	0.3%
2 -star apart-hotels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal	0.2%	0.6%	0.2%	0.2%	1.1%	0.6%	0.5%
Total	100%	100%	100%	100%	100%	100%	100%

Source: National Institute of Statistics Romania

Chart 9: Romania - Pipeline 2019 – 2020 - hotels part of international chains



Source: JLL

In 2017, the number of overnight stays in hotel and apart-hotel accommodations increased with 4% compared to 2016. The large part of international tourists in 2017 came from Europe (~90%) with most arrivals from Bulgaria (13%), Hungary (12%), Luxemburg (5%) and Germany (5%).

8.2 Bucharest

Close to 213,000 companies, both international and domestic, are registered in Bucharest, making up almost a quarter of all legal entities in the country. Bucharest is the country's economic, scientific and cultural hub and home to the government, stock exchange, numerous historic attractions and pleasant to observe the city life, including the Old City, events and concerts, nightlife or varied cuisine.

Henri Coandă International Airport is currently home to over 40 airlines serving over 80 international destinations with a total of 14 million passengers in 2018, hence representing a key transportation hub in the CEE region. To improve travelers' experience, the airport has upgraded border control service to reduce waiting time and optimized security control.

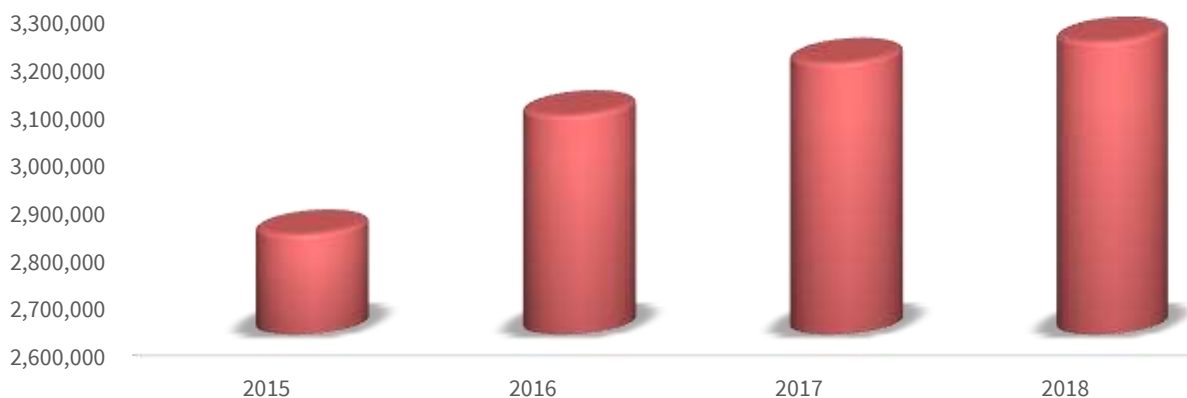
In Bucharest, the George Enescu classical music festival attracts on average 20,000 foreign tourists every year, which is close to the total capacity of all the hotels, motels and other such accommodations in Bucharest, accounting for roughly 21,600 people in 2018.

Therefore, apart that the city is mainly regarded as a corporate destination the leisure tourism is gaining momentum as increasing numbers of young travelers perceive Bucharest as a good and affordable city break destination.

Recent openings key figures:

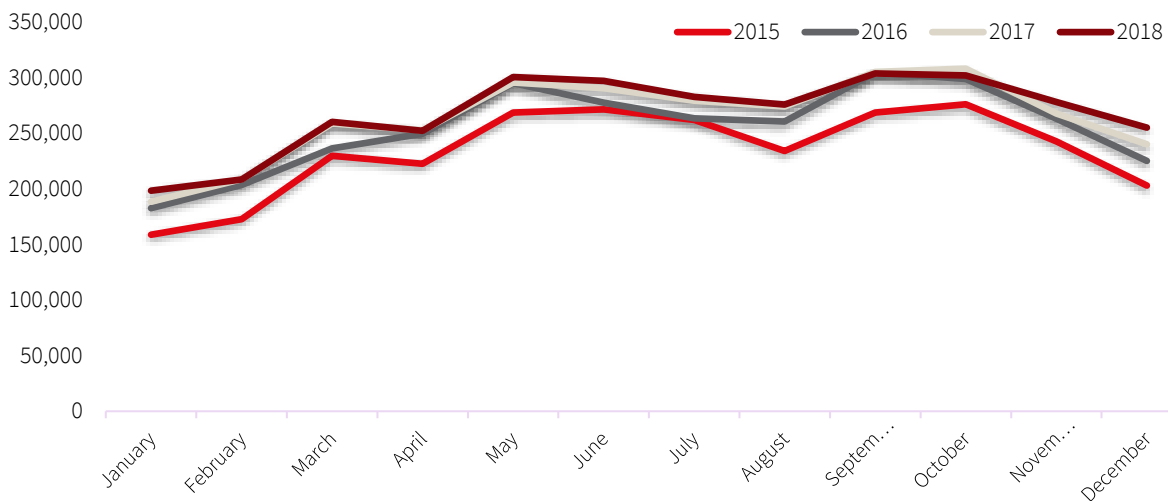
- Bucharest - Recent Openings – hotels part of international chains:
- Ibis Styles Bucharest Erbas Hotel, 3-star hotel, 80 rooms, opened in 2018;
- Mercure Bucharest Unirii (rebranding), 4-star hotel, 95 rooms, opened in 2017;
- Hilton Garden Inn Bucharest Old Town 4-star, 201 rooms, opened 2017;
- Park Inn by Radisson Bucharest Hotel, 4-star hotel, 210 guest rooms, opened in September 2015;
- Sheraton Bucharest (rebranding) 5-star, 270 rooms, opened 2015.

Chart 10: Bucharest - Evolution of the overnight stays in hotels and apart-hotels



Source: National Institute of Statistics Romania; Note: The Chart above reflects the evolution of the overnight stays per year in hotels and apart-hotels located in Bucharest Municipality, including the hotels affiliated to international hotel chains as well as the local hotels.

Chart 11: Bucharest - Overnight stays per month in hotels and apart-hotels



Source: National Institute of Statistics Romania, Note: The Chart above reflects the total number of overnight stays per month in hotels and apart-hotels located in Bucharest Municipality, including the hotels affiliated to international hotel chains as well as the local hotels.

In accordance with the National Institute of Statistics, in 2018 Bucharest hotel market comprised of around 125 hotels (including international hotel chains and local hotels) with a capacity of approximately 20,000 spaces.

Hotel performance in Bucharest has continued to grow since 2011, with the strongest performance observed in the months of May, June, September and October. In 2017, the city saw a 2.8% growth in occupancy compared to 2016. ADR grew 3.9% and as a result RevPAR rose 6.8% to €57. The uplift in ADR could be partly associated with the increase in supply of Upscale and Midscale rooms.

With many European capitals taking active steps to combat tourism overcrowding, Bucharest may end up on the receiving end of tourist arrivals seeking a more affordable yet rich in history and culture holiday destination.

Quick facts

Growth Forecast
2018 GDP

4.3%

Passenger Arrivals
▲16.6%

12.8m

Current Hotel
Rooms

9,235

Occupancy 2017
▲2.8%

73.6%

ADR 2017
▲3.9%

EUR 78

RevPAR 2017
▲6.8%

EUR 57

▲▼ % change compared to prior year
Hotel performance data sourced from STR Global

Bucharest - hotels part of international chains – Pipeline key figures:

- InterContinental Hotels Group – Hotel Indigo – Q1 2019;
- Marriott International Group - Courtyard Bucharest Floreasca by Marriott – H2 2019;
- Marriott International Group - Moxy by Marriott – H2 2019;
- Corinthia Hotels - Corinthia (Grand Hotel du Boulevard) – 1st of December 2019;
- Marriott International Group - Autograph Collection by Marriott – H1 2020;
- Orbis Group / Accor Hotel - Ibis Styles City Center – close to Romanian Athenium - 2020;
- Orbis Group / Accor Hotel - Ibis Bucharest Politehnica – 2020;

Map 4: International Hotel chains in Bucharest



Source: Google Maps

Keys

● Subject area

- 1: JW Marriot Bucharest Grand Hotel
- 2: Ibis Bucharest Palatul Parlamentului
- 3: Ibis Bucharest Gara de Nord
- 4: Ramada Bucharest Majestic Hotel
- 5: Novotel Bucharest City Centre
- 6: Europa Royale Bucharest
- 7: Golden Tulip Victoria Bucharest
- 8: Sheraton Bucharest Hotel
- 9: Park Inn by Radisson Bucharest Hotel

- 10: Radisson Blu Hotel Bucharest
- 11: Athene Palace Hilton Bucharest
- 12: Mercure Bucharest City Center
- 13: Hilton Garden Inn Bucharest
- 14: K+K Hotel Elisabeta
- 15: Intercontinental Hotel Bucharest
- 16: NH Bucharest
- 17: Mercure Bucharest Unirii
- 18: DoubleTree by Hilton Bucharest
- 19: Golden Tulip Times Hotel

8.3 Hotel deals

Like other markets in CEE, the financial crisis has had a profound impact on the Romanian hotel investment market, hence investment in hotels has been limited since 2007.

The K+K Hotel Elisabeta Bucharest was sold in 2015 as part of a larger portfolio to a joint venture between Goldman Sachs and Highgate Hotels. In 2017, two notable transactions took place.

In the first half of 2017 Vienna House Easy Airport Bucharest Hotel was sold as part of the Warimpex portfolio to Thai investor U City Public Company Limited. This hotel is located in Otopeni, close to Henri Conada international airport. Elbit Imaging group sold its majority stake (98.2%) in the company that owns the Radisson Hotel complex in Bucharest to a joint venture between two international investment funds.

The sale represents the largest hotel transaction by deal volume in Romania and among the largest recorded in Central Eastern Europe (CEE).

The Radisson Hotel complex is located at 63-81 Calea Victoriei Bucharest and it includes the Radison Blu Hotel Bucharest that offers 487 guest rooms, Park Inn by Radisson Blu (opened in September 2015) which includes a number of 210 guest rooms and approximately 7.200m2 of commercial area which features a fitness centre, retail spaces and the largest Casino in Bucharest.

In 2018 Orbis Hotel Group bought Mercure Bucharest Unirii hotel for €11.35 million. The hotel offers 95 modern and comfortable rooms for both business and leisure guests and a bar & restaurant.

8.4 Hotel Rates

The team looked for rates at hotels in the extended central area of Bucharest and made an analysis of the double rooms, both for 3-star hotels, as well as for 4 and 5-star hotels.

In general, the price for a room booked during the week period is higher than the cost for a room booked during the weekend period. From this estimates were provided for the cost of a double rooms for each type of hotel, which were taken into account within the valuation.

Table 12: Bucharest - International hotel chains – fees 2019/Q1

Name of the hotel	Week period / I/2019		Weekend/ I/2019		Hotel type
	Price from (€):	Up to (€)	Price from (€):	Up to (€)	
Hotel Intercontinental - Bucuresti	€126	€ 1,183	€ 90	€ 954	5-Star
Athenee Palace Hilton Bucharest	€ 91	€ 843	€104	€ 518	5-Star
JW Marriott	€ 156	€274	€103	€ 234	5-Star
Sheraton Bucharest Hotel	€ 126	€307	€100	€ 291	5-Star
Radisson Blu	€ 79	€274	€106	€274	5-Star
Mercure Bucharest City Center	€ 60	€114	€76	€118	4-Star
Mercure Bucharest Unirii	€ 50	€ 94	€ 50	€94	4-Star
Novotel Bucharest City Centre	€ 81	€101	€ 60	€81	4-Star
Golden Tulip Times	€ 46	€ 86	€ 46	€86	4-Star
Golden Tulip Victoria	€ 49	€ 73	€ 55	€73	4-Star
Hilton Garden Inn Bucharest Old Town	€ 93	€210	€ 93	€210	4-Star
DoubleTree by Hilton Hotel Bucharest - Unirii Square	€ 68	€150	€ 60	€140	4-Star
Europa Royale Bucharest	€ 66	€163	€ 66	€163	4-Star
K+K Hotel Elisabeta Bucharest	€ 75	€128	€ 71	€124	4-Star
NH Bucharest	€ 40	€118	€ 42	€121	4-Star
Park Inn by Radisson Bucharest Hotel & Residence	€ 61	€173	€ 76	€176	4-Star
Ramada Bucharest Majestic Hotel	€ 67	€632	€ 59	€689	4-Star
Ibis Bucharest Parliament Palace City Centre	€ 37	€104	€ 33	€101	3-Star
Ibis Gara de Nord	€ 37	€104	€ 33	€101	3-Star

Source: Booking.com; January 2019

Table 13: Major Hotel Investment Deals in Bucharest during 2014-2018

Year	Proportion Purchased	Property	Price €mil.	Price €/room, yield	Vendor	Buyer	GLA / Rooms
2018	100%	Mercure Unirii	11.4	~99k	East Balkan Properties	Orbis fund	110 rooms
2018	100%	Sport Cluj	3.7	~27k	SIF Moldova	Private local	136 rooms

Year	Proportion Purchased	Property	Price €mil.	Price €/room, yield	Vendor	Buyer	GLA / Rooms
2017	100%	Radisson	163.5	7.75%	Elbit	Revetas / Cerberus	86,000
2017	100%	Hotel Angelo	13.7	n/a	Warimpex	U City Public	n/a
2014	35.3%	JW Marriot	95	n/a	Bank of Cyprus	Strabag	n/a

Source: Jones Lang LaSalle

Two hotels are located to the specific Subject area, considered as relevant for benchmarking: Premier Palace Hotel Spa and Marriott. Looking to the scale of Bucharest, the hotel market is appealing but the majority of the hotels are located to the city center, only few are decentralized.

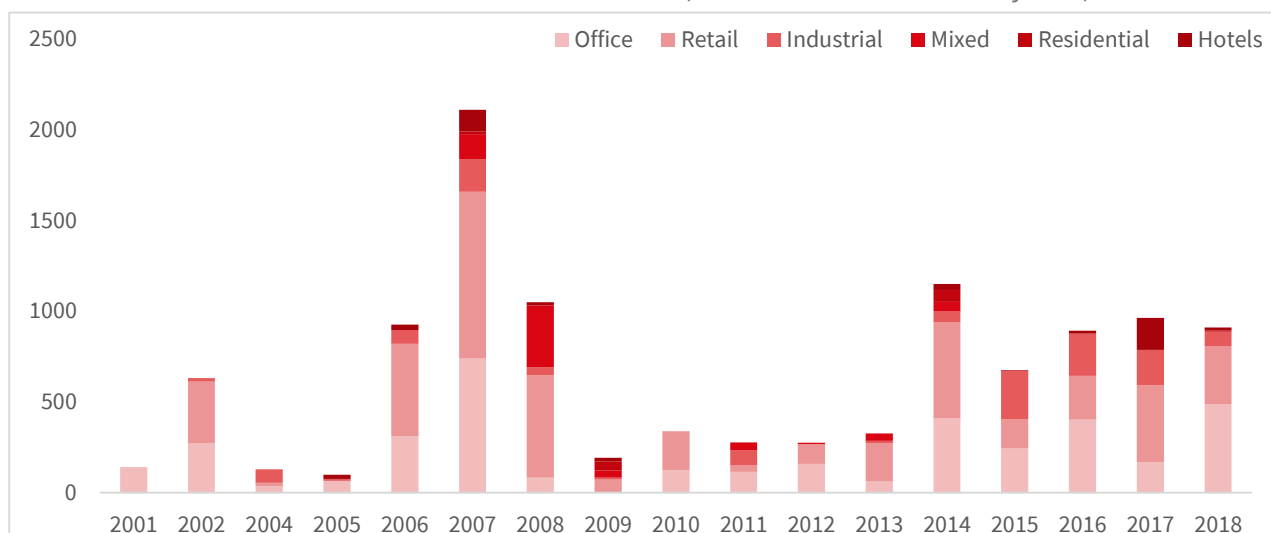
9 Investment Market

This Section summarizes the recent activity in the real estate market, supported by transactional volumes in the three major commercial sectors – office, retail and hotel. An industrial evidence would not be considered of relevant interest at this scale as the worth of the Subject site is significantly higher than an industrial development. This is particularly relevant as provides capital values indications and yields evidence to calculate the worth of the development proposed in the financial model and introduce the Gross Development Value (noted “GDV”).

In 2007/2008 Romania had a very liquid real estate investment market with total volumes of over €2 billion and €1 billion respectively, despite the limited availability of modern product at the time. Romania was then the third largest investment market in terms of deal flow in CEE (after Poland and the Czech Republic). Between 2009 and 2013, volumes have decreased significantly, as the number of active players plunged sharply. Transactional activity picked up in 2014, when ca. €1.17 billion was transacted (including a number of unique, very large deals) and the increasing trend continued in 2016 and 2017, when close to €0.9 billion and €1 billion were transacted after a 2015 of €0.67 billion. Given its size in terms of population and forecasted GDP, it is expected that Romania should be second only to Poland in CEE in terms of investment volumes at some point over the coming years. In 2018, the property investment volume for Romania is estimated at circa estimated at circa €900 million, a value slightly below the one registered in 2017 (€963 million) with a number of deals in different stages of negotiations that will most likely be concluded further.

The number of transactions decreased, however, the average deal size increased, to around €31 million. Bucharest accounted for over 78% of the total investment volume, mainly due to 2 very large office transaction which was closed in Q2 and Q3. Market volumes were dominated by office transactions (50%), while retail accounted for ca.35%.

Chart 12: Historic investment volumes in Romania (thousand euros over 18 years)



Source: Jones Lang LaSalle

The largest transaction registered in 2018 was the acquisition of The Bridge (phase 1&2), a 58,000 sqm office park in Centre-West sub-market of Bucharest by Romanian Group Dedeman. This marked the entrance on the real estate market of the group, who achieved fame as the most successful DIY retailer in Romania.

Table 14: Major Retail Investment Deals during 2016-2018

City / Property	Date	Seller / Buyer	GLA sq m	Price Mil. €	Price €/ sqm	Comment
Parklake Bucharest	2018	Caelum Dev./ Sonae Sierra	73,000	125*	3,425	Proportion of purchase: 50%
Militari Shopping Center Bucharest	2018	AERE/MAS REI	51,400	95	1,848	Proportion of purchase: 100%
Atrium Mall Arad	2018	Cosmovia Holdings Limited/MAS REI	28,600	40,5	1,416	Proportion of purchase: 100%
Festival Mall Sibiu	2018	Primavera Development/NEPI Rockcastle	43,000	21	488	Proportion of purchase: 100%
Various / Intercora Portfolio	2017	Intercora / Mitiska	30,000	18	600	Proportion of purchase: 50%
Botosani/ Family Center	2017	Real4you / Immofinanz	6,200	5	806	Proportion of purchase: 100%
Bucharest/ Obi Palladv	2017	Dan Petrescu/ Kika	12,000	10	833	Proportion of purchase: 100%
Braila/ Armonia Braila	2017	Geelan Imprex/ Glorious Electric Corporation	36,580	20	547	Proportion of purchase: 100%
Various/ Iulius Group Portfolio	2017	Iulius Group/ Atterbury Europe	n/a	175	n/a	Proportion of purchase: 50%
Various/ 4 Real Hypermarkets	2017	Metro / Terazone	n/a	15	n/a	Proportion of purchase: 100%
Iasi/ Felicia Iasi	2017	CBRE GI / CPI	11,318	29.5	2,606	Proportion of purchase: 100%; yield: 10.3%
Iasi/ ERA Iasi	2017	Argo/ Prime Kapital	50,000	35	n/a	Proportion of purchase: 40%
Various//Alpha Group	2017	Alpha Group/ Mitiska	55,000	60	1,091	
Bucharest / Mega Mall	2016	Real4You/ NEPI	72,000	24	n/a	Proportion of purchase: 30%
Sibiu / Mixed Scheme: SC & Retail Park	2016	Argo Real Estate Opportunity Fund / NEPI	79,800	100	1,253	Largest retail park outside Bucharest; anchored by both Carrefour&Auchan. yield: 8.5%
Craiova / Electroputere	2016	Belrom/ Catinvest	55,000	60	1,091	Proportion of purchase: 100%
Bucharest / Leroy Merlin Colloseum	2016	Nova Imobiliare / Leroy Merlin	22,000	19.6	891	Proportion of purchase: 100%

Source: Jones Lang LaSalle

A notable office transaction in Romania was the acquisition of Oregon Park, a 68,500 sqm office park in the Floreasca Barbu-Vacarescu, north sub-market of Bucharest by Lion's Head Investment, a fund created by a JV between South African fund Old Mutual Property and AG Capital in Romania. The largest retail transaction of the year was the acquisition by Sonae Sierra of 50% stake in the Parklake Shopping Center owned by Irish real estate developer Caelum Development. Militari Shopping Center of Atrium European Real Estate was acquired by MAS Real Estate for 95 million euro and acquisition of Festival Shopping Center project of Primavera Development in Sibiu by NEPI Rockcastle for €21 million were other significant retail transaction concluded in 2018.

Table 15: Major Office Investment Deals in Bucharest during 2016-2018

Year	Proportion Purchased	Property	Price Mil. €	Yield	Seller	Buyer	GLA	Price €/ sqm
2018	50%	The Bridge (Phase 1 & 2)	145		Forte Partners	Dedeman	58,000	2,500
2018	100%	Oregon Park	110		Portland Trust	Lion's Head Investment	68,500	1,606
2018	100%	The Landmark	62		Piraeus Bank	Revetas&Cerberus	23,500	2,638
2018	100%	Campus 6.1	53		Skanska	CA Immo	22,000	2,409
2018	100%	Crystal Tower	43		Search Corporation	PPF	23,500	1,830

Year	Proportion Purchased	Property	Price Mil. €	Yield	Seller	Buyer	GLA	Price €/ sqm
2018	100%	Bucharest Corporate Center (BCC)	18		Immofinanz	One United	11,672	1,542
2018	100%	Hagag Buildings Bucuresti	12*		Private local	Hagag	10,000	1,200*
2018	100%	Maestro Business Center	9.3		Private local	First Property Group	6,850	1,358
2018	100%	Equest Office Buidings (4)	10		East Balkan Properties	Adameurope	9,500	1,050
2017	100%	Green Court C	38	n/a	Skanska	Globalworth	16,300	2,331
2017	100%	ART 7 BC	30	8.00%	Private local	HILI Properties	18,000	1,667
2017	100%	Cascade Center	9	n/a	Adval	GTC	4,600	1,957
2017	100%	Polona 68	17	9%	EEC Invest	Top Most Investment	9,600	1,771
2017	100%	North Gate	16.8	n/a	Creativ Invest Group	One United Properties	20,600	816
2017	68%	Budisteanu Office Building	6	n/a	Nobel Holdings	Coroana Cetatii	4,000	
2016	100%	Swan	30.3	n/a	Unicredit / Volksbank	Smartown Investment	21,124	1,434
2016	100%	Metropolis	48	8%	Soravia	PPF	16,300	2,945
2016	100%	Construdava	10	n/a	Aberdeen	Adamamerica	11,000	909
2016	100%	CUBIC center	31	n/a	Adval Asset Management	Alpha Bank	27,000	1,148
2016	100%	Phoenix Tower	11	n/a	Aberdeen	Adamamerica	10,000	1,100
2016	41%	City Gate	53.6	n/a	Bluehouse	GTC	44,000	1,218
2016	100%	Volksbank Buildings	32	8.5% - Volksbank 9.5%	- Volksbank	GTC	15,000	2,133
2016	26%	CA Immo Share	45.15	n/a	O1 Group Limited	Immofinanz	n/a	

Source: Jones Lang LaSalle

Table 16: Major Hotel Investment Deals in Bucharest during 2017-2018

Year	Proportion Purchased	Property	Price €	Price €/ room, yield	Vendor	Buyer	GLA / Rooms
2018	100%	Mercure Unirii	11.4	~99k	East Balkan Properties	Orbis fund	110 rooms
2018	100%	Sport Cluj	3.7	~27k	SIF Moldova	Private local	136 rooms
2017	100%	Radisson	163.5	7.75%	Elbit	Revetas / Cerberus	86,000
2017	100%	Hotel Angelo	13.7	n/a	Warimpex	U City Public	n/a

Source: Jones Lang LaSalle

The yield spread between Romania and Poland, Czech Republic and Hungary remains close to or at record levels. Liquidity has improved but is still significantly below potential mainly because of the limited availability of quality product for sale in open market processes at realistic pricing expectations. Prime office yields are at 7.25%, prime retail yields at 7.00%, while prime industrial yields are at 8.25%, all have compressed by 25 bps over the year; there is still a very soft downward pressure on yields, except for retail.

Prime Yields	Office	Shopping Centres	Industrial
Romania - Q4 2018	7.25%	7.00%	8.25%

Source: Jones Lang LaSalle

Chapter V. Subject Analysis

10 Sector 5 Overview

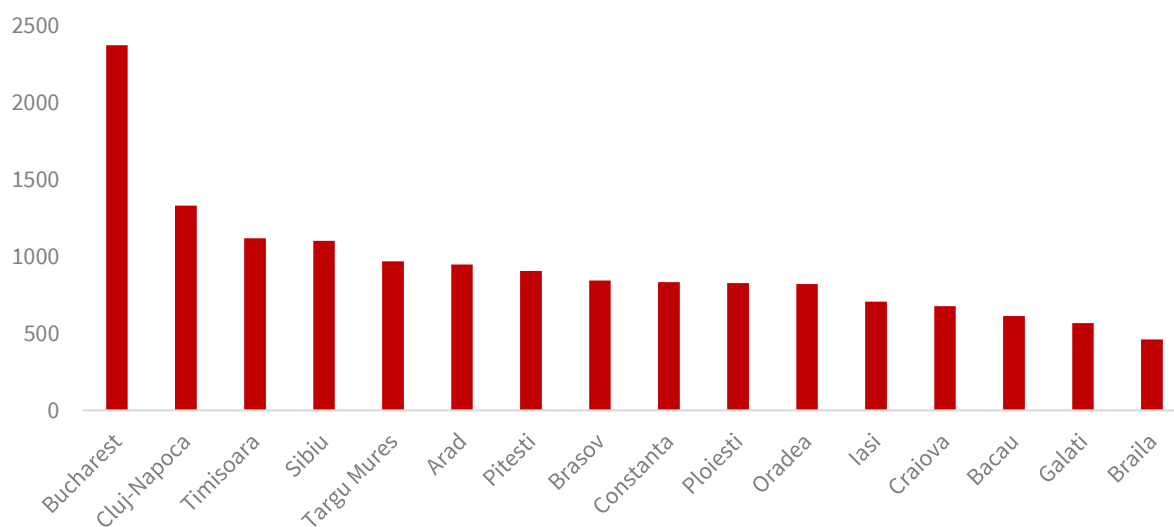
10.1 Economic framework

Improving the local economic environment is important to ensure long-term financial sustainability of Municipality's projects.

With a limited private sector, regardless the local authority's efficiency in attracting funds from the state budget or European funds, the community may remain dependent on external financing usually uncertain, insufficient, fluctuating and with various risk elements under the control. Higher revenues are therefore targeted by the local authorities and the main source for the local budgets are the revenues from the income taxes. Increasing this involves increasing the number of tax-payers in the Municipality or to increase the income level of the tax-payers or both.

It is also a target for the Sector 5 City Hall to accelerate development of the businesses located across the Sector 5 and stimulate labour force earning more. As an entire of over 2.7 million inhabitants including Bucharest and Ilfov functional urban areas, it concentrates a large part of the labour force in the country, the highest added value activities and the highest wage level therefore a tax-payer base amount of around 40-50% higher compared to other cities across the country.

Chart 13: Average from income tax - Own revenues (RON/inhabitant per municipalities)



Source: Municipality of Sector 5 – data from the Ministry of Regional Development, Public Administration, Directorate for Local Fiscal and Budgetary Policies

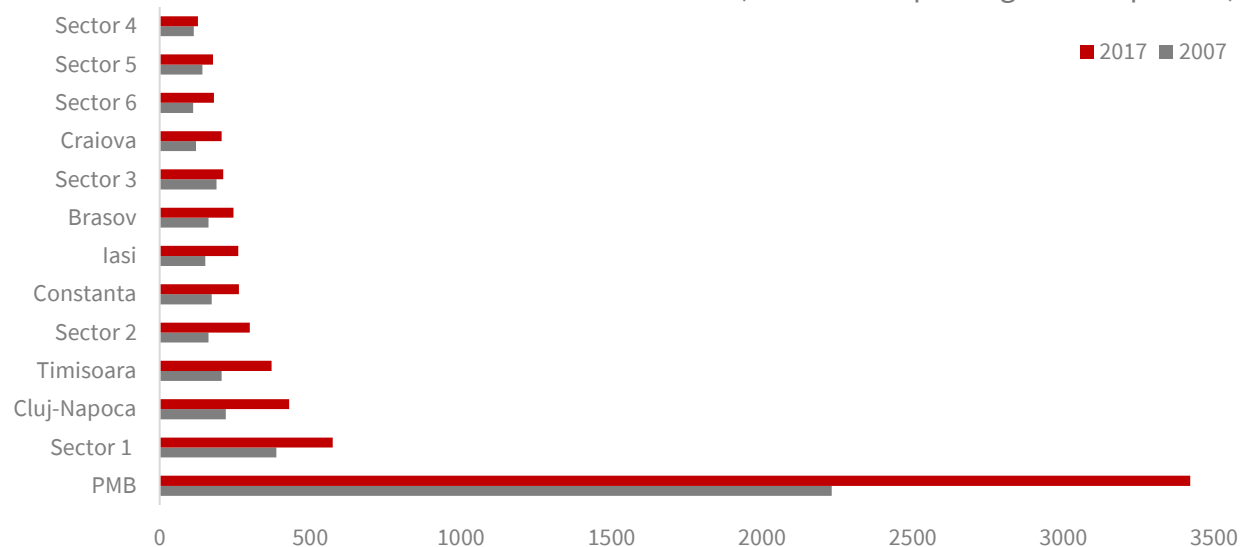
However, the revenues are not distributed evenly as volumes across the all the six sectors of Bucharest. Moreover, Bucharest income tax components are divided also to the General Bucharest Municipality as well as the other six sector municipalities, opposed to the other big cities, where these are transferred to the city's treasury.

According to the information provided by the Sector 5 Municipality, more than RON 170 million from the relevant income tax components were paid to the local budget of Sector 5 in 2017, representing 30% of the total budget managed by this administration or 48% from the own revenues. This is still an increase in nominal terms by 25% compared to 2007 but in Euro this represents only 5%. The above-mentioned source provided with a comparison between the sectors reflecting significant disparities in terms of

collection of the relevant income tax components: Sector 1 is the first with around EUR 100 million/year, three-times more than Sector 5, which ranks only the fifth from six, surpassing only the Sector 4. Sector 2 collects more money than cities such as Constanța or Iași, despite sharing its revenues with the General Municipality.

Looking to the evolution of relevant income tax components over the last 10 years, the source mentioned an increase by 85% in Sector 2, by 62% in Sector 6 and by 48% in Sector 1, whereas for the other sectors the increase was less or under 25% (+25% in Sector 5, +12% in Sector 4 and Sector 3) which looks far from also other major cities such as Cluj-Napoca where the increase was 96%.

Chart 14: Evolution of own revenues from income tax - (million RON per large municipalities)



Source: Municipality of Sector 5 based on data from the Ministry of Regional Development, Directorate for Local Fiscal and Budgetary Policies

The local revenues are related to the city strategies of development and how to attract new investment and businesses. Opposite to the era before 1990 when the main focus was around large industrial platforms, nowadays the city area is dominated by modern office and retail premises which employ large slice of labour force market.

10.2 Labour Force

The most comprehensive information at the territorial level of Sector 5 concerning the labour force is available from the research and analysis performed for the last Census, in 2011 including the employment by main activities of the national economy. According to this research, Sector 5 has a high rate of unemployment and number of people without a declared income. A significant part of these are economically inactive adults of working age, homemakers and of people supported by their families – generally below the school age. From a total number of 194,500 people of working age within 18 to 64, only 139,600 which appears economically active whilst the other 55,000, or about 28% are not on the labour market. This is including around 11,000 homemakers and people enrolled in the education system over the age of 18 (post-graduate education, university, etc.) as well as a significant share formed of Roma people – a group at risk of exclusion from the labour market. Some training/retraining courses are available free of charge from the Public Employment Agency for the unemployed or by various private organizations, mainly with the support of EU funds, however these remain less interesting. On the other hand, the share of the retirees is to the low side in Sector 5.

In terms of activities, around 82% of the Sector 5 residents works in private sector, 16% in public sector and the other approximately 2% in non-governmental sector or their own household whilst from the total

labour force a significant 97% were employees and under 2% owners or freelancers, reflecting an underdeveloped entrepreneurial spirit. In terms of activities, the involvement is very diversified (trade, manufacturing, foods and beverages, metal structures and products, machinery and equipment, leather, textiles and clothing, public administration and defense), dominated by the tertiary sector.

A way to address issues of the labour force is to improve education conditions and bring businesses close to these areas. The city inherited from the communist era a significant workforce with secondary education which decreased over the past years, mainly regarding specialties such as industry or constructions and these sectors become dependent on the commuting of the workforce from the neighboring counties, at lower wages. The number of university graduates in Bucharest dropped by 73% in only 5 years, between 2007 and 2015, as the result of a combination of factors: declining birth rates, a drop in the success rate of the Bacalaureate exam, global economic crisis, external migration, decline of the private higher education. The study “Magnet Cities. Migration and Commuting in Romania”, developed by the World Bank noted that increasing the number of students should be a strategic objective for the cities of Romania.

A high share of graduates is in social studies areas, including 31% in economics and 8% in law, opposite to the labour market demand, for manufacturing and ICT, this needs to mitigate to more technical fields such as engineering or IT.

As large university center, the city remains a “magnet” for young talents from different regions and geographies and a factor to attracting private investors in value-added fields such as ICT, financial services, scientific, professional and technical activities, creative industries and others, generally with above average net wages for their employees, resulting in increasing the local purchase power.

11 Land Plot Analysis

This Section outlines the main parameters of the Subject site, such as the micro-location, the proposed planning (PUZ for both the site and the entire Sector), the municipality (Sector 5) masterplan, ownership information.

Additionally, surroundings area details are provided along with a catchment area focused to the nearby population and its spending power.

11.1 Site Overview

The Subject of this Study is a large site located at the interference of Rahova, Ghencea, Pelungirea Ghencea neighborhoods with Bragadiru town, at the south side of Sector 6 Bucharest. It is located inside Bucharest, about 4km south-east from Unirii city center and Palace of Parliament– the second largest administrative building in the world.

The surrounding areas to the north and south are already serviced by tram and bus lines, situated at around 300-500m from the Subject. The north side of the Subject is situated at approximately 1km south from an under-development Bucharest Metro extension (M5).

Map 5: Site location and adjacent projects – Bucharest scale view



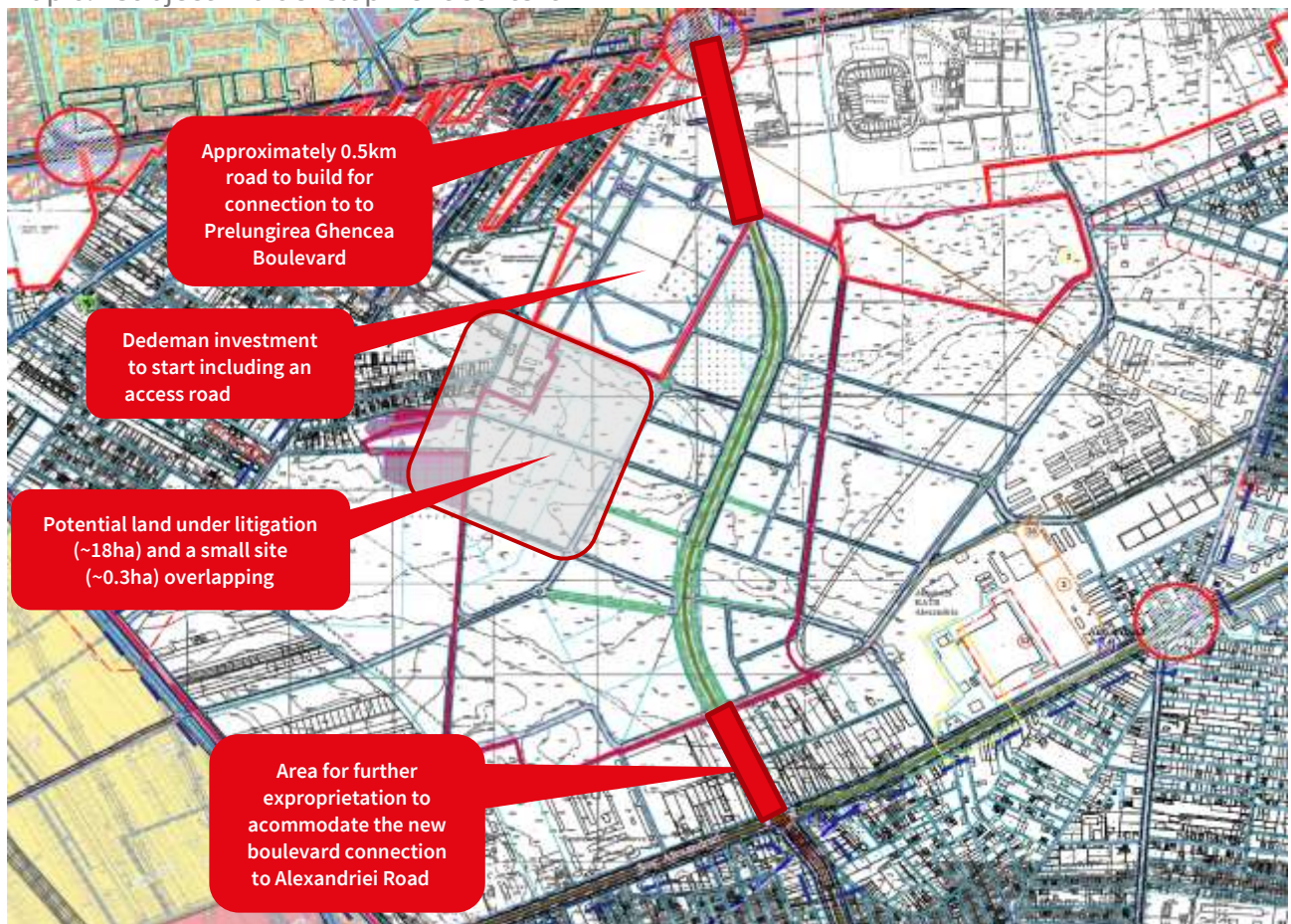
Source: STB network of transport on ground (red – trams, green – trolleybus, blue – buses, circle – terminal)

Several recent developments were finalized in proximity of the Subject including a retail scheme with Cora hypermarket as anchor and the shopping gallery, at around 250m from the site limits, a Kaufland unit, at around 600m from the site limits whilst a new Lidl unit is under development. Also new residential projects were developed or under development around the subject location, significant volumes are to the south-west side of the Subject towards the ring road Bragadiru area.

The Municipality of Bucharest and the Sector 5 City Hall have development plans which affects the Subject, the relevant being discussed within this Section.

Several risks can affect a proper development of the Subject, linked mainly to a proper development of the roads. Urban planning for a DIY store is ongoing in the vicinity and this investment would also include a road development. As this unit is adjacent to the Subject it may ease to start sooner the development from the north side also more appealing for residential interest, due to the accessibility to the metro and ground public transportation lines, as already mentioned. However, if no such alternative roads would be effective soon, there is another possibility to start the development from Cooperativei Street but the area is not that visible and accessible as the first discussed options. However, the main version of development would be to first build the large boulevard and develop in phases the real estate elements. This is also the main version if the site would be developed from the south, however, there are several land plots with some buildings, subject of expropriation procedure which may show difficult.

Map 6: Subject in a development context



Source: Sector 5 road map (including the proposed PUZ)

11.2 Current planning

An architectural solution was issued for further development named The Bucharest Centenary Project, initiated by the Sector 5 City Hall, as the largest urban development plan led by a local authority over the past thirty years in Romania – around 1.6 million m² of built area. According to this, the area may develop with an urban vision based on sustainability, medium urban density, compactness and mixed functions, for a new developing community sustaining a polycentric development focused on a smart system of transport connected to the city center. It is aimed to integrate into the current context by expanding infrastructure, establishing the centers of interest and creating the public spaces for the community.

An initial masterplan as published on the site “<http://www.bucharestcentenaryproject.ro/>” was designed to accommodate around 30,000 inhabitants in over 10,000 dwellings, 70,000m² commercial areas, 300,000m² office buildings, education facilities (4 schools and 6 kindergarten), and 30,000 m² health facilities. The concept aims to integrate the functions into a green space system, transforming the urban atmosphere into a modern one, specific to a green and sustainable neighborhood including 480,000m² green area, around a half of the site area. It was assumed that the Sector 5 Municipality, as a first stage, will realize the main streets and the urban infrastructure, the public transport network and the green areas. Based on this initial view, the development is in phases and contains six functional areas:

- The Centenary Boulevard District, part of the “median ring” of Bucharest Center, is seen as core of the project including residential, mixed use functions and over 100,000m² of green areas;
- The Business District to the northern side for offices and services;
- The Centenary Esplanade with pedestrian area, health facilities and education;
- Multipurpose Sport Hall Zone with training areas, recreation and sport grounds, Multipurpose Sport Hall and green parking places;
- Social housing and collective housing, including a public garden.
- Other individual and collective housing, with 15.8 ha surface.

The above project is subject of further urban planning approvals and possible improvements to better accommodate functionalities and social benefits but also to attract interest for private development.

Map 7: Masterplan project – local scale view



Source: Project site “<http://www.bucharestcentenaryproject.ro/>”

11.3 Tenure

In Romania details of property ownership, mortgages and easements should be recorded in the Perpetual Book which is maintained by regional court. The Sector 5 City Hall provided four land book extracts dated 2017/2018, for plots which form the core subject of this study. A summary of the Land Book extracts are provided below.

Table 17: Tenure summary

Cad no.	Size m ²	Owner	Title	Notes
218783	137,578*	Romanian State via Sector 5 City Hall as Administrator (until receiving postal no.)	Government Decision 291/23.3.2011, Handover Protocol fn/30.5.2011, Reception FN/31.5.2011, cadastre documentation 489762/22.11.2011 OCPI Bucharest	Included 218783-C1 as building with a footprint of 5,284m ² Extract date: 8 dec.17
218798 *	717,170	Romanian State via Sector 5 City Hall as Administrator (until receiving postal no.)	Government Decision 291/23.3.2011, Handover Protocol fn/30.5.2011, Reception FN/31.5.2011, cadastre documentation 517357/12.12.2011 OCPI Bucharest	Initial title documents mentioned a size of 715,793m ² Extract date: 8 dec.17
218805	161,009	Romanian State via Sector 5 City Hall as Administrator	Decision 735/14.5.2011 issued by Romanian Government (Decision 736/2004 issued by Romanian Government and: Handover 11530/2009 , Notices A5743/28.4.2009, A3368/2.6/2009, A3368/2009 all issued by Ministry of Defence), cadastre Documentation 168609/2009/2.6.2009 OCPI Bucharest, Handover A22331/30.5.2011 between Sector 5 and UM 02547, Protocol A2230/30.5.2011, cadastre documentation 482309/16.11.2011 OCPI Bucharest, Notice A5394/30.11.2011 issued by Ministry of Defence	Lot 2 , inside the city limits, land book 61798 PI/1 (initial CF 29705/2) Extract date: 8 dec.17
218807 **	99,458	Romanian State via Sector 5 City Hall as Administrator	Decision 735/14.5.2011 issued by Romanian Government (Decision 736/2004 issued by Romanian Government and: Handover 11530/2009 , Notices A5743/28.4.2009, Protocol 17514/2009, A3368/2.6/2009, A3368/2009 all issued by Ministry of Defence), cadastre Documentation 168609/2009/2.6.2009 OCPI Bucharest, Notice 37741/21.12.2011, cadastre documentation 502705/21.12.2011 OCPI Bucharest.	Initial title documents mentioned a size of 99,462m ² lot 2 , land book 54431 (initial CF 29705/3) Extract date: 17 apr.18

Source: Land Book Extracts (historical – 2017/2018);

* The plot 218783 was split and a part transferred to the Ministry of Defence which was not included as Subject;

Also, a small part to the west side of this site is subject of litigation, however this was assumed as clarified within the approach

** Part of the site 218807 is held for ANL public authority.

The plot 218783 was split and a part transferred to the Ministry of Defense, however, specific documents were not provided. According to the initial masterplan, this site (218783) appears not part of the Subject and will not be part of the analysis. The owner of the left plots is the Municipality of Bucharest via Municipality of Sector 5 as Administrator. Due to the status as Administrator, Sector 5 Municipality may have specific rights and duties, limited compared to a full ownership.

The current Study is not including any legal due diligence which should be subject of a specific analysis in order to assess and propose legal measures and practical alternatives required for the scope of further development of the site.

On top of this partial rights, several Government Decisions were signed when the land was transferred:

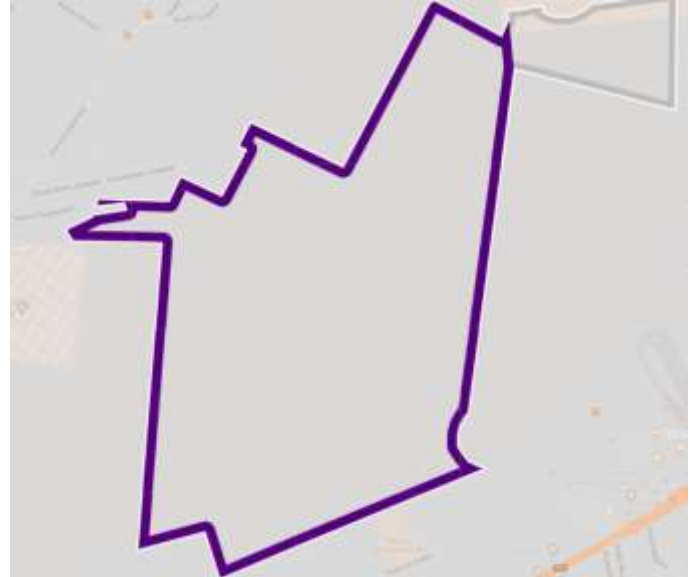
- Government Decision 291/2011 including the obligation of Sector 5 to transfer 50% of the residential raised on the land received from the Ministry of Defence but not less than 5,000 units;
- Government Decision 735/2004 to transfer two land plots, one of 128,820m² and other of 16,000m² for developing the public utilities attached to the main plots;
- Government Decision 790/2017 which introduce a new land use for urban plan development programs in line with the Local Decisions of Sector 5 no. 11/2017, 140/2017 and Bucharest Municipality Decision 147/2017;

The following map (8) shows the four cadaster limits as resulting from the extracts.

Map 8: Limits of the four cadaster numbers



Map 9: Consolidated site (three cadaster)

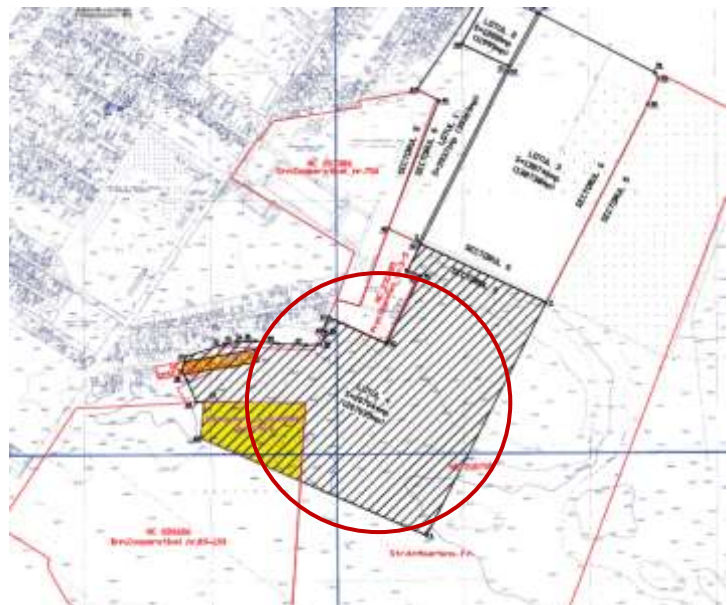


Source: Land Books and masterplan information *

In line with the above-mentioned comments regarding the transfer of parcel #218783, the map above (No. 9) shows a consolidated site from the remained three sites – 218807, 218805 and 218798 in total size of 977,637m². That part of the plot 218807, of around 2 hectares is that part of the site 218807 is held for ANL public authority.

A total plot of around 20ha located west of the site (out of which ~18 ha part of the analyzed site), south of the plot where Dedeman will build a DIY unit, may be subject of litigation, however this is in course of clarification with Sector 6 this was also considered in the proposed scenarios. There is also a small overlapping of around 3,000m² part of the subject site.

The site is shown in the map to the right, as Lot 4.



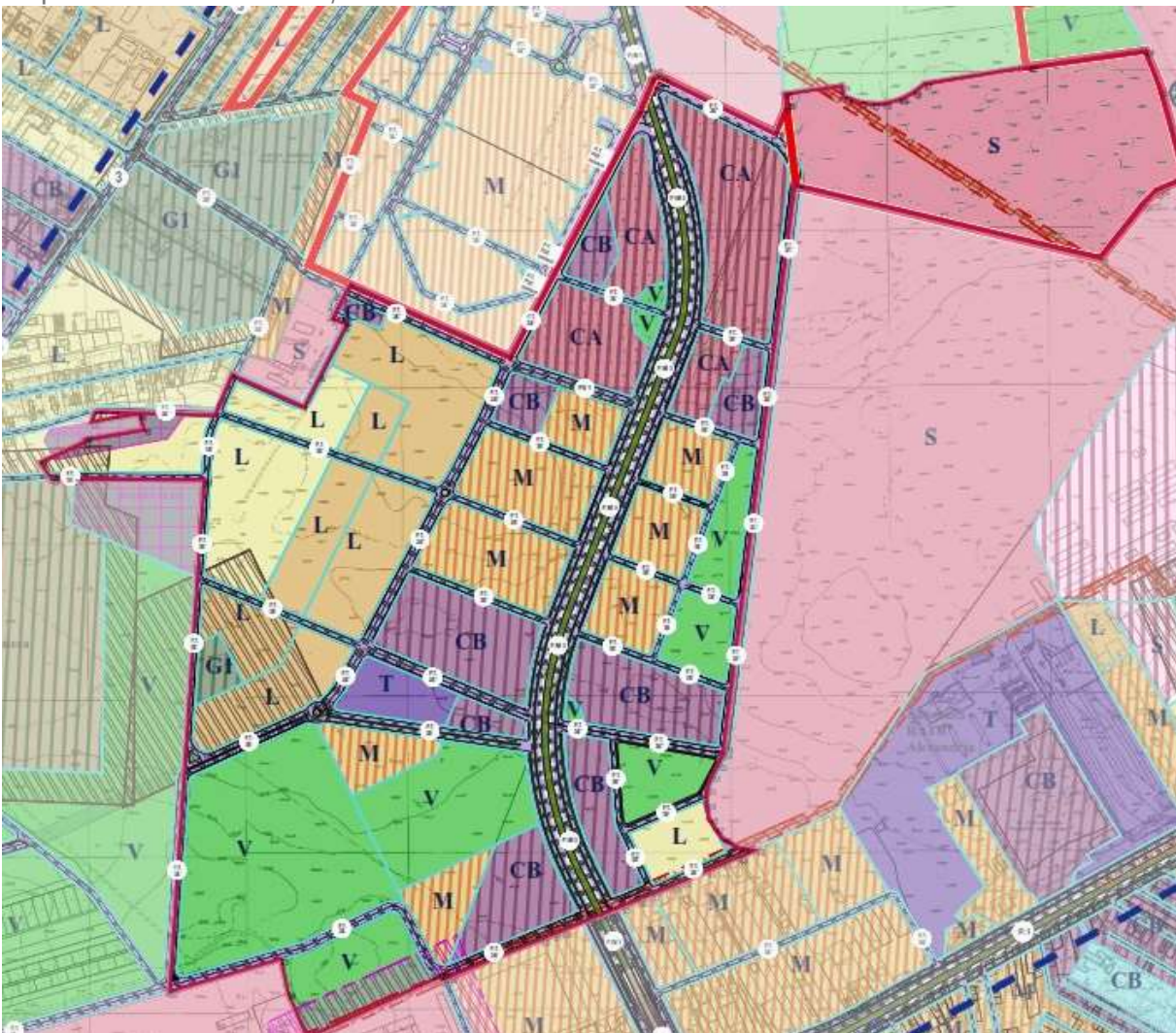
11.4 Planning

The property lies within the jurisdiction of Bucharest City Hall whose planning policies should be normally contained within the PUG (General Zoning Plan) plan. Generally, a master plan can be adjusted based on pertinent documentation for small or large areas, however the subject area is considered as a major project within zonal Coordinating Urban Plan Sector 5. The area is also at the limits with the Sector 6 and this should be analyzed, including the side allocated to PUZ Dedeman. An extract of this is provided within the Appendix 4D.

The study was discussed with the Technical Committee for Urban and Spatial Planning of the Bucharest Municipality, Technical Traffic Commission of the Bucharest Municipality and is under public debate, therefore subject of further adjustments. The existing rules and map are outlined in this section. A copy of the Coordinating Urban Zoning Plan of Sector 5 was analyzed (currently under debating procedure) and this will normally incorporate PUZ Antiaeriana. The following urban zoning plan (noted “PUZ”, in line with the Romanian terminology) are in public debate at the time of writing this study, both PUZ’s are commented below starting with the subject documentation: PUZ Antiaeriana – specific for the subject project and surroundings;

- PUZ Sector 5 – general rules for the entire sector including the subject area.
- The PUZ Antiaeriana was identified in the urbanism section of the municipality’s website.

Map 10: PUZ Antiaeriana / Sector 5– under debate



Source: Bucharest Municipality and pmb.ro site

According to this document, a set of areas are to be developed with the following permits:

Table 18: Antiaeriana proposed urban planning indicators

Development Unit ("UTR")	Land size (m ²)	% from land	POT (%)	Green area (%)	Green area (m ²)	CUT	Floors	Maximum Height (m)	Roads (%)	Circulation (m ²)
CA	91,688	8.2%	65%	20%	18,338	4.0	GF+25	100	15%	13,753
CB	119,877	10.7%	50%	30%	36,901	1.4 - 4.0	GF+5+8+10+15	18-50	20%	23,975
M	120,432	10.8%	70%	20%	24,086	3.0 - 3.5	GF+10+12+14	35-45	10%	12,043
L	194,348	17.4%	45%	30%	82,743	1.3	GF+2+4+8	35	25%	48,587
S	138,056	12.4%	50%	30%	41,417	1.8	GF+2	35	20%	27,611
G	5,181	0.5%	50%	30%	1,554	1.8	-	12	20%	1,036
V	200,481	18.0%	15%	80%	129,209	0.2	GF+2	9	5%	10,024
T	12,493	1.1%	60%	20%	2,499	3.0	GF+4	18	20%	2,499
Tc	232,659	20.9%	-	10%	23,266	-	-	-	90%	209,393
TOTAL	1,115,215	100.0%			360,012					
TEREN										
S - not subject	138,056	1234.0%	70%	20%	27,523	3.0	GF+14	45	1000%	13,761
SUBTOTAL	977,159				332,489					

The total land size of the above-mentioned area, except the "S" UTR, is of 977,159m² which is close to the size of the sites discussed within the Tenure section above. According to these documents, listed in extract below, various areas proposed for development: CA, CB, M, L, T, Tc, V, G and subsequent areas.

Map 11: PUZ Sector 5 – under debate

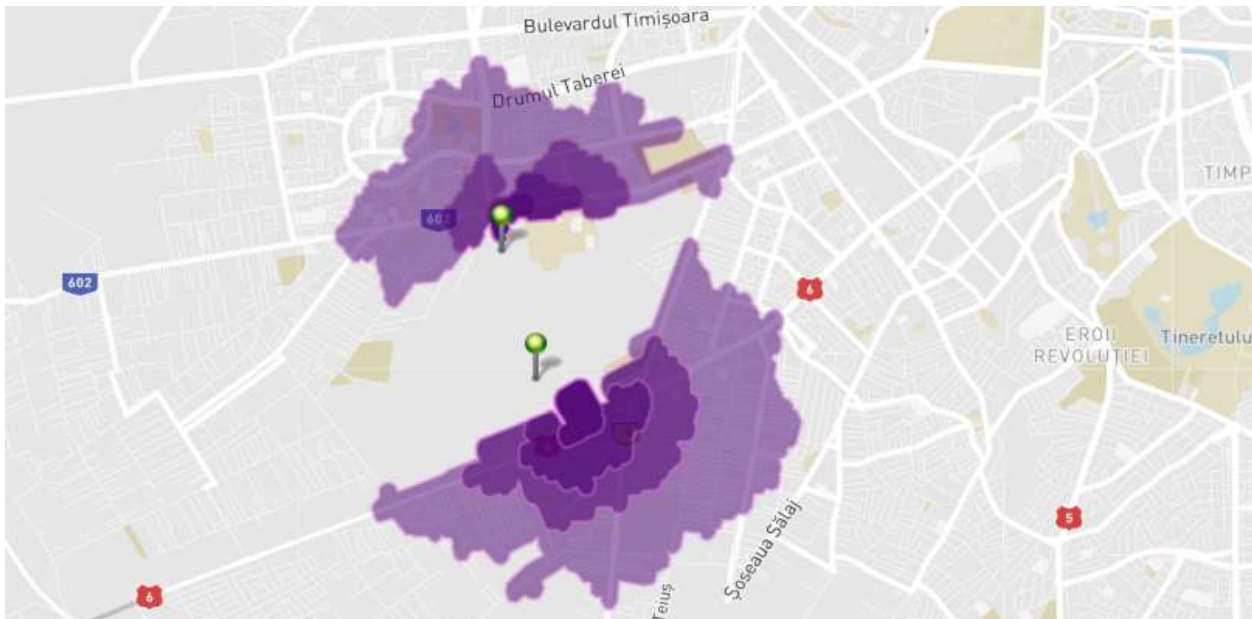


Source: Municipality and <http://www.bucharestcentenaryproject.ro>

11.5 Surroundings

The Subject is located within Sector 5, however very close to the limits of this with the Sector 6 and Bragadiru municipality. A simple analysis of population and incomes within the Sector 5 City Hall would provide only limited information. Therefore, a catchment area analysis was performed in neighboring Sector 6 and Bragadiru, assuming walking time distance in four scenarios: assuming 5, 10, 15 and 25 minutes and using two sides of the Subject area: North submarket and South submarket. This option was preferred due to the large size of the Subject without road connection and that unique catchment area may generate inconsistent results.

Map 12: Catchment area in 5,10,15 and 25 minutes walking time



Source: JLL using Mapit GIS software using 2017 information

Two submarkets analyses were undertaken and aggregated results included in the table below.

Table 19: Area size, population and purchasing power results from the catchment analysis

Walking distance	Area (m ²)	Current Population	Purchasing Power (€/ capita/ year)	Households
Northern subarea 0 - 5 min	90,000	83	6,227	33
Northern subarea 5 - 10 min	140,000	1,017	6,653	410
Northern subarea 10 - 15 min	510,000	12,481	6,701	5,025
Northern subarea 15 - 25 min	2,250,000	46,138	6,696	18,587
Northern subarea 0 - 25 min	2,990,000	59,719	6,569	24,055
Southern subarea 0 - 5 min	160,000	457	5,940	184
Southern subarea 5 - 10 min	500,000	3,306	5,941	1,518
Southern subarea 10 - 15 min	970,000	8,245	5,942	4,838
Southern subarea 15 - 25 min	3,080,000	30,037	5,944	16,922
Southern subarea 0 - 25 min	4,710,000	42,045	5,942	23,462
Consolidated 0 - 5 min	250,000	540	6,084	217
Consolidated 5 - 10 min	640,000	4,323	6,297	1,928
Consolidated 10 - 15 min	1,480,000	20,726	6,322	9,863
Consolidated 15 - 25 min	5,330,000	76,175	6,320	35,509
Consolidated 0 - 25 min	7,700,000	101,764	6,256	47,517

Source: JLL using Mapit GIS software using 2017 information

This confirm the norther submarket as having an increased purchasing power, specifically of 10% over the southern side.

12 Transportation Infrastructure

This section provides information on the transportation options available, zooming in from the wider area to the nearest bus/trolley/tram/metro stations.

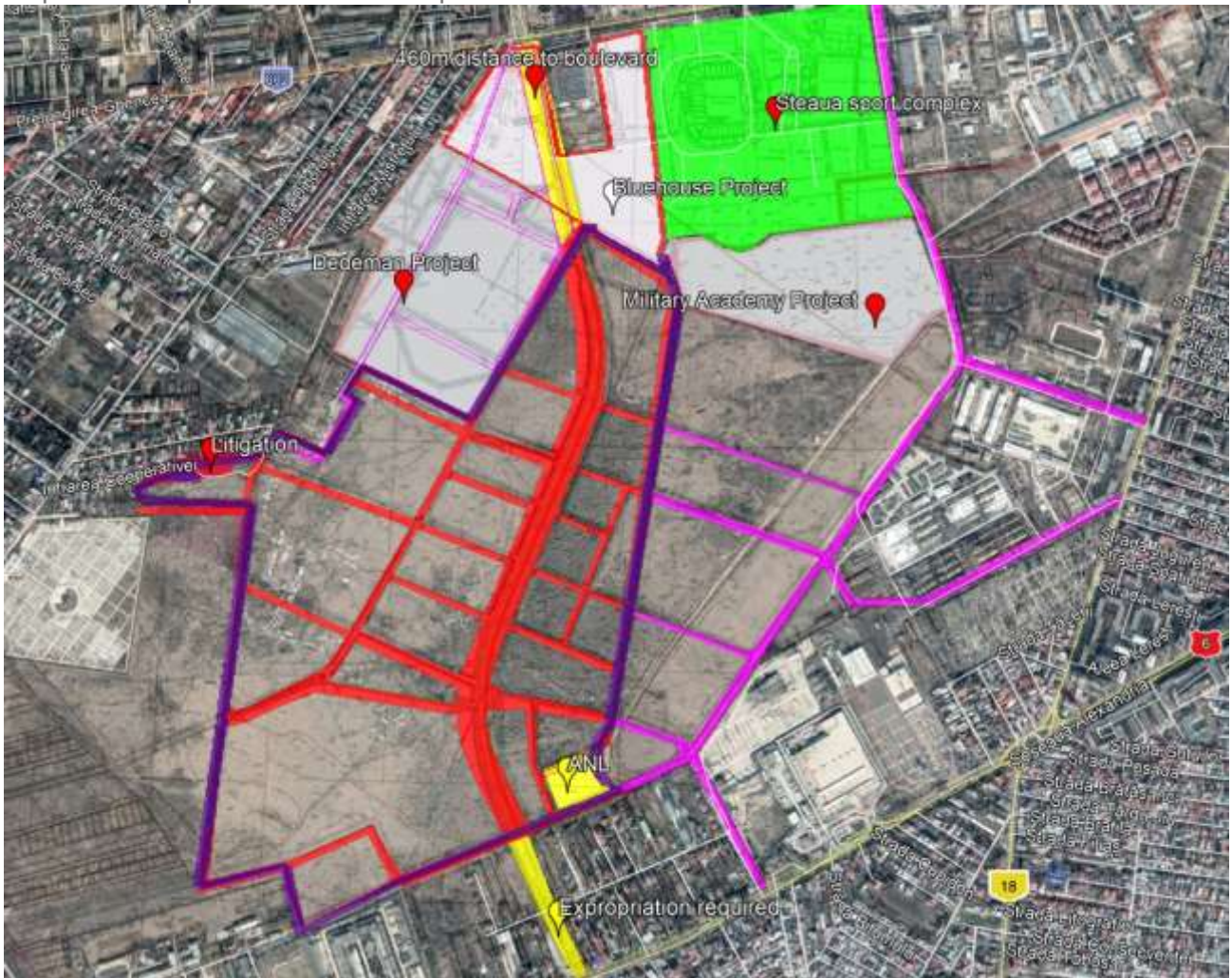
Additionally, the relevant infrastructure projects to support the Subject site development are listed.

12.1 Current transport connections

The site is situated to the south-west side of the city center, at approximately 5km distance, around 6km south from the main railroad station of Bucharest – Gara de Nord and over 19km to Henri Coanda International Airport which is to the other side of the city, in the north.

Effectively, the subject is not accessible as it is not developed but the immediate streets are connecting to main arteries to the north - Ghencea Boulevard, to the south – Alexandriei Road. These main two arteries are well served by the public transportation (bus, tram and trolley bus lines) and the under-construction metro line at over 1 km distance to the North of the Subject. The Subject is currently not connected to the road and transportation network, having its northern limits at around 0.5km from Prelungirea Ghencea Boulevard.

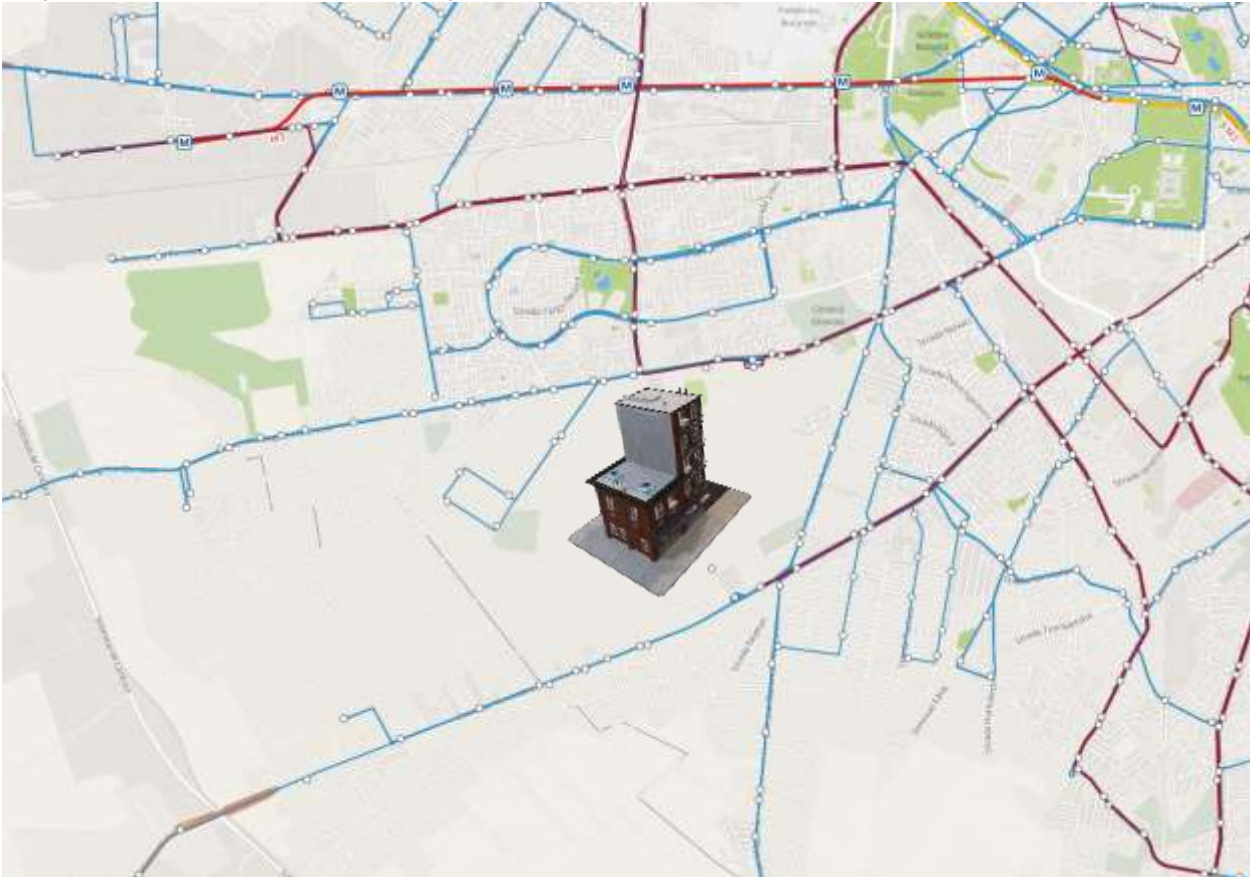
Map 13: Transport connections in plan



Source: Sector 5 road map (including the proposed PUZ) on google earth overlay

There are several secondary roads closer to the Subject as well as others in project, starting with the one proposed within DIY Dedeman PUZ adjoining the Subject to the north-west, which is expected to open first. Also, the redevelopment of the former Steaua sport complex and an expected residential project, both to the north of the subject, the first being already under construction, are expected to improve the access towards the Subject.

Map 14: Ground and metro transportation network



Source: Transport map from transporturban and openstreetmap

The site can be reached by tram 47 from the city center – Unirii Square or 41 rapid tram connecting Presei Square, both arriving to Ghencea terminal. Trolleybus lines 69 and 90 connects also the city centre – Universitate Square towards Valea Argesului Street in Sector 6 at more than 1 km north from the Subject where 93 trolleybus arrives from the railway station area (Gara de Nord) as well as the bus line 105.

The bus line 126 connects the northern part of the city center – Romana Square to the Palace of Parliament area (Izvor) and Ghencea. The bus line 385 also stops there coming from the south part of the city center – Unirii Square.

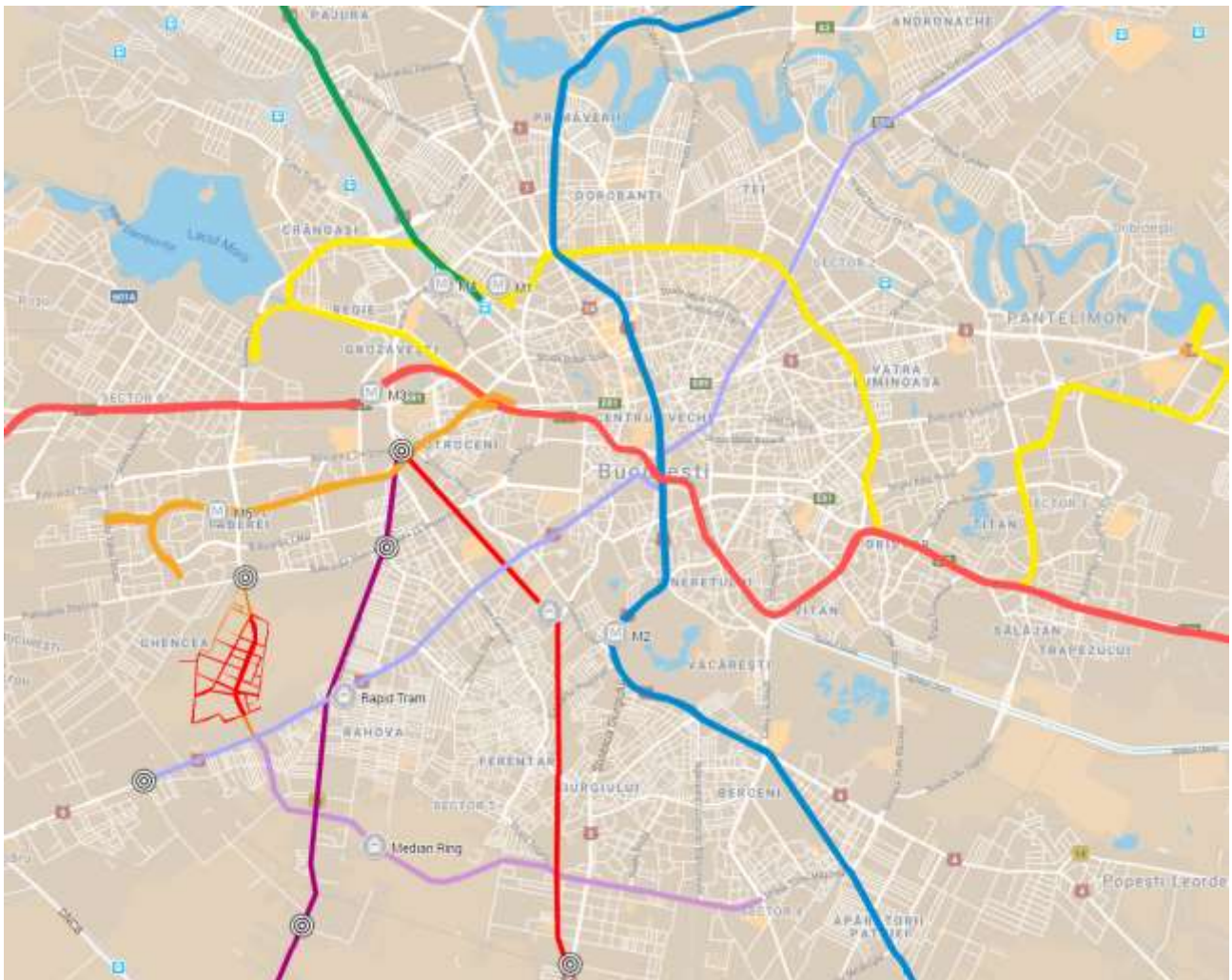
To the west side of the Subject are situated secondary streets, including Cooperativei and Gladiolelor Streets with limited availability of public transportation options, however, useful as an alternative route for vehicles.

12.2 Infrastructure Development

The Urban Sustainable Mobility Plan (“PMUD”) issued in January 2016 for the European Bank for Reconstruction and Development, revised on October 2016, provides strategic guidelines for 2016-2030 development plan for transport including Bucharest and the neighboring Ilfov county.

Due to the radial distribution of the main high-capacity roads that enter Bucharest, a series of concentric rings has been developed or proposed to reduce or to deviate traffic transit from downtown or densely built areas.

Map 15: Transportation Major Infrastructure affecting the Subject



Source: Overlay in Google Earth from information from Sector 5, PMB, PMUD and existing projects

Although the city has this ring road system, it is discontinuous and has inconsistencies in terms of equipment therefore has a limited effect on the deviation of transit traffic from the major road arteries, which remain congested, is stressed in the PMUD Bucharest-Ilfov 2016-2030. The road transportation network has a number of ring roads, partially existing and planned:

- The central ring (“IC”) has a diameter of approximately 3.5 km, and when completed it should provide at least two lanes in each direction, in many cases using one-way parallel streets and with level crossings, most of them with traffic lights.
- The main ring (“IP”), is complete and has a diameter of about 6 km. It is the most circulated ring road in Bucharest. Although it has 2 or 3 lanes each way, and aboveground passages at some major points, it is still very congested at peak times. Current aims are to alleviate congestion along major intersections through the construction of above ground passages.
- The median ring (“IM”) has a diameter of approximately 10.5 km. However, only half of it's finished. The Bucharest City Hall currently has an approved Urban Zoning Plan for its northern segment, considered to be the priority. An ample construction project is under way in the southeast section,

which includes a complex of road bridges over the Dambovita River. The southwest part is missing altogether. Costs for finishing the ring will be very high, according to the same document mentioned above.

- The Bucharest Bypass (DNCB) belt, with a diameter of approximately 22.5 km it is currently being extended to 2 lanes. The existing north and north-west ring road provide access from the north part to A1 highway
- There is also a proposed motorway ring for Bucharest (A0) to be constructed starting with the southern section. The construction hasn't yet started. It should have a diameter of approximately 30 km. The need for it has been derived on the city's expansion to the periphery, thus hampering high speeds and capabilities on the existing belt.

PMUD presented an "optimum scenario" including a new rapid line M7, connecting the south-west to the north-east of the city. This is on the actual rapid tram ("32") from Alexandriei to Unirii together with the actual tram line ("21") from Unirii/Sfantu Gheorghe Square to Colentina with a junction within the city center Unirii. It is also mentioned the M5 metro (listed in orange in the map above) as it is almost finalised and an M5 extension of this which is in the incipient stage (not listed in the map below).

Several other projects are planned or under implementation to sustain the services in the area: metro infrastructure expansion, improving existing installation (ventilation, upgrades), improving services and the metro rolling stock.

According to the local plan, the Subject will benefit from a large boulevard connecting Drumul Taberei area to Alexandriei as well as a main street towards the western exit from Bucharest through Bragadiru. This will may also ease the traffic usually congested from the city towards the new district Bragadiru-Prelungirea Ghencea, where residential blocks and villas were raised mostly within the last five years.

Looking to these projects, there is an excellent opportunity to connect the Subject area to the new median ring and benefit from the new metro line M5, the improvements of the existing lines 41 and 32, interconnect to the intermodal node Progresu via the median ring road and provide an excellent link to connect Drumul Taberei and Prelungirea Ghencea to Alexandriei Road and exit to Bragadiru and the ring road.

The most attractive residential or commercial developments involve a metro station in close proximity whilst the Subject's northern limit is at over 1km distance. Currently, a large area within the south-west side of Bucharest is not served by a metro line. Such measure would be a good opportunity also for the Subject to benefit in an eventual extension of M5 to the south.

13 Public Facilities Analysis

This Section analyses the current needs in terms of public amenities in the wider area, focusing mainly on healthcare (major hospitals), education (kindergarten, schools and high schools), entertainment & leisure (retail centers, cinemas). This analysis is required to provide an indication of the existing facilities and the required ones.

The Subject project is expected to offer a higher benchmark in terms of the quality of life provided to the end user. On the longer term, as it matures, it can create emulation for the development of the whole of Sector 5, which currently has a lot of untapped potential. Therefore, the project is not just about the volumes it can deliver, but also about the complementary benefits and facilities it can provide for the population.

Among these, we've also studied the existing entertainment and leisure facilities in Sector 5 and also in the neighboring areas of Sector 6 in terms of number, size, accessibility and diversity. The goal was to figure out what can the Subject include in terms of such facilities to fill in the gaps and bring added value to the urban environment.

13.1 Overview

A project developed with the support of a public authority can benefit from the opportunity to create a pleasant environment for the residents to live in and to attract businesses. The residents should have close access to required education, health, leisure, entertainment and cultural facilities.

Access to entertainment facilities and services is an important part of the quality of life within a city. According to Eurostat, in 2012, European citizens spent on average a little more than 3% of their household budget for recreational and cultural activities. However, Romanians spent as little as 2.6% of their average income on such activities, although the figure increased considerably from slightly above 1% in 2005. In absolute terms, available figures for 2012 show that most eastern EU member states were spending less on recreational and cultural activities, as opposed to most northern, western and southern EU member states. On average, every Swedish citizen spent around 900 Euro on such activities in 2012, versus 100 Euro in Romania. With limited development of public facilities but with several large sites available for further development, the Sector 5 has a good potential for an increase in spending for recreational and cultural activities. That also provides opportunities for a diversification of leisure and cultural facilities.

13.2 Education facilities

13.2.1 Current situation of education facilities

In Sector 5 there are currently 20 public kindergartens, totaling over 5,500 pupils. Also, there are 25 primary and secondary public schools, totaling almost 18,500 pupils and nine high schools, with 8,300 pupils, according to the Local Sustainable Development Strategy of Sector 5. As seen in the table below, although the number of public kindergartens and schools is relatively even distributed between the sectors of Bucharest, Sector 5 has a much smaller number of high schools in comparison with the other sectors. Therefore, the project to be developed in the Antiaeriana area should also include a high school.

Table 20: Public Education Facilities July 2018

	Permanent resident population	Public kindergartens	Public primary and secondary schools	Public high schools
Sector 1	252,091	19	32	26
Sector 2	371,854	20	34	27
Sector 3	476,089	21	31	14
Sector 4	327,374	18	26	14
Sector 5	301,852	20	26	9
Sector 6	392,534	27	26	15
Bucharest	2,121,794	125	175	105

Source: Bucharest School Inspectorate and National Institute of Statistics

A number of universities are located in Sector 5: “Carol Davila” University of Medicine and Pharmacy, “Ferdinand I” Technical Military Academy, “Carol I” National Defence University, Faculty of Veterinary Medicine and other faculties part of Bucharest University: Psychology, Educational Sciences, Sociology and Social Work, Law, Business and Administration, Chemistry, Biology. According to information provided by the municipality, Sector 5 has also a number of nine public high schools, the fewest among the districts of the capital city (compared to over 20 in Sectors 1 and 2) with over 1,700 places for day classes and 100 part-time classes. Four of these – Ștefan Odobleja, Dimitrie Bolintineanu, Ion Barbu and Gheorghe Lazar provide theoretical area of competence (Mathematics-IT, natural sciences, philology, social sciences), one, Viilor Economic College specializes in services only (tourism and catering, economics, trade) and another one Dumitru Motoc Technological College of Food Industry has a technological profile for food industry, electromechanics. The other three colleges – Technical College of Energetics, Dimitrie Gusti Technological High School and Grigore Cerchez Technical College have a mixed profile offering both theoretical (Mathematics and IT, philology) and technical (electricity, mechanics) and service-related subjects (tourism and catering).

The best ranked from the above, is considered to be Gheorghe Lazăr National College, the third at national level in 2018 based on overall academic performance (admission grade, pass rate and average grade at the Baccalaureate exam); Ion Barbu Theoretical High School and the Stefan Odobleja Theoretical High School are also among the first 250 high schools in the country. In 2018, the high schools of Sector 5 provided four years preparation for vocational classes for over 100 secondary-school graduates as: cook, baker and pastry maker, meat product maker and refrigeration mechanic and have also signed partnerships with economic operators in the respective fields, for traineeships and potentially for hiring the students. Dual education combining apprenticeships in a company and vocational education is poorly developed in Bucharest, which counts only a few such classes and would be a potential to attract companies closer to the labour force market.

Map 16: Main education units in proximity of the Subject



Source: Overlay in Google Earth from public information (red – kindergarten, yellow – middle schools, blue – high schools, green - universities)

In terms of research and higher education and research institution centers, several are located within Sector 5, including:

- Romanian Academy – the main academic forum in Romania comprises various institutes in fields such as: anthropology, quality of life research, legal research, artificial intelligence, agricultural economics, world economy, philosophy and psychology, history and literary theory, history of religions, linguistics, economic research, economic forecasting, sociology, speleology, mathematical statistics and applied mathematics, South-Eastern European studies, demographic research, financial and monetary research, industry and services economy, ethnic studies, economic information and documentation, macroeconomic modelling, advanced physics, agricultural and forest biodiversity, European law.
- Cantacuzino National Institute of Research and Development for Microbiology and Immunology – under the authority of Ministry of National Defense, known especially for its vaccine production;
- Victor Babeş National Institute for Research and Development in Pathology and Biomedical Sciences – an elite medical research institute;
- Emergency University Hospital – with its own medical research hubs;
- National Institute of Public Health, for the surveillance and control of communicable diseases, community risks and in the assessment and promotion of population's health;
- Professor Doctor Dorin Hociota Institute of Phono-audiology and Functional ENT Surgery, the only institute of this type in Romania;
- National Institute of Medical Expertise and Work Capacity Recovery, a facility in the healthcare sector;
- Nicolae Simionescu Institute of Cellular Biology and Pathology under the authority of the Romanian Academy;
- The Institute of Animal Diagnostics and Health – veterinary field;

- In the vicinity of Sector 5, in Magurele town, is currently under development the Extreme Light Infrastructure – Nuclear Physics ELI-NP project. This is the most important research and innovation cluster project in Romania, financed with EU funds. The objective is to build the largest and most powerful laser in the world for research purposes, in collaboration with several European countries. Close to the ELI-NP research facility it is projected the development of a smart-city called Laser Valley, on 400 hectares of land. Around 20,000 specialists are expected to be accommodated here. Adjacent it envisioned an infrastructure extension including a new road linking Bucharest and Magurele, crossing Sector 5 and served by modern public transportation. This is a factor to note as a market influencer for the whole of Sector 5.

Sector 5 has the lowest number of schools in Bucharest and would require new facilities to serve the areas.

13.2.2 Requirements for school and kindergarten

Determining the size of a new school takes into account the number of classrooms it will host. Two shifts of pupils are allowed, but that figure should ideally drop to one. One shift should include at most 25 pupils for primary school and 30 pupils for secondary school and high school, according to the normative NP 010 -1997 on the design, construction and exploitation of buildings for schools and high schools. In order to estimate the necessary built area of the new school, it should be considered a built area of 205m² or 133m² usable area per classroom. These figures also include the share of the rest of the functions, depending on the school type (primary, secondary, high school etc.) and are inversely proportional with the size of the school expressed in number of classrooms. In determining the size of a new school, it must be consider the total number of classrooms in existing schools in that particular school circumscription and the expected number of student classes expected for the next 5 or 10 years. If the number of student classes divided by the total number of classrooms in the area equals more than two for a longer term, therefore potentially requiring more than two shifts, then it is necessary to build a new school. The capacity of the new school, meaning the total number of classrooms, is determined by dividing the number of student classes expected for the next 5 or 10 years by the number of school shifts per classroom and subtracting the number of existing classrooms in the area. The school must be within walkable distance from home. This distance shouldn't be above 1,000 meters unless there are some special means of transportation provided. In terms of the land required to build a new school in the urban environment, it should be considered 4,800m² of land for a primary or secondary school with 8 classrooms, 7,200 sqm for 16 classrooms and 10,800m² for 24 classrooms. That would represent 15m² of land for each pupil. It should also be added another 1,000m² to 1,500m² of land for building a gym hall. A new kindergarten should host between 20 and 200 children, or between one and ten groups of 20 children each. Also, the kindergarten should be no more than 500 meters away from their home, according to the normative NP 011 -1997 on the design, construction and exploitation of buildings for kindergartens. The required land for building a kindergarten in an urban area is between 2,000m² and 4,000m², or at least 20m² per child.

In terms of the size of the building, a kindergarten with 10 groups of children and a total of 200 children should have close to 2,000m² of useful area.

13.2.3 Education facilities required by the Antiaeriana project

Since the Antiaeriana project is a greenfield development, the report does not take into account existing education facilities in Sector 5 when calculating the necessary capacities. Considering that the project could have by the time it will be completed a total population of about 30,000, the necessary number of pupil classes for the Antiaeriana project have been calculated, by maintaining the same quota of pupils as for the whole of Bucharest, as seen in the table below.

Table 21: Number of pupils for Bucharest and the Antiaeriana project

Education age	Number of classes in Bucharest	Number of pupils per class	Number of pupils in Bucharest	% in the total population of Bucharest *	Number of pupils applied to Antiaeriana **	Number of classes Antiaeriana ***
Year 1 kindergarten	664	21.0	13,944	0.66	198	9
Year 2 kindergarten	708	21.1	14,960	0.71	212	10
Year 3 kindergarten	886	21.6	19,146	0.91	272	13
Kindergartenpreparatory	667	25.9	17,262	0.82	245	12
Year 1 primary	704	24.6	17,304	0.82	246	10
Year 2 primary	747	26.2	19,586	0.93	278	11
Year 3 primary	740	25.3	18,752	0.89	266	11
Year 4 primary	687	26.5	18,178	0.86	258	10
Year 5 secondary	674	26.4	17,794	0.84	253	10
Year 6 secondary	542	24.9	13,507	0.64	192	8
Year 7 secondary	705	24.8	17,505	0.83	248	10
Year 8 secondary	643	24.6	15,811	0.75	224	9
Year 9 high school	674	26.9	18,131	0.86	257	10
Year 10 high school	674	25.2	16,958	0.80	241	10
Year 11 high school	692	25.9	17,944	0.85	255	10
Year 12 high school	661	25.2	16,664	0.79	237	9

Source: Ministry of National Education and Scientific Research, Integrated Information System of Education in Romania – SIIR

* Percentage in the total population of Bucharest considering 2,113,362 inhabitants in 2018 in %

** Applying the same percentage as for Bucharest to a number of around 30,000 inhabitants/residents in Antiaeriana area

*** Assuming an average of 25 pupils per class to Antiaeriana project

Considering all the requirements mentioned above, for a total population of 30,000, the project in Antiaeriana should host the following education facilities:

- At least 4 kindergartens with 10 groups each, in one shift, each unit of roughly 2,000 sqm useful area.
- At least two schools (primary and secondary combined) with 20 classrooms, with two shifts, each unit of roughly 4,100 sqm built area.
- At least one high school with 20 classrooms, in two shifts, of roughly 4,100 sqm built area.

13.3 Entertainment

Currently, in Sector 5 there are three major modern retail schemes, including a limited number of entertainment facilities:

- Liberty Center – 151-171 Progresului Boulevard 25,700 m² GLA, including cinema, ice ring, casino;
- Vulcan Value Center – 88 Mihail Sebastian Street, 25,750 m² GLA, including casino;
- Cora Alexandriei – 152 Alexandriei Boulevard, including casino.

In terms of theatre halls, the Sector 5 hosts one of the main concert halls in Bucharest, the Romanian National Opera (70-72 Mihail Kogalniceanu boulevard), with a capacity of almost 1,000 seats. Also, Sector 5 hosts the Bulandra Theatre (Izvor hall – 1 Schitu Magureanu Street) and the Elisabeta Theatre (45 Regina Elisabeta Boulevard). On the other hand, Sector 5 has many cinemas, but not all of them are properly maintained, especially those situated in downtown Bucharest, in historical buildings. Three cinemas are situated in the historical area of Bucharest, in the Elisabeta boulevard area: Cinema Corso (27 Regina Elisabeta boulevard), Cinemateca Eforie (2 Eforie Street) and Glendale Studio (9 Cotroceni Boulevard). Better cinema halls are maintained in modern mall – Liberty Center (151-171 Progresului Boulevard) with Happy Cinema operator, including seven projection rooms.

In terms of available casinos in Sector 5, apart of the small-medium size neighborhood casinos, usually to the ground floor of the residential blocks or in independent buildings, there are larger casinos including Grand Casino Bucharest – Marriott Hotel (90 – 13 Septembrie Boulevard). Other operators are MaxBet, Admiral, Winbet, Excelbet, Million etc. There are no large casinos in the immediate vicinity of the Subject.

Sector 5 is hosting several museums, palaces and memorial houses:

- Cotroceni Palace (1 Geniului Boulevard);
- Museum of the Palace of Parliament (2-4 Izvor Street);
- National Museum of Contemporary Art (2-4 Izvor Street);
- Tudor Arghezi memorial house (26 Martisor Street) ;
- Gheorghe Tattarescu memorial house (7 Domnita Anastasia Street);
- Museum of the National Opera (70-72 Mihail Kogalniceanu Boulevard);
- Museum of the University of Bucharest (64 Mihail Kogalniceanu Boulevard).

There are several event ballrooms including Crystal Palace Ballroom (198A Rahovei Boulevard) and Bragadiru Palace (147-153 Rahovei Boulevard).

There are no entertainment facilities in immediate vicinity of the Subject and such elements would be of real support to both the Subject development and the surrounding areas.

13.4 Healthcare facilities

According to the Eurostat, in 2016 Romania had 684 hospital beds for 100,000 inhabitants, or a total of almost 135,000 beds, considerably higher than the EU average of 514 beds for 100,000 people. In fact, Romania occupies the sixth place in the EU in terms of total number of hospital beds per 100,000 people, just behind Germany, Austria, Bulgaria, Hungary and the Czech Republic. In recent years, Romania is trying to reduce the total number of hospital beds in order to reach the EU average, according to the Ministry of Health.

According to the World Bank, quoting the World Health Organization, in 2011 the average number of hospital beds worldwide for 1,000 inhabitants was 2.7, or barely 270 per 100,000 people. Therefore, Romania does not have a problem with the overall number of hospital beds, but rather with their distribution. In 2017, in Bucharest alone there were close to 22,000 hospital beds, of which 20,302 in public medical units and 1,601 in private units, representing a quota of around 1,100 beds for 100,000 inhabitants, close to twice the national average, according to the National Institute of Statistics. However, although there are more than sufficient hospital beds in Bucharest overall, in Sector 5 there were only 2,386 beds in the 4 public hospitals present here, slightly less than 800 for 100,000 people.

Currently, in Bucharest there are 53 public hospitals. Of these, more than half are situated in the northern part of Bucharest, in Sector 1, with 14 units and Sector 2, with 16 units, according to the Bucharest Public Health Department (DSPMB). Therefore, there is a high discrepancy in regard to the southern part of Bucharest and Sector 5.

13.4.1 Current medical facilities

Currently, in Sector 5 there are four public hospitals whilst the extended area of Sector 6 includes other four, as follows:

Map 17: Main healthcare facilities in proximity of the Subject – Sector 5 and Sector 6 areas



Source: JLL Research with OpenStreetMap

- 1. Bucharest Emergency Hospital, on 169 Splaiul Independentei, with 1,099 hospital beds;
- 2. Institute of Pneumophtisology “Marius Nasta”, on 90 Viilor Boulevard, with 622 hospital beds;
- 3. Institute for Fonoaudiology and Functional Surgery Otorhinolaryngology “Prof. Dr. D. Hociota”, on 21 Mihai Cioranu Street, with 340 hospital beds;
- 4. Clinical Urology Hospital “Prof. dr. Th. Burghele”, on 20 Panduri Boulevard, with 325 hospital beds.
- 5. Psychiatry Hospital "Sf. Stelian", 25-27 Cristian Pascal Street, Sector 6;
- 6. Clinical Hospital of Obstetric-Gynecology "Prof. Panait Sarbu", 5 Calea Giulesti Boulevard, Sector 6;
- 7. Central Military University Emergency Hospital "Dr. Carol Davila", 134 Calea Plevnei Boulevard, Sector 6;
- 8. Clinical Hospital No. 1 Railroads "Witing", 142-144 Calea Plevnei Boulevard, Sector 6.

However, as seen in the image below, none of these hospitals in Sector 5 are situated close to the Antiaeriana site, but rather closer to the city center. Moreover, there is also a need for a new general hospital in the neighboring Sector 6, according to the City Hall of Sector 6, who has unsuccessfully tried to build one in recent years.

The few public hospitals in Sector 6 are also concentrated near the city center. Therefore, it would be appropriate to build a new general hospital on the Antiaeriana site to serve both the western part of Sector 5 and also the western part of Sector 6 and possibly of the developing towns around Bucharest, which also lack adequate medical infrastructure.

13.4.2 Requirements for building a new hospital

According to the Romanian NP 015 normative regarding the design and verification of hospital constructions, there can be four categories of hospitals:

- Small hospitals – with 150-350 beds for general hospital and 100-200 beds for specialized hospitals;
- Medium hospitals – with 400-600 beds for general hospitals and 250-400 beds for specialized hospitals;
- Large hospitals – with 700-1,000 beds for general hospitals and 500-700 beds for specialized hospitals;
- Very large hospitals – with over 1,100 beds, usually general hospitals.

New hospitals should be situated in predominantly residential areas and as close as possible to green areas. It should also be taken into account that a hospital requires easy access to the main road infrastructure of the city and to public transportation.

There is no standard requirement for the built area of a hospital in the normative. Instead, the size of the hospital is determined by its configuration in terms of specialties and number of beds.

Determining the necessary land for the development of a new hospital takes into account the total number of beds the hospital will host. The value should ideally be between 75 and 150 sqm of land for every bed in the hospital. Nonetheless, between 75 and 90 sqm of land is considered sufficient for multistoried general hospitals, while between 120 and 150 sqm of land is considered sufficient for hospitals horizontally developed.

The building of a new general hospital on the Antiaeriana plot is a must. The normative mentioned above recommends a medium size general hospital, with 500 to 600 beds, to address a population of 70,000 – 80,000 on a 1 km radius or 200 hectares of land. Considering that the population for the Antiaeriana plot alone will reach roughly 30,000, without counting old residential in the area and the possibility a future expansion of the neighborhood on nearby empty land, it would be appropriate to build here a medium size general hospital with 500 - 600 beds. The built area must be determined considering the number of specialties included in the hospital.

13.5 Green areas and recreation

Looking to the main public parks, the Sector 5 has significantly lower area, compared to the other sectors of Bucharest:

- Izvor Park – 11 hectares;
- Eroilor Sanitari Park – 5 hectares;
- Sebastian Park – 2 hectares;
- Pecineaga Park – 2 hectares;
- Humulesti Park – 1.7 hectares;
- Ferentari Park – 1.3 hectares;
- Romniceanu Park – 1.2 hectares.

According to the Green Cadaster of Bucharest, Sector 5 only has around 8% of the total green areas of Bucharest, or a total of around 370 hectares, the smallest stock of any sector of Bucharest. Only 38.4 hectares of this are represented by parks. In comparison, Sector 1 has 39% of the total stock of green areas in Bucharest, or almost 1,760 hectares, including Baneasa Forest. It also benefits from almost 184 hectares of parks.

In 2016 Bucharest did not meet the EU requirement for green space per inhabitant of at least 26m² per capita by December 31, 2013. In fact, the green space per capita in the capital was only 23m², according to a report of the Romanian Court of Accounts.

Looking to the statistics, it is necessary to increase the green areas, especially within Sector 5 and this would be also an attractivity for the specific project.

13.6 Sport facilities

Currently in Sector 5 there are few facilities for practicing sport, including the following:

- BNR Arenas – 35 Doctor Joseph Lister Street;
- Cotroceni Stadium – 65 Doctor Joseph Lister Street;
- Electromagnetica Sports Facility – 19 Veseliei Street

Ghencea sport complex is located close to the subject, on 35 Ghencea Boulevard. It is a well-known as it was used before the 1990 by the military forces for preparation of prestigious teams in various sports. It is mainly known for the football team Steaua Bucharest with main successes realized on this stadium. The stadium was inaugurated in April 1974 having a capacity of 30,000 seats and renovated in 1991, 1996 and 2006 to host UEFA Champions League but demolished in 2018 to renew scheduled to open in 2020.

There is still need to develop infrastructures for sport and promote this to more people of all age category and ease the accessibility to such halls. Therefore, would be useful to create multifunctional hall as well as smaller outdoor playgrounds to allow a large mass of people to perform in a green environment.

13.7 Public sector offices

A number of public authorities were relocated over the last four year to modern and larger premises to be closer to the public improved availability of their services, such as: Sector 4 Public evidence Office to Progresul grocery market, Passport Authority to Plaza Centers and Parklake Plaza, Sector 4 Administration to Grand Arena mall.

It is believed that several public sector or municipality offices can relocate to the Subject new developed area and this would add an element to generate traffic and increase attractiveness, especially in incipient stages.

13.8 Conclusions

Considering the available entertainment, leisure and cultural facilities of Sector 5, it is considered that they are not enough and that more diversity is required:

- More green areas are needed, considering that Sector 5 has the lowest green area per capita in Bucharest. Also, the existing parks, except Izvor, are rather small, with 2-3 hectares at most. A second large park could be envisioned in the southern part of Sector 5;
- Sport facilities required – multifunctional hall as well as smaller outdoor playgrounds to be immediately accessible for all age category of people to play sports in a green environment;
- They should include entertainment facilities or amusement parks or water parks in vicinity of the Subject and such elements would be of real support to both the Subject development and the

surrounding areas. include recreation facilities such as amusement an playing areas, swimming pools, wading pools, spas, shooting facilities, etc.;

- Kindergartens are compulsory in the proximity of recent developed residential areas;
- Schools are required within the proximity of newly developed residential areas, also to serve the area in Bragadiru situated between Sector 5 and the ring road;
- The building of a new general hospital on the Antiaeriana plot is a must;
- Several public sector or municipality offices can relocate to the Subject new developed area and this would add an element to generate traffic and increase attractiveness, especially in incipient stages of development.

14 Real estate fundamentals in the analyzed area

As already mentioned, the public revenues volume is related to the cities' strategies on development and attracting new investments and businesses which are able to generate significant volumes of taxes. The largest revenue streams come from modern office and retail premises, which employ a large slice of the labour force, along with the residential sector.

Therefore, the current Section focus to the particular real estate main markets of interest for the Subject which may benefit from a proper absorption in the actual market. Additionally, stock, price for the residential, rents for the office premises, yields and vacancy for the commercial premises are linked to the case studies provided within the Appendix. These inputs are used within the financial model to reflect a Gross Development Value expected from the commercial developments.

14.1 Office Market

Because a main part of the gross take-up comes from Business Process Outsourcing and Shared Service Center companies with large staff traveling to work on public transportation, the major developers currently active in Romania, such as Globalworth, Portland Trust, Skanska, Vastint, Atenor, River Developments and One United, seek locations with good public transportation options, ideally near a metro station. This enables the developers to offer attractive products for the targeted tenants and the development of office submarkets shows that areas with more difficult access (ie no metro or light rail) have shown double digit vacancy (the maximum is in Pipera North exceeding 30%).

A reasonable distance to the metro station should allow a walking time of up to 10/15 minutes, while for the above ground transport network, the walking time should not exceed 5 to 7 minutes from the closest station. The potential for further offices developments to the south and east of Bucharest in the actual market appears limited to a small slice of the annual office demand and mainly for modern facilities with competitive rent level.

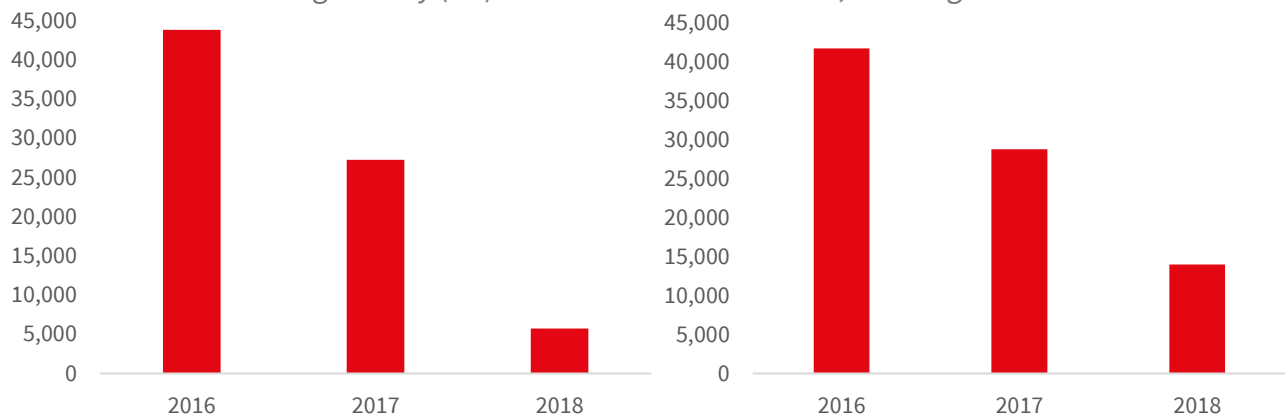
However, with the proper infrastructure and suitable development, a new office kernel would attract interest from various industries. As demonstrated by Dimitrie Pompeiu, located in the vicinity of Pipera metro station, an area of Sector 2 which has doubled the administration's revenues over the past ten years, the major factors to consider are delivering suitable building permit along with the availability of the site and a good transportation infrastructure, preferably an easy access to the metro network. The north side of Bucharest – mainly Sector 1 and the Sector 2 are the most advantaged being situated where large office developments were raised over the last 15 years, having the advantage of pre-existing metro network and higher residential infrastructure, opposite to Sectors 5 and 4 where this network is limited.

Considering that the main potential target clients for this area are from the BPO business, the evolution of the gross take-up in the last 3 years (2016-2018) across all submarkets was analyzed. According to this analysis, an area of approximately 77,000m² was leased between 2016-2018 by BPOs, registering a downward evolution from nearly 44,000m² in 2016 and 27,000m² to circa 6,000m² leased in 2018, as shown in the graph above.

Although the take-up of BPOs has decreased, it can be foreseen that the leases signed in 2016 will have to be renewed on average in 5 years' time and they can be considered as potential demand for the analyzed project.

Following the trend, but considering also the interest in the regional markets, it can be estimated that an absorption of approximately 20,000-25,000m² from the BPO sector. A small share from the other tenant sectors might also be of interest for the potential office development in the analyzed area.

Chart 15: Recent leasing activity (m²): BPOs vs. Insurance, Banking and Financial Services

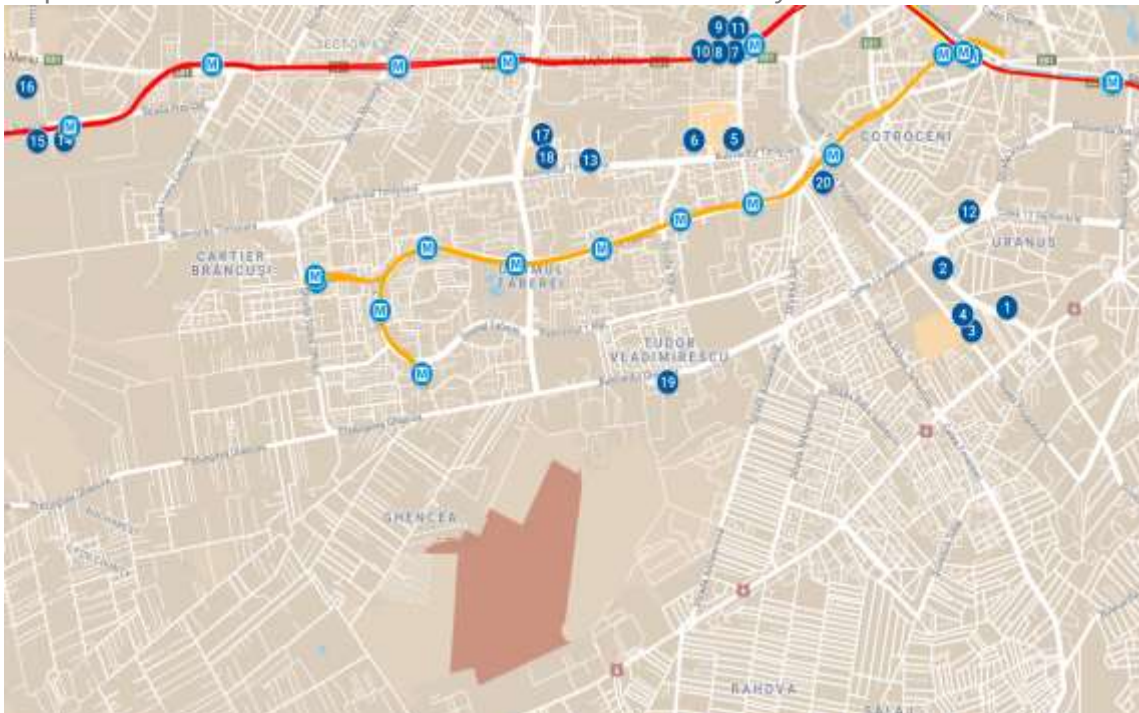


Source: JLL Research

Sector 5 has one of the lowest modern office stock compared to Bucharest's other sectors. The recent development of AFI Tech Park 1 together with the following two planned phases will help increase the awareness of Sector 5 as an office destination. Sector 5 has several large sites for development available with the potential to rapidly obtain permits once the new Coordinating Urban Zoning Plan of Sector 5 is approved, an advantage that the established submarkets no longer have.

Compared to the congested road infrastructure in the north, the new development area may benefit of the opportunity of creating new road infrastructure projects proposed together with the Municipality of Bucharest, integrated in a transportation network such as the median ring road. Antiaeriana area is also part of the former industrial railway corridor Cotroceni-Progresu infrastructure. To understand the existing stock in the market across the Subject area, a number of competitive buildings have been identified, several of which are relevant for this analysis and located in the proximity as listed within the map below.

Map 18: Relevant Offices within 4 km radius from the analyzed area



Source: Overlay in Google My Maps with JLL database

The main parameters of these office buildings are listed in the table below.

Table 22: Relevant Offices within 4 km radius from the analyzed area

Number on map	Project Name	Proximity to Metro* (min Walk)	Delivery year	GLA (sqm)	Vacancy rate %	Asking rent Eur/sqm
1	Green Gate	25 / 20*	2014	31,000	13%	14.00
2	Tati Center	25 / 15*	2006	7,500	87%	10.00
3	AFI Tech Park 1	30 / 20*	2018	20,000	34%	12.00
4	AFI Tech Park 2 & 3	30 / 20*	2022	34,000	N/A	12.00
5	AFI Business Park 1-5	10 / 5*	2012-2016	70,000	0%	14.00
6	AFI Business Park 6-7	10	2021	30,000	N/A	14.00
7	Campus 6.1	5	2018	20,000	0%	14.25
8	Campus 6.2 & 6.3	5	2020	37,000	38%	14.25
9	Campus 6.4	5	2022	21,000	N/A	14.25
10	The Light	5	2019	21,000	90%	14.00
11	Global Business Center	5	2004	10,000	0%	18.00
12	The Grand Offices	20 / 15*	2000	10,000	0%	18.00
13	Metropol	20 / 10*	2021	36,000	N/A	14.00
14	Renault Bucharest Connected	5	2019	47,000	0%	11.00
15	Globalworth Preciziei	5	2020	60,000	N/A	11.00
16	West Gate 1-5	5	2008-2013	60,000	0%	14.00
17	Anchor Plaza	10	2006	25,000	0%	12.50
18	Plaza Romania Offices	10	2016	10,500	2%	12.50
19	Ghencea Business Center	40 / 25*	2007	7,000	N/A	9.00
20	One Cotroceni Park	20 / 5*	N/A	100,000	N/A	N/A
TOTAL				657,000		

Source: JLL, *time to an M5 station (currently under construction)

The total relevant stock is currently estimated at around 318,000m² leasable area, while the pipeline totals 339,000m² (58,000m² currently under construction and another 281,000m² in different planning stages for the next 3 years).

The offices that are closer to the Metro in the analyzed area are the ones with little to no vacancy and the ones suffering are the ones that do not benefit from proper public transportation.

The proposed office structure, of circa 167,000 m², along with the public administrative buildings that will be developed in the analyzed area will most likely create a new kernel in Bucharest, becoming the first single area within Sector 5 with a high density of modern offices.

Therefore, there is no reasons to believe that based on the actual market the Subject Site could support the initial view from the masterplan with new office space in excess of 400,000m².

14.2 Retail Market

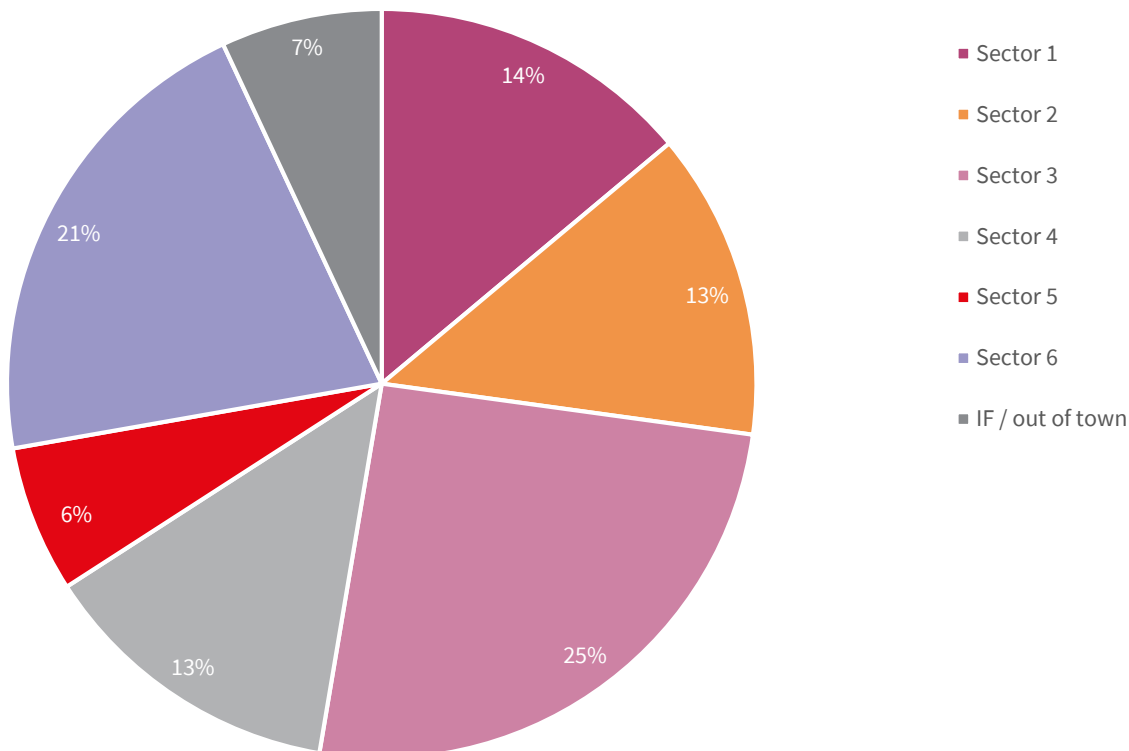
Similarly, the shopping malls and large retail schemes are even less interesting for developers as Bucharest market is already a matured one in all areas of the city and limited availability of proper development sites in line with specific requirements for each type of developer and retailers. Historically, the main criteria to develop a site for retail uses was: to have a large size to allow for further development, excellent visibility from more streets including a main artery, location within densely built area, benefit of excellent access also to receive larger catchment area from suburbs or region.

However, wherever a sufficient retail catchment area is, would be also interest for small shops, proximity stores, supermarkets or even small to medium size retail parks.

14.2.1 Shopping Centres & Retail Parks in Sector 5

Looking at the retail market in sector 5, there are only three modern retail schemes in Sector 5, totaling around 71,000 m² GLA. There is one shopping center (Liberty Center of 27,000m²), one retail park (Vulcan Value Center of 25,500m²), and one hypermarket with gallery (Cora Alexandriei, with a GLA of 18,700m²).

Chart 16: Modern Shopping Centres & Retail Parks - Bucharest (incl. Ilfov) - split per sectors



Source: JLL Research

Sector 5 amounts for the smallest stock of modern shopping centers and retail parks in Bucharest, with just 6% of total modern stock, the density of shopping centers & retail parks per 1,000 inhabitants being also the smallest in Bucharest, at around 235 sq m GLA per 1,000 inhabitants.

Even if density looks low, it is important to look also at nearby developments (shopping centers and retail parks) in other sectors, from which presence the analyzed area can benefit.

Chart 17: Modern Shopping Centres & Retail Parks - Bucharest – stock and density per sectors

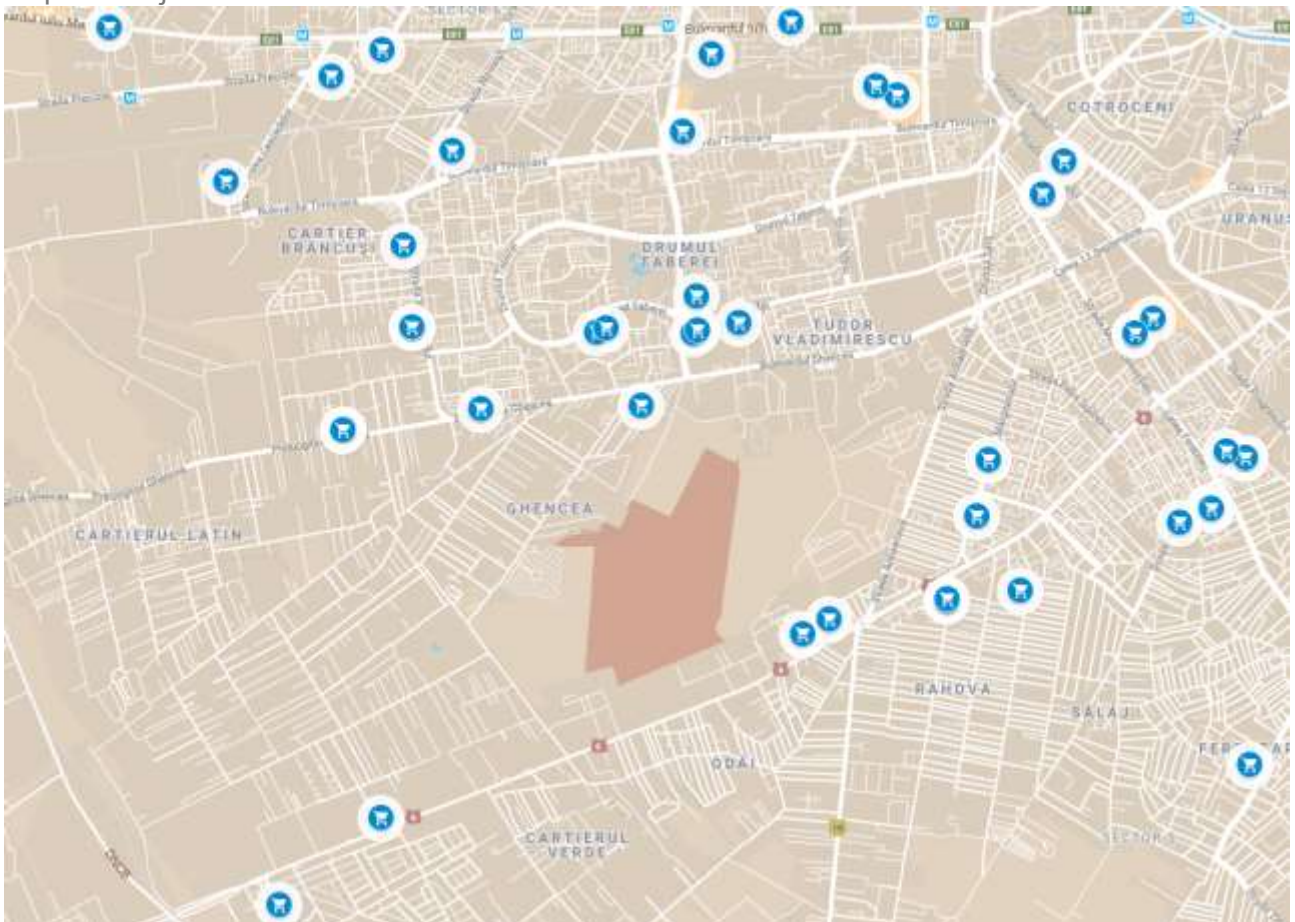


Source: JLL Research

On a radius of 2 - 3 km from the analyzed site there are three large shopping centers, namely AFI Palace Cotroceni and Plaza Romania to the north, and Liberty Center to the east. Given the catchment requirement for a shopping center to be successful it is not considered that this location is viable given the current shopping center stock in the city.

Moreover, it is not believed that Bucharest generally could currently accommodate another major shopping center in the following 5 years.

Map 19: Major retailers in Sector 5 and vicinities



Source: Overlay in Google My Maps with JLL database

The major retailers existing in sector 5 and nearby area (on a radius of 3-4 km from the analyzed site), were analyzed, and the number of units were detailed in the table below.

Table 23: Major retailers in Sector 5 and vicinities

Sector	Retailers	Details
Hypermarkets		
	Cora (2)	Cora Alexandriei, Cora Lujerului
	Kaufland (7)	Kaufland (Soseaua Alexandriei 152), Kaufland (1 Mai 55 Blvd.), Kaufland (195 Valea Oltului), Kaufland Sebastian, Kaufland (Bragadiru), Kaufland (Valea Cascadelor 2-5), Kaufland (Calea Ferentari 62)
	Auchan (3)	Auchan (part of Afi Palace Cotroceni), Auchan (25 Braşov Street), Auchan (part of Militari Shopping Centre; 546-560 Iuliu Maniu Blvd.)
	Carrefour (1)	Carrefour Militari
Cash & Carry		
	Selgros (1)	Selgros (Valea Cascadelor 26B)
	Metro (1)	Metro (Iuliu Maniu 500 Blvd.)
DIY		
	Leroy Merlin (1)	Leroy Merlin (Soseaua Alexandriei)
	Dedeman (1 existent; 1 proposed)	Dedeman (1; 26 Valea Cascadelor), Dedeman (proposed - near the analysed site)
Supermarkets		
	Carrefour Market (4)	
	Profi (6)	
	Mega Image (18)	
Discounter		
	Lidl (7)	
	Penny Market (4)	

Hypermarket chain in the area is represented by around 13 units, Kaufland being the retailer with the highest presence (7 units). There is no cash & carry or DIY unit yet in Sector 5, however the sector benefits from the presence of the units in nearby sectors. Moreover, Dedeman is planning to build a DIY unit right near the analyzed site.

In terms of supermarkets and discounters, there are 28 supermarkets of international presence (Carrefour Market, Profi, and Mega Image) and 11 discounter units, of Lidl and Penny Market.

Any future development of residential and office use in the area will require additional services and amenities to support the growth in development, including proximity food stores.

14.2.2 Comments

As stated above, another dominant shopping center would not be fit for this area.

However, considering the 25 minutes catchment area of around 100,000 inhabitants comprised north and south of the analyzed site, and adding up around 50,000 people expected to populate the area (part of residential scheme as well as workers in the created office buildings) once the development will be finalized, a retail park can be seen as an asset and as a facility to serve the new developing area and appealing to existing developers.

As such it is believed that a concept including a strip mall including a food anchor and additional retail boxes would be needed. The mix of tenants could range from household goods, furniture, fashion, footwear, pet shop, to other services units. Also, commercial spaces at the ground floor of the blocks of

flats are vital for a large development where the residential component represents almost two thirds of the total built area.

Three case studies for strip mall/ small retail parks across Romania are presented below:

Scheme	City / Population	Area (sq m GLA)	Opening Year	Developer	Average rent (€/m2/mth.)
Pipera Plaza	Bucharest / 1.8 mil	10,000	2015	Intercora	n/a
Value Center Slobozia	Slobozia / 46,000	6,700	2018	Prime Kapital	7.5 - 8.0
Value Center Focsani	Focsani / 76,000	6,000	2018	Prime Kapital	8.75 - 9.25

14.3 Residential Market

To understand the existing demand in the market across the Subject area, a number of competitive compounds have been identified, several relevant for the study and located in proximity as listed within the map below.

Map 20: Relevant Residential areas around the Subject



Source: Overlay in Google My Maps with JLL database

The main parameters of these residential buildings are listed within appendix and a summary below including houses and apartments.

Table 24: Residential projects and prices

Project	Accessibility	Type	Delivery	Developer	Address	Average price €/m ²	Planned units	Completed units	Planned units
New Residence Dr. Taberei	bus, secondary streets	Apartment, finalised	Oct-17	ARDC UK	78-82 Drumul Cooperativei Street	1,038	216	21	216
Alfamar 59 Residence	Na	Apartment, finalised	Apr-18	Alfamar Grup	Valea Oltului Street	1,050	38	38	38
Brancusi Residence 4	Na	Apartment, finalised	May-18	Private Developer	Valea Doftanei Street	1,078	48	48	48
Brancusi Residence 3	Na	Apartment, finalised	May-18	Private Developer	Valea Doftanei Street	1,132	81	81	81
Alfamar 58 Residence	na	Apartment, finalised	Dec-18	Alfamar Grup	Valea Oltului Street	1,057	15	15	15
Next Residence	Na	Apartment, finalised	Jan-19	Metalurgiei Park Residence	106 . Drumul Crețeștilor Street	950	62	36	62
Astrelor Residence Ghencea	Na	Apartment, under construction	May-19	Astrelor Residence	35 D, Prelungirea Ghencea Street	977	144	0	144

Project	Accessibility	Type	Delivery	Developer	Address	Average price €/m ²	Planned units	Completed units	Planned units
Coral Residence	Na	Apartment, under construction	Dec-19	Private Developer	131-141 Drumul Valea Doftanei Street	1,000	112	0	112
Moghioros Park Residence	good to bus and Brasov Street	Apartment, under construction	Dec-19	Sido Union Properties	25L Brasov Street	1,035	1,300	144	1300
Dimri West Towers	bus, residential complex	Apartment, under construction	Dec-19	DIMRI CONSTRUCT ION.	B-dul Pr. Ghencea nr. 350-356	1,050	1,004	600	1004
Quadra Trees	bus, secondary streets	Apartment, under construction	Mar-20	Conarg	20A Drumul Cooperativei St.	1,150	281	150	281
Rim Residence	bus, secondary st.	House, Finalised	Dec-18	Private Developer	Int. Dihorului 36 - Condorului St.	1,050	58	58	0
BuRo Garden Residence	secondary street, bus	House, under construction	Sep-19	BuRo Gareden	59 Ghidigeni Street	679	10	0	0
						1,047	3,369	1,191	3,301

As reflected by the catchment area analysis, if Subject project starts from the northern side, it may benefit of perception of being an extension of the northern side market, more developed. Although the surroundings to the north-west are generally low-raised and less attractive, there are several examples of successful projects also here:

- Apartments in new developed blocks with the selling price was in the range of €970-1,150 / m² of useable area, however there is limited stock in the area compared to the Subject project;
- New Residence compound finalized in 2017 on a site of around 10,000m² land area, built up with blocks of ground floor, two upper floors and the attic, including 214 apartments and 14 retail units. The development provides green areas, kids playground and parking lots and the residential area secured with barriers and a security post; the parking is on the ground floor, below the first upper floor, without walls or partitions. The selling price was in the range of €1,000-1,050 / m² of useable area;
- Bialuc Residence selling houses in triplex villas on different projects at Cooperativei and Dantelei Streets; prices of €700-750 / m² of total area including entire mansard and terraces or €800-900 / m² of effective useable area and typical house has a ground floor, upper floor and mansard with a total area around 137m²;
- Quadra Trees at 20A Cooperativei Street including seven blocks on a site of 25,000 m²; price varying within €950-1,100 / m² of useful area;
- Moghioros Park, in immediate vicinity of the Subject with selling price of around €1,000-1,100 / m² of useable area delivered in two phases

14.4 Other markets

Industrial has a limited demand for inside the city locations as the developers choose to settle the new logistic or industrial premises out of the city with convenient connectivity to the infrastructure and highways also to benefit from the lower land price there compared to the city. However, it might be a niche of urban logistic development to consider for inner city development, usually used to support e-commerce rapid distribution. There is a potential of enclose such areas to the Subject limits near less attractive or less developed areas (cemetery, Rahova prison) however the access roads are yet not proper for this type of development.

15 Conclusions & Challenges

The project in general and mostly the preliminary phases could be subject of various challenges including the interference of various interests (socio, political, economic, urban development), technical – urban and viability constraints or political and legal framework unpredictability. Other difficulties may arise from the initial expropriation procedures, identifying financing sources, preparing proper documentation, initiation of the legal framework of development, public procurement procedure.

The development includes the public infrastructure as a first part of any further development. In the study, it was assumed that the infrastructure would be developed first, and any required property access, title would already addressed.

Several public projects are of interest within the area including: new median ring road facility to the south side of Bucharest, Laser Valley (Magurele Science Park), intermodal nodes Progresu, Razoare, improving quality of public transportation, 41 rapid tram lines, M5 metro line Râul Doamnei-Eroilor.

15.1 Functionalities for the proposed development

According to the analysis, several potential markets have been considered:

Table 25: Suitable uses for the proposed development

Considered suitable		
Residential	Functionality	Figures
Residential	The residential component is considered to be the starting point and will represent the foundation, assuring the critical mass needed for this development.	A level sustained by the affordability of Bucharest's population was targeted, averaging at 70,000 EUR per dwelling. Following this rationale, it was assumed that a residential development of 10,000 units can be covered by the demand in the proposed period of 15 years.
Commercial	Functionality	Figures
Retail (GF of blocks)	Commercial spaces at the ground floor of apartment buildings are vital for a large-scale development, contributing to the economic development of the local community.	Considering the market necessities, it was estimated that 1% was suitable for ground floor retail areas. These areas could incorporate various small businesses such as grocery stores, pharmacies, restaurants, sweets & pastry shops, betting agencies, casinos, self-serviced banks and services (beauty shops, dry cleaning units etc.).
Strip Mall / Retail Boxes (incl. small gallery)	Any future development of residential and office use in the area will require additional services and amenities to support the growth in development, including proximity food stores. Developers are now targeting tertiary cities with populations of less than	A scheme of around 12,000m ² was proposed, to include a hypermarket (i.e. Kaufland) with gallery/ other retail boxes, to be developed in Year 2, supporting the development of residential, and additional boxes totaling 6,000m ² to be added in Year 4.

Considered suitable

Offices	<p>200,000 inhabitants. Considering the catchment area of the analyzed site towards the north and south of the analyzed site and adding up around 50,000 people expected to populate the area (part of residential scheme as well as workers in the created office buildings) once the development will be finalized, a small size retail park to be fit for the area and appealing to existing developers will be considered.</p> <p>The proposed office structure, of circa 167,000m², along with the public administrative buildings that will be developed in the analysed area will most likely create a new kernel in Bucharest, becoming the first single area within Sector 5 with a high density of modern offices, potentially redirecting tenants from overcrowded areas in the North and Center West submarkets.</p>	<p>Considering an annual gross take-up of around 20-25,000m² (at Bucharest level) for the BPO sector, it was assumed that a phased office development of 30,000m² every two years can be sustained, once all the infrastructure is in place.</p>
Public Facilities		
Hospital and clinics	<p>Sector 5 and 6 in that area lack a large regional hospital and it would create a large point of attraction towards the area if such a hospital would be developed there.</p> <p>The normative recommends a medium size general hospital, with 500 to 600 beds, to address a population of 70,000 – 80,000 on a 1 km radius or 200 hectares of land. This would ideally fit in the Northern part of the property in order to represent one of the first moves into the area but the Municipality would like to see it to the South.</p>	<p>Considering that the population for the Antiaeriana plot alone will reach roughly 30,000, without counting old residential in the area and the possibility of a future expansion of the neighborhood on nearby empty land, it would be appropriate to build here a medium size general hospital with 500 - 600 beds. The built area must be determined considering the number of specialties included in the hospital.</p> <p>In the initial scenario it was considered that a hospital of 54,000m² (around 600 places *90m²) to be built in Year 3, and a clinic of around 10,000m² with individual cabinets to follow in Year 4.</p>
Education: School & Kindergarten	<p>Sector 5 has the lowest number of schools in Bucharest and would require new facilities to serve the areas.</p>	<p>It was envisaged that a development of a 1,000m² kindergarten in Year 2, followed by another one of 1,000m² in Year 6 when the population resident in the area is expected to reach around 7,000 inhabitants. In terms</p>

Considered suitable

	<p>Kindergartens and schools are required in the proximity of recent developed residential areas, including Bragadiru from the border to the Sector 5 to the ring road and the Subject area with its surroundings</p>	<p>of schools/ high schools, it was also considered that two units will be developed in two different phases, one of 4,100m² in Year 4 when population would have reached around 4,000 people, and another one of similar size in Year 10, when about 16,000 inhabitants will have populated the new residential development.</p>
<p>Public Authorities offices</p>	<p>It is believed that several public sector or municipality offices can relocate to the Subject new developed area and this would add an element to generate traffic and increase attractiveness, especially in incipient stages. These could include police stations, sector city hall, Population evidence office etc.</p>	<p>It was considered that an area of 10,000m² of public offices, will be built in two incipient phases, namely in Year 2 and Year 3.</p>
<p>Public & Private Events</p>	<p>Drawing on the practices of projects of this size outside of Romania, it was considered that a small church in the area in the later stages of development, could be a potential plus to attract new population.</p>	<p>The church that was propose should have a built area of around 400m² and be surrounded by a public park of roughly 2 hectares, creating a landmark for the whole project.</p>
<p>Sport and leisure</p>	<p>Considering the extended green areas as well as the parks that could draw occupiers, it is believed that the project would also benefit from a multifunctional facility to the south of the property, that could also be used to host various public and private events.</p>	<p>No more than 12,000m² built area for the multifunctional facility are needed, considering that the new Ghencea Stadium will be constructed in the vicinity and will provide further amenities.</p>
<p>Green areas</p>	<p>Sector 5 only has around 8% of the total green areas of Bucharest, the smallest stock of any sector of Bucharest. To sustain a good quality of life, the new development must provide extended green areas. The project could add the first large park in the western part of Sector 5.</p>	<p>For the project an area of 13.4 hectares of land for a large public park on the southern side of the plot was considered, adjacent to the multipurpose hall. Adding to that there will be another smaller, two hectares park, adjacent to the church, plus the green areas between the buildings.</p>

Based on the actual market evidence, there are several unsuitable sectors:

Table 26: Unsuitable uses for the proposed development

Considered unsuitable	
Shopping Centre	<p>Sector 5 amounts for the smallest stock of modern shopping centers and retail parks in Bucharest, however we need to look also at nearby developments (shopping centers and retail parks) in other sectors, from which presence the analyzed area can benefit.</p> <p>On a radius of 2 - 3 km from the analyzed site there are three large shopping centers, namely AFI Palace Cotroceni and Plaza Romania to the north, and Liberty Center to the east. Given the catchment requirement for a shopping center to be successful it is not considered that this location is viable given the current shopping center stock in the city.</p> <p>Moreover, it is not believed that Bucharest generally could currently accommodate another major shopping center in the following 5 years.</p>
Hotel	<p>Looking at the entire Bucharest, hotel market is appealing but the majority of the hotels are located in the city center, only few being decentralized. The analyzed area is neither a tourist destination, nor a business one.</p> <p>Few hotels are located in the specific Subject area, the relevant being Premier Palace Hotel Spa (right across Ghencea Boulevard, belonging to Sector 6) and Marriott, both of 5 stars.</p>
Cinema	<p>Cinema functionalities are found on a radius of 2-3km in AFI Palace Cotroceni, Plaza Romania and Liberty Center.</p>
Logistics	<p>Industrial designation has a limited demand inside the city locations as the developers choose to settle new logistic or industrial premises out of the city with convenient connectivity to the infrastructure and highways also to benefit from lower rents compared to the city.</p>

The conclusions are based on the current market evidence and trends which are expected on medium term. It is possible this would change and therefore it is recommended to undertake a frequent review of the market evolution and trends.

15.2 Proposed Development Phases – V0 (initial view)

Function	Estimate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Totals
Infrastructure	240,455		0	120,227	96,182	1,850	1,850	1,850	1,850	1,850	1,850	1,850	1,850	1,850	1,850	1,850	1,850
Infrastructure (main roads, public transport, public functions)	240,455			120,227	96,182	1,850	1,850	1,850	1,850	1,850	1,850	1,850	1,850	1,850	1,850	1,850	1,850
Household - GBA/1.2 = 67 sqm useable			413	413	425	500	575	663	725	800	875	925	925	925	925	913	10,000
Inhabitants per year from residential element	3		1,238	1,238	1,275	1,500	1,725	1,988	2,175	2,400	2,625	2,775	2,775	2,775	2,775	2,738	30,000
Office occupiers	7		0	2,857	0	4,286	0	4,286	0	4,286	0	4,286	0	3,857	0	0	23,857
Total traffic			1,238	4,095	1,275	5,786	1,725	6,273	2,175	6,686	2,625	7,061	2,775	6,632	2,775	2,738	53,857
Commercial component sq m	992,000		45,000	53,300	40,300	70,300	46,400	83,500	58,500	94,600	70,600	104,700	74,700	101,700	74,700	73,700	992,000
Commercial component Euro			44,287,059	56,202,353	37,882,353	78,804,706	42,955,765	104,975,894	56,906,894	118,879,793	72,072,053	132,963,179	80,043,179	131,628,867	84,000,867	86,977,156	1,128,580,117
Retail (GF of blocks) sq m	7,000			300	300	300	400	500	500	600	600	700	700	700	700	700	7,000
rent e psm pm				8.0	8.0	8.0	8.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	
yield	8.5%		8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	
capital value euro psm				1,129	1,129	1,129	1,129	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271	
GDV GF ELEMENT				338,824	338,824	338,824	451,765	635,294	635,294	762,353	762,353	889,412	889,412	889,412	889,412	889,412	8,710,588
Residential * sq m	800,000		33,000	33,000	34,000	40,000	46,000	53,000	58,000	64,000	70,000	74,000	74,000	74,000	74,000	73,000	800,000
cap euro net of VAT	880.00		29,040,000	29,040,000	29,920,000	36,960,000	42,504,000	51,420,600	56,271,600	65,197,440	71,309,700	79,153,767	79,153,767	83,111,455	83,111,455	86,087,744	822,281,529
cap value e psm built net of VAT	0.05		880	880	880	924	924	970	970	1,019	1,019	1,070	1,070	1,123	1,123	1,179	
average unit price net of VAT	1,056.00		70,400	70,400	70,400	73,920	73,920	77,616	77,616	81,497	81,497	85,572	85,572	89,850	89,850	94,343	
average unit price including of VAT			73,920	73,920	73,920	77,616	77,616	81,497	81,497	85,572	85,572	89,850	89,850	94,343	94,343	99,060	
Retail sq m	18,000		12,000	12,000	6,000												18,000
rent			9	9	9												
yield	8.5%		8.5%	8.5%	8.5%												
capital value euro psm			1,271	1,271	1,271												
GDV RETAIL ELEMENT			15,247,059	15,247,059	7,623,529												22,870,588
Offices sq m	167,000			20,000	20,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	27,000	27,000	27,000	27,000	167,000
rent psm pm				10.0	10.0	10.0	10.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
yield				8.50%	8.50%	8.50%	8.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	
cap value e psm net of VAT				1,341	1,341	1,384	1,384	1,764	1,764	1,764	1,764	1,764	1,764	1,764	1,764	1,764	
GDV OFFICE ELEMENT				26,823,529	26,823,529	41,505,882	41,505,882	52,920,000	52,920,000	52,920,000	52,920,000	52,920,000	47,628,000	47,628,000	47,628,000	47,628,000	274,717,412
Public Services sq m	101,200	0	6,000	64,000	18,100	0	5,000	0	0	0	8,100	0	0	0	0	0	101,200
Hospital and clinics	64,000			54,000	10,000												64,000
School	8,200				4,100					4,100							8,200
Kindergarten	2,000		1,000				1,000										2,000
Public Authorities offices	10,000		5,000	5,000													10,000
Public & Private Events	5,000			5,000													5,000
Sport and leisure	12,000				4,000		4,000				4,000						12,000
Green areas																	0
Total GBA (less infrastructure)	1,093,200	0	51,000	117,300	58,400	70,300	51,400	83,500	58,500	94,600	78,700	104,700	74,700	101,700	74,700	73,700	1,093,200

15.3 Financial Assumptions

Asset class	Indicator	Value (€)	Comments
Residential	cap value per sqm built	880 – 1,179	Apartments in the area are at the moment selling at an average price of under €870 / sqm net. The first phases of apartments will most likely sell at a comparable market price but with a premium, given the envisaged entire development. The subsequent phases, as the project will take shape, will stimulate the overall demand, and will sell at an increasing price each year, reaching to a high of €1,179/m ² .
Office	Rent / sqm / month	10 – 12	Initial value of the office rents in the area must compensate for the lack of other fundamentals, including public transport. In order to gain a competitive advantage over more established sub-markets, the rents must be lower. The €10 /m ² /month value will be one of the lowest in Bucharest and is suitable to attract tenants especially from the BPO sector. As the area will become more established the rent will increase, however, to a high of €12/m ² /month that will be lower than in other sub-markets.
Office	Yield	8.5% - 8.0%	Keeping in mind the increasing interest on the local market for acquiring office projects, the achievable yields in the area will be around 8.5% for the initial phases. As the area will establish and rental demand will increase, highly-recognizable corporate tenants will take office space for extended lease terms, which will also compress the yields to around 8% starting from the second half of the development.
Retail	Rent / sqm / month	9	Retail will prove attractive. A small strip mall or a retail park with a clever tenant mix will prove to be a good destination for customers in the greater catchment area including the heavily populated Drumul Taberei and Prelungirea Ghencea neighborhoods. The €9 /m ² / month value is relatively close to market standard now in Romania, keeping in mind that a food anchor (i.e. Kaufland Supermarket), which will take the gross of the leasable space in such a project, will pay in-between €8-10 /sqm/month.
Retail	Yield	8.5%	The 8.5% yield is current market value and will continue to be for the next years. Retail is not a hugely attractive product for investors all across Europe because of the threat of e-commerce and therefore no compression for this asset class is foreseen.
Retail GF Residential	Rent / sqm / month	8 – 9	Retail at the ground floor is fundamental to residential units, offering amenities to an area which suffers from this point of view due to its location. Seizing the opportunity, retail tenants, especially from the services sector, will enter the area, paying rents around the €8/m ² /month mark. As the project will take shape, and the apartment blocks will be developed in the second plan (not directly on the large boulevard), with direct access to the walking promenade, restaurants, bars and boutiques will look for space, trying to serve more than 20,000 new inhabitants without any of these services in the immediate proximity. This will increase the demand and subsequently the rent.
Retail GF Residential	Yield	8.5%	High street retail is not a very sought-after asset class in Romania. Yields are similar to the retail parks yields.

Chapter VI. Potential Development

16 Site Development

16.1 Framework

The commentaries resulted from the market study were used as basis for the design of two architectural concept proposals. These have been integrated in the brief and have also supported the calculations behind the phasing and division of the Antiaeriana plot into manageable development plots.

The idea of the concept is defined by **green infrastructure** as the base for an eco-neighborhood, dynamic from an economic, social and cultural perspective. The construction of the two **socio-administrative kernel** that bring together administrative, health and education public institutions will support the economic and social dynamics at different scales. Building the **housing part** of the masterplan, using different sizes and typologies, will support the social mix and avoid the gentrification process. Space organization in the form of semi-open enclosures where public / retail activities, playgrounds for children, shared gardens can be carried out. By means of this approach, the aim is to create a safe and pleasant environment for the community. **Creating a promenade** with an organic trajectory with various functions for residents will stimulate pedestrian connections between the two points of interest in the neighborhood.

16.2 Guiding Questions

- How can this be phased in such a way that, in the year 3-4, the project would start growing organically from both a residential and commercial point of view?
- What is the easiest to develop, the most easily connected to existing infrastructure and economically viable land area that can be developed commercially? Given the current situation of the infrastructure (or lack thereof) a look was taken at the most cost-efficient way to give the Municipality quick wins in this project
- What are the public functionalities that would act as an anchor to the other developments and where should they be located for the highest impact?
- How should the 41% of the total free land area be green area and how should it look like in order to achieve a good living standard, be easy to include in the obligations of commercial developers as an initial investment and be maintained by the city?
- What sort of governing document should be put in place in order to ensure proper management of the entire facilities over time?
- What kind of amenities, commercial or public, will help nurture organic growth of the area?

16.3 Architect's view

16.3.1 Introduction

The city is a living organism in **permanent evolution**. The socio-economic context is in a permanent relation with the development of the urban structure, a fact easily noticed in Sector 5, where investments in both infrastructure and private real estate sector could play an important role in the development of the community.

This new neighborhood represents **an opportunity for Bucharest** city to connect to 21st century trends in sustainable urban development, but also the chance to dynamize Sector 5 in order to make it more competitive at the city level. Sector 5 has one of the rare resources of the capital city, the vast empty territory that is suitable for an innovative urban design. The opportunity to invest at a micro and macro level will generate revitalization of the entire sector and will create a pleasant living environment adapted to the current expectations. Also, the construction of a new urban mix development in the inner-city area will support the densification of the current urban fabric, reducing the city's sprawl on its outskirts.

The approach of economic, social, environmental and cultural aspects in urban design supports the sustainable development of the sector and the city. **Multifunctionality**, the diversity of programs and the social mixity, the complexity of services offered are the main requirements that will ensure the attractiveness of this neighborhood. Another defining element of this future core of development is the design of urban kernels with office buildings, mixed-function buildings, cultural services, public institutions interconnected by a grid of public spaces, parks and pedestrian alleys.

The **creation of the local community** is a primary objective sustained by the development of pedestrian and green public spaces.

16.3.2 The concept of "Urban follies in the park"

The concept is that of a **multifunctional neighborhood interconnected through a network of green infrastructure** (promenade, park, interstitial and community green spaces) and public spaces. Urban fabric connects with the green spaces, becoming a dynamic and animated space where the community is actively involved.

The idea of the concept is defined by green infrastructure as the base for an eco-neighborhood, dynamic from an economically, socially and culturally perspective. The green areas generated by the location of the buildings contribute to creating an optimal living environment and a local identity.

The "Urban follies in the park" neighborhood aims to reduce through innovative approaches the negative impact on the local environment in terms of energy consumption (autonomy energy generated by photovoltaic panels), but also in all domains that generate an impact on natural and human resources. The public green spaces management will be sustainable and realize thru nature-based solutions and will be supported by the investors.

16.3.3 The underlying principles

Economic segment: The economic attractiveness of office and administrative buildings development is the key factor in the dynamization of the economy at micro level (neighborhood, sector) and macro scale (city). The location of these buildings in strategic points (the entrance of the neighborhood) with maximal visibility along with their realization in the early stages of the masterplan will have an 'shopping window' effect as a precursor for the future development of the neighborhood. Also, the new business activity in the office area will support a high standard of life quality and create a positive reputation for this area, accelerating investments and attracting an active population.

Public Services Segment: The construction of the two socio-administrative area that bring together administrative, public health and education institutions will support the economic and social dynamics at different scales.

The residential segment: Building the housing part of the masterplan, using different sizes and typologies, will support the social mix and avoid the gentrification process. Space organization in the form of semi-open enclosures where public / retail activities, playgrounds for children, shared gardens can be

carried out. By means of this approach, our aim is to create a safe and pleasant environment for the community.

Retail & commercial segment: Creating a promenade with an organic trajectory with various functions for residents such as commercial spaces / services / terraces and restaurants on the ground floor of buildings, will stimulate pedestrian connections between the two points of interest in the neighborhood and promote the image of a green and pleasant living space conducive to an active social life. The complexity of offered services will encourage the dynamics of urban space throughout the day and night.

The environmental and sustainability segment: The important surface, location and attractiveness of the green spaces at different levels is definitory for the identity and the image of the whole ensemble. The intimacy ambiance specific to the interstitial planted areas designed at the level of the enclosure and connected to the main green system, are creating an agreeable living environment at pedestrian scale. The benefits provided by the local green infrastructure will be sustained through connectivity (green grid), mix use (park, community garden, green roofs etc.) and encouraging biodiversity (through the ecological management of the planted areas) educating to recycle properly and participate in the attractiveness of the neighborhood at the city level.



Urban Infrastructure Segment: The design of car traffic layout will have a minimum impact on pedestrian traffic, bicycle routes, and green spaces grid (park, promenade, green grid). The public transport system and the cycling road at the district level reduces the need of car use and decongesting road traffic. The organization of car parks also participates in the neighborhood's sustainability feature by placing perimeter parking lots outside the built-up areas or in apartments building basements in order to minimize the impact on pedestrian traffic.

The social segment: The special importance given to pedestrian areas (promenade, park, pedestrian alleys) will support an active social life. Urban-type participatory actions are an essential factor in strengthening social connections at the neighborhood level. The investments like cultural center, public open spaces, parks and the kitchen gardens inside the residential projects as well as education buildings, will stimulate the involvement of residents and especially children and contribute to building a solid local community. Organizing cultural events (fairs, exhibitions, concerts, etc.) and pedagogical activities will periodically animate social interaction at the neighborhood level. The process of social insertion through the obligation of the builders to employ a minimum percentage of people in social difficulty represents an important element in the sustainability of this neighborhood, with economic and social impact at sector and city level.

Conclusions: The new urban insertion will provide the chance to regulate urban metabolism and to participate in building a better reputation and identity for this area. Through this Masterplan the hope is to address the basic principles of sustainable development, though the creation of a multifunctional neighborhood with generous public spaces, a favorable urban fabric for the community to manifest. A very important element is to attract the business environment by creating urban kernel with office buildings, mixed-use buildings, services, public institutions, all linked to a grid of public spaces, parks and pedestrian areas.

17 Scenario Analysis

The project was divided in phases and plots of land to be proposed to developers. In the first phases, until the area is stabilized, no developer should have at any given point more than 400 apartments or 15,000 sqm of offices under the same stage of development - this is to avoid capacity problems. Future phases might consider larger allocations based on track record and capacity of the developer. Each developer should have an obligation under the concession agreement to build according to certain specifications its surrounding allotted green area / amenities and pedestrian circulations, in line with the masterplan. These areas will be donated to the city once the entire project is complete. Condominium type approach to the management of the development until it is complete should be included in the obligations of all the developers as per the concession agreement.

	Version 1 – Cluster / Ideal	Version 2 – Interconnectivity / Realistic
WHY:	Considering the market absorption and phased infrastructure to create a pole of commercial interest “V1”.	Considering a development strategy to manage infrastructure delays and create interconnectivity “V2”, allows better communication between functionalities.
USES:		
Residential	876,737m ² / around 10,959 units	888,577 m ² / around 11,107 units
Commercial GF	38,201m ² GBA	13,979m ² GBA
Strip Mall	10,314m ² GBA	16,587m ² GBA
Office	144,863m ² GBA	158,980m ² GBA
Hospital, Clinic	48,813 m ² GBA	55,949 m ² GBA
Education	19,688m ² GBA	13,089m ² GBA
	16,000m ² GBA	33,000m ² GBA

Version 1 – Cluster / Ideal

Version 2 – Interconnectivity / Realistic

Public & Private Events

50,482m² GBA

5,296 GBA

Public Offices

777m² GBA

777m² GBA

Cult

Recycle area

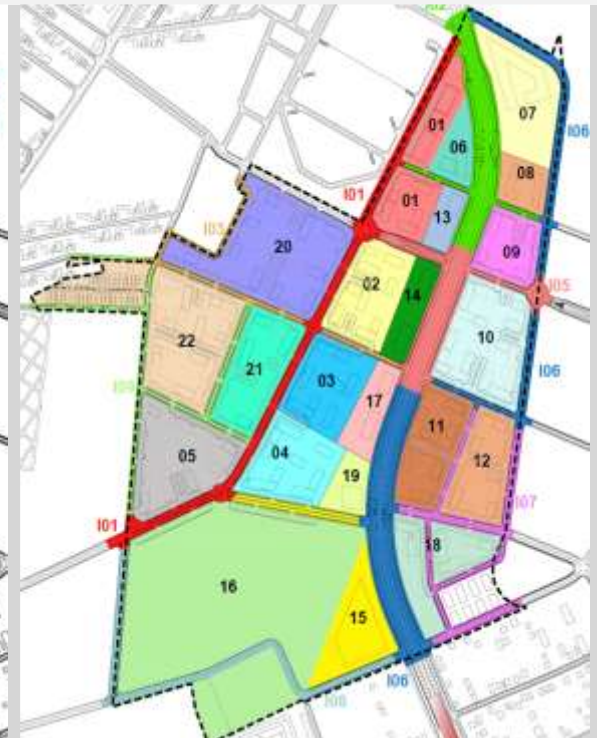
Cluster: This design created kernel of interest for commercial. These are in the North East (Offices) and North West (Retail) as well as South West (Hospital, Education and Multipurpose building) and Center West (offices). Retail component is banking on the development of the Dedeman DIY that will act as an anchor in the area.

The Office high-rise in the North East will create a kernel with visual landmark.

Western residential area benefits from the “ring of green”. This is a fluid, naturally looking green area that supports an almost permaculture development and forms the attraction of the area.

Interconnectivity: Two anchors in the north and one in the south were considered. The Northern anchors would be the Public Sector Offices in the North west allowing for retail and drawing traffic – this will form Phase 1 of development. The second Northern anchor would be the Hospital to the East of the Boulevard that is a necessity for the area. In order to attract medical personnel to the hospital, the residential of phase 1 can offer accommodation. The Southern anchor is the Multifunctional center and the park. The Multifunctional center is dependent of the completion of the Boulevard. Eastern, lower rise residential benefits from a town square type of design. Trying to bring the community together in an organic fashion is essential to change the perception of the area.

PHASES:



The **Ideal** Scenario, the infrastructure would be developed by the Municipality in line with

In this **realistic** scenario, a prudent approach was taken, with smaller phases, allowing

	Version 1 – Cluster / Ideal	Version 2 – Interconnectivity / Realistic
	<p>potential market absorption of the stock, be it residential or commercial.</p> <p>The Phases envisaged in this scenario assume that this will happen and are taking into account only market absorption. Phases 1 and 2 are adjoining the boulevard and will be the first to emerge.</p>	<p>infrastructure to evolve in smaller sections and concentrating phasing on the west road until a certain mass is accumulated. *</p> <p>Phases in this scenario are smaller and consider a development that can be implemented with minimal state intervention even with the investment in infrastructure of private investors.</p>
FINANCIAL	Total Gross Development Values vs. Areas	Total Gross Development Values vs. Areas
Commercial elements (offices, retail, residential)	€ 1.18 billion 1,070,114 m ²	€ 1.23 billion 1,100,579 m ²
Public Services (health, education, public offices, culture, cult)	135,760 m ²	108,111 m ²
Infrastructure with roads	261,947 m ²	252,828 m ²

Note:

* The version 2 phasing is including 22 development spread over the 15 years; the stages are obviously not matching with one-year period and some of these may overlap. The infrastructure was considered as the prior step to the further development phase.

17.1 Report proposal vs. Initial PUZ Antiaeriana

The alternative scenarios proposed here have significant advantages in providing ways to address the various challenges identified in terms of market demand, traffic, quality of environment nevertheless increasing the attractiveness for the office presence in the area as well as social benefits.

The main advantages are underlined below per areas:

- CA areas

- lower buildings-lower construction costs;
- less built office space- easier to rent and absorb by the local real estate market;
- less pressure on area traffic;
- less pollution;
- more green and leisure area;
- singular high ride building became accent element, trademark in to the urban fabric

- CB areas

- the proposed buildings do not exceed the maxim height of high buildings category, as defined in Romanian fire norms
- lower buildings-lower construction costs
- less built office space- easier to rent and absorb by the local real estate market
- less pressure on area traffic
- more green and leisure area

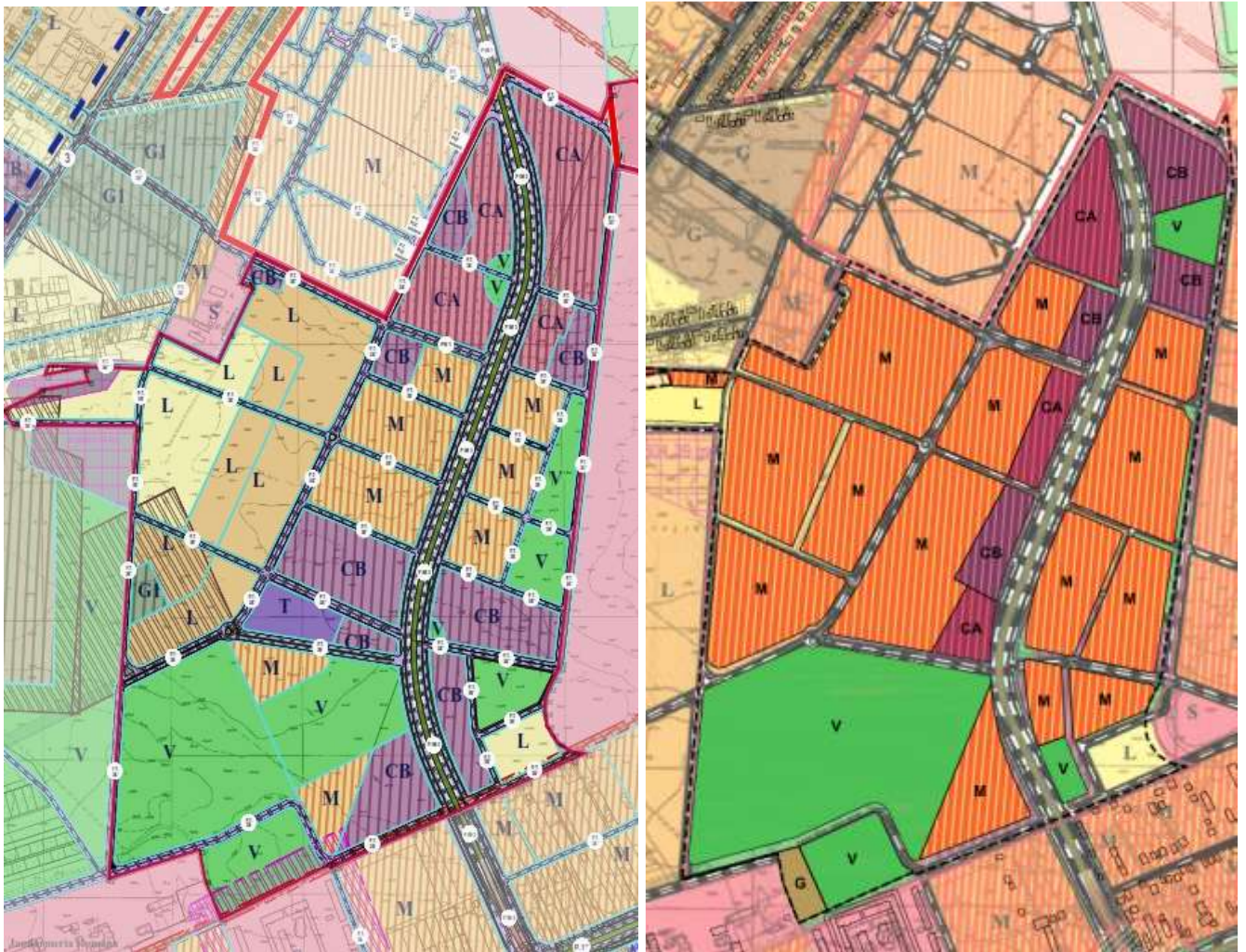
- M areas

- the proposed residential buildings do not exceed the maxim height of normal buildings category, as defined in Romanian fire norms
- lower buildings-lower construction costs
- more green and leisure area for the residential and the community
- the quality of environment and human scale buildings make it a very attractive area for the residentials
- the gradual decreasing height of the buildings lets the sunlight in, increasing the quality of living

- V areas

- the design of the two scenarios is based on the concept of a multifunctional neighborhood interconnected through a network of green infrastructure (promenade, park, interstitial and community green spaces) and public spaces.
- urban fabric connects with the green spaces, becoming a dynamic and animated space

Map 21: PUZ Antiaeriana / Sector 5– under debate vs. Our view



The following three tables present the main indicators of the two scenarios and the PUZ Antiaeriana under debate:

Table 27: Analysis of the Masterplan Scenario Version 1

Development Unit - Version 1	Land size m2	ID PLOT POT (%)	CUT: 1.6	Green area %	Use	Floors	
CA	22,366	11,25	45	4	30%	office, public administration	Gr.Fl.+15
CB	114,210	9,10,23,24,26,27,28	40	1.4-3	40%	office, retail, education, healthcare and social services	Gr.Fl.+10
M	406,574	1,2,3,4,5,6,7,8,12,13,14,15,16,17,18,19,20,21,22,32,34,35,36,38,41,44,45,46,47,48,49,50	60	1.4-3	40%	gf retail and services, residential, leisure and other activities, multilevel parking	Gr.Fl.4+10
L	30,591	37,39,40	45	1,3	40%	individual housing	Gr.Fl.+2
S							
G	7,241	31	50	1	40%	waste recycling center	
V	164,629	29,30,42,43	15	0,3	80%	leisure, culture, park	Gr.Fl.+2
T							
Tc	218,627				10%	infrastructure network	
T							
	10,707	ANL					
Totals	974,945			GBA: 1,205,874	368,381		

Table 28: Analysis of the Masterplan Scenario Version 2

Development Unit – Version 2	Land size m2	ID PLOT	POT (%)	CUT: 1.6	Green area %	Use	Floors
CA	47,739	1,2,18,33	45	4	30%	office, retail, public administration	Gr.Fl.+15
CB	53,810	3, 5, 7, 32,	45	1.4-3	40%	office, retail, education, healthcare and social services	Gr.Fl.+10
M	439,386	6,8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22, 24, 25, 26, 27, 28, 29, 30, 31,34, 35, 36, 37, 38, 39, 40, 42, 43, 45,	60	1.4-3	40%	gf retail and services, residential, leisure and other activities, multilevel parking	Gr.Fl.4+10
L	13,452	23	45	1,3	40%	individual housing	Gr.Fl.+2
S							
G	7,241	47	50	1	40%	waste recycling center	
V	191,134	4,41,44, 46	15	0,3	80%	leisure, culture, park	Gr.Fl.+2
T							
Tc	214,131				10%	infrastructure network	
	752,762			1.60			
	10,707	ANL					
Totals	977,600			GBA: 1,208,690	390,349		

Table 29: Analysis of the Scenario PUZ Antiaeriana – under debate

Development Unit ("UTR") according to PUZ proposed	Land size m2	POT (%)	CUT	Green area %	Green area m2	Floors
CA	91,688	65.00	4.0	20%	18,338	Gr.Fl.+25
CB	119,877	50.00	1.4 - 4.0	30%	36,901	Gr.Fl.+5+8+10+15
M	120,432	70.00	3.0 - 3.5	20%	24,086	Gr.Fl.+10+12+14
L	194,348	45.00	1.3	30%	82,743	Gr.Fl.+2+4+8
S	138,056	50.00	1.8	30%	41,417	Gr.Fl.+2
G	5,181	50.00	1.8	30%	1,554	-
V	200,481	15.00	0.2	80%	129,209	Gr.Fl.+2
T	12,493	60.00	3.0	20%	2,499	Gr.Fl.+4
Tc	232,659	-	-	10%	23,266	-
TOTAL LAND	1,115,215				360,012	
S - not subject	138,056	70.00	3.0		27,523	GFl.+14
SUBTOTAL	977,159				332,489	

17.2 Version 1 – Cluster / Ideal Scenario

Function	Estimate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Total (Commercial- Euro/ Public-m ²)
Infrastructure	261,947		32,535	35,865	20,462	22,468	26,255	44,212	20,000	13,732	10,407	7,245	0	6,344	12,347	10,075	261,947
Infrastructure (main roads, public transport, public functions)	261,947		32,535	35,865	20,462	22,468	26,255	44,212	20,000	13,732	10,407	7,245	0	6,344	12,347	10,075	261,947
Household - GBA/1.2= 67 sqm useable			0	620	380	1,283	1,262	0	0	1,185	1,607	1,608	0	1,617	651	747	10,959
Inhabitants per year from residential	3		0	1,859	1,140	3,849	3,785	0	0	3,555	4,820	4,824	0	4,851	1,954	2,241	32,878
Office occupiers	7		0	0	4,960	0	5,134	0	0	0	0	0	10,601	0	0	0	20,695
Total traffic			0	1,859	6,099	3,849	8,919	0	0	3,555	4,820	4,824	10,601	4,851	1,954	2,241	53,572
Commercial component sq m	1,070,114		0	65,222	69,566	111,050	142,291	0	0	103,483	128,537	131,302	74,205	129,351	52,114	62,993	1,070,114
TOTALS - Commercial component Euro			0	62,753,002	78,341,192	104,336,275	147,584,976	0	0	107,607,725	130,942,233	140,982,106	126,890,550	145,277,487	58,530,681	74,581,885	1,177,828,113
Retail (GF of blocks) sq m	38,201		0	5,329	4,460	8,403	5,427	0	0	8,689	0	2,665	0	0	0	3,228	38,201
Rent in Euro/sqm				8.0	8.0	8.0	8.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	
Yield to calculate Capital Value	8.5%		8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	
Capital Value in Euro/sqm				1,129	1,129	1,129	1,129	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271	15,953
GDV (Gross Development Value) GF ELEMENT				6,018,635	5,036,612	9,490,447	6,129,318	0	0	11,039,925	0	3,386,118	0	0	0	4,101,967	45,203,022
Residential * sq m	876,737		0	49,579	30,388	102,647	100,924	0	0	94,794	128,537	128,637	0	129,351	52,114	59,765	876,737
Residential Capital Value euro net of VAT	880.00		0	43,629,520	26,741,616	94,845,828	93,253,776	0	0	96,567,799	130,942,233	137,595,988	0	145,277,487	58,530,681	70,479,918	897,864,847
Capital Value Eur/sqm built net of VAT	0.05		880	880	880	924	924	970	970	1,019	1,019	1,070	1,070	1,123	1,123	1,179	
Average unit price net of VAT	1,056.00		70,400	70,400	70,400	73,920	73,920	77,616	77,616	81,497	81,497	85,572	85,572	89,850	89,850	94,343	
Average unit price including of VAT			73,920	73,920	73,920	77,616	77,616	81,497	81,497	85,572	85,572	89,850	89,850	94,343	94,343	99,060	
Retail sq m	10,314		0	10,314	0	0	0	0	0	0	0	0	0	0	0	0	10,314
Rent in Euro/sqm			9	9	9												
Yield to calculate Capital Value	8.5%		8.5%	8.5%	8.5%												
Capital Value Eur/sqm built net of VAT			1,271	1,271	1,271												
GDV (Gross Development Value) RETAIL ELEMENT			0	13,104,847	0												13,104,847
Offices sq m	144,863		0	0	34,718	0	35,940	0	0	0	0	0	74,205	0	0	0	144,863
Rent in Euro/sqm				10.0	10.0	10.0	10.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Yield to calculate Capital Value				8.50%	8.50%	8.50%	8.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	
Capital Value Eur/sqm net of VAT				1,341	1,341	1,341	1,341	1,710	1,710	1,710	1,710	1,710	1,710	1,710	1,710	1,710	
GDV (Gross Development Value) OFFICE ELEMENT				0	46,562,965	0	48,201,882	0	0	0	0	0	126,890,550	0	0	0	221,655,397
Public Services sq m	135,760		0	0	1,620	0	50,482	64,809	16,388	0	0	0	0	0	2,461	0	135,760
Hospital and clinics	48,813		0	0	0	0	0	48,813	0	0	0	0	0	0	0	0	48,813
Education	19,688		0	0	1,620	0	0	15,996	0	0	0	0	0	0	2,072	0	19,688
Cult	777		0	0	0	0	0	0	388	0	0	0	0	0	388	0	777
Public Authorities offices	50,482		0	0	0	0	50,482	0	0	0	0	0	0	0	0	0	50,482
Public & Private Events	16,000		0	0	0	0	0	0	16,000	0	0	0	0	0	0	0	16,000
Total GBA (less infrastructure)	1,205,874		0	65,222	71,186	111,050	192,773	64,809	16,388	103,483	128,537	131,302	74,205	129,351	54,575	62,993	1,205,874

17.3 Version 2 - Interconnectivity

Function	Estimate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Total (Commercial- Euro/ Public-m ²)
Infrastructure	252,828		32,535	32,755	45,709	6,462	28,986	42,480	22,755	20,000	21,146	0	0	0	0	0	252,828
Infrastructure (main roads, public)	252,828		32,535	32,755	45,709	6,462	28,986	42,480	22,755	20,000	21,146	0	0	0	0	0	252,828
Household - GBA/1.2=67 sqm useable			0	470	761	845	943	783	525	1,193	996	757	159	521	1,949	1,207	11,107
Inhabitants per year from residential element	3		0	1,410	2,284	2,535	2,828	2,348	1,574	3,578	2,987	2,271	476	1,563	5,847	3,621	33,322
Office occupiers	7		0	6,810	0	0	3,664	0	0	0	7,125	0	3,697	4,624	0	0	25,919
Total traffic			0	8,220	2,284	2,535	6,492	2,348	1,574	3,578	10,112	2,271	4,173	6,186	5,847	3,621	59,241
Commercial component sq m	1,100,579		0	103,290	62,066	69,323	102,689	63,165	47,082	97,783	129,531	60,556	38,563	74,043	155,930	96,558	1,100,579
TOTALS - Commercial component Euro			0	119,715,720	54,910,315	64,408,942	105,919,979	61,444,736	47,212,135	100,208,517	166,432,434	64,773,206	57,821,081	102,154,057	175,129,402	113,869,899	1,234,000,424
Retail (GF of blocks) sq m	13,979		0	1,438	1,170	1,728	1,629	540	5,105	2,368	0	0	0	0	0	0	13,979
Rent in Euro/sqm				8.0	8.0	8.0	8.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	
Yield to calculate Capital Value	8.5%		8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	
Capital Value in Euro/sqm				1,129	1,129	1,129	1,129	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271	
GDV (Gross Development Value) GF ELEMENT				1,624,564	1,321,412	1,951,624	1,840,194	686,086	6,486,076	3,008,868	0	0	0	0	0	0	16,918,822
Residential * sq m	888,577		0	37,597	60,896	67,595	75,410	62,625	41,977	95,414	79,656	60,556	12,684	41,679	155,930	96,558	888,577
Residential Capital Value euro net of VAT	880.00		0	33,085,259	53,588,903	62,457,318	69,679,102	60,758,651	40,726,059	97,199,649	81,146,184	64,773,206	13,567,459	46,810,495	175,129,402	113,869,899	912,791,588
Capital Value Eur/sqm built net of VAT	0.05		880	880	880	924	924	970	970	1,019	1,019	1,070	1,070	1,123	1,123	1,179	
Average unit price net of VAT	1,056.00		70,400	70,400	70,400	73,920	73,920	77,616	77,616	81,497	81,497	85,572	85,572	89,850	89,850	94,343	
Average unit price including of VAT			73,920	73,920	73,920	77,616	77,616	81,497	81,497	85,572	85,572	89,850	89,850	94,343	94,343	99,060	
Retail sq m	16,587		0	16,587	0	0	0	0	0	0	0	0	0	0	0	0	16,587
Rent in Euro/sqm			9	9	9												
Yield to calculate Capital Value	8.5%		8.5%	8.5%	8.5%												
Capital Value Eur/sqm built net of VAT			1,271	1,271	1,271												
GDV (Gross Development Value) RETAIL ELEMENT			0	21,075,119	0	0	0	0	0	0	0	0	0	0	0	0	21,075,119
Offices sq m	181,436		0	47,668	0	0	25,650	0	0	0	49,875	0	25,879	32,365	0	0	181,436
Rent in Euro/sqm				10.0	10.0	10.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Yield to calculate Capital Value				8.50%	8.50%	8.50%	8.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	
Capital Value Eur/sqm net of VAT				1,341	1,341	1,341	1,341	1,710	1,710	1,710	1,710	1,710	1,710	1,710	1,710	1,710	
GDV (Gross Development Value) OFFICE ELEMENT				63,930,779	0	0	34,400,683	0	0	0	85,286,250	0	44,253,622	55,343,562	0	0	283,214,895
Public Services sq m	108,111	0	0	0	722	965	39,254	27,389	2,220	0	0	33,000	3,481	1,080	0	0	108,111
Hospital and clinics	55,949		0	0	0	0	33,570	22,380	0	0	0	0	0	0	0	0	55,949
Education	13,089		0	0	722	965	0	5,009	2,220	0	0	0	3,093	1,080	0	0	13,089
Public Authorities offices	5,296		0	0	0	0	5,296	0	0	0	0	0	0	0	0	0	5,296
Public & Private Events	33,000		0	0	0	0	0	0	0	0	0	33,000	0	0	0	0	33,000
Cult	777		0	0	0	0	388	0	0	0	0	0	388	0	0	0	777
Total GBA (less infrastructure)	1,208,690	0	0	103,290	62,788	70,287	141,943	90,554	49,302	97,783	129,531	93,556	42,045	75,123	155,930	96,558	1,208,690

Function	Estimate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Total (Commercial- Euro/ Public-m ²)
Infrastructure	261,947		32,535	35,865	20,462	22,468	26,255	44,212	20,000	13,732	10,407	7,245	0	6,344	12,347	10,075	261,947
Infrastructure (main roads, public transport, public functions)	261,947		32,535	35,865	20,462	22,468	26,255	44,212	20,000	13,732	10,407	7,245	0	6,344	12,347	10,075	261,947
Household - GBA/1.2 = 67sqm useable			0	620	380	1,283	1,262	0	0	1,185	1,607	1,608	0	1,617	651	747	10,959
Inhabitants per year from residential	3		0	1,859	1,140	3,849	3,785	0	0	3,555	4,820	4,824	0	4,851	1,954	2,241	32,878
Office occupiers	7		0	4,960	0	5,134	0	0	0	0	0	0	10,601	0	0	0	20,695
Total traffic			0	1,859	6,099	3,849	8,919	0	0	3,555	4,820	4,824	10,601	4,851	1,954	2,241	53,572
Commercial component sq m	1,070,114		0	65,222	69,566	111,050	142,291	0	0	103,483	128,537	131,302	74,205	129,351	52,114	62,993	1,070,114
TOTALS - Commercial component Euro			0	62,753,002	78,341,192	104,336,275	147,584,976	0	0	107,607,725	130,942,233	140,982,106	126,890,550	145,277,487	58,530,681	74,581,885	1,177,828,113
Retail (GF of blocks) sq m	38,201		0	5,329	4,460	8,403	5,427	0	0	8,689	0	2,665	0	0	0	3,228	38,201
Rent in Euro/sqm				8.0	8.0	8.0	8.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	
Yield to calculate Capital Value	8.5%		8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	
Capital Value in Euro/sqm				1,129	1,129	1,129	1,129	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271	15,953
GDV (Gross Development Value) GF ELEMENT				6,018,635	5,036,612	9,490,447	6,129,318	0	0	11,039,925	0	3,386,118	0	0	0	4,101,967	45,203,022
Residential * sq m	876,737		0	49,579	30,388	102,647	100,924	0	0	94,794	128,537	128,637	0	129,351	52,114	59,765	876,737
Residential Capital Value euro net of VAT	880.00		0	43,629,520	26,741,616	94,845,828	93,253,776	0	0	96,567,799	130,942,233	137,595,988	0	145,277,487	58,530,681	70,479,918	897,864,847
Capital Value Eur/sqm built net of VAT	0.05		880	880	880	924	924	970	970	1,019	1,019	1,070	1,070	1,123	1,123	1,179	
Average unit price net of VAT	1,056.00		70,400	70,400	70,400	73,920	73,920	77,616	77,616	81,497	81,497	85,572	85,572	89,850	89,850	94,343	
Average unit price including of VAT			73,920	73,920	73,920	77,616	77,616	81,497	81,497	85,572	85,572	89,850	89,850	94,343	94,343	99,060	
Retail sq m	10,314		0	10,314	0	0	0	0	0	0	0	0	0	0	0	0	10,314
Rent in Euro/sqm			9	9	9												
Yield to calculate Capital Value	8.5%		8.5%	8.5%	8.5%												
Capital Value Eur/sqm built net of VAT			1,271	1,271	1,271												
GDV (Gross Development Value) RETAIL ELEMENT			0	13,104,847	0												13,104,847
Offices sq m	144,863		0	0	34,718	0	35,940	0	0	0	0	0	74,205	0	0	0	144,863
Rent in Euro/sqm				10.0	10.0	10.0	10.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Yield to calculate Capital Value				8.50%	8.50%	8.50%	8.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	
Capital Value Eur/sqm net of VAT				1,341	1,341	1,341	1,341	1,710	1,710	1,710	1,710	1,710	1,710	1,710	1,710	1,710	
GDV (Gross Development Value) OFFICE ELEMENT				0	46,562,965	0	48,201,882	0	0	0	0	0	126,890,550	0	0	0	221,655,397
Public Services sq m	135,760		0	0	1,620	0	50,482	64,809	16,388	0	0	0	0	0	2,461	0	135,760
Hospital and clinics	48,813		0	0	0	0	0	48,813	0	0	0	0	0	0	0	0	48,813
Education	19,688		0	0	1,620	0	0	15,996	0	0	0	0	0	0	2,072	0	19,688
Cult	777		0	0	0	0	0	388	0	0	0	0	0	0	388	0	777
Public Authorities offices	50,482		0	0	0	0	50,482	0	0	0	0	0	0	0	0	0	50,482
Public & Private Events	16,000		0	0	0	0	0	0	16,000	0	0	0	0	0	0	0	16,000
Total GBA (less infrastructure)	1,205,874		0	65,222	71,186	111,050	192,773	64,809	16,388	103,483	128,537	131,302	74,205	129,351	54,575	62,993	1,205,874

17.4 Version 2 – Inter-connectivity

Function	Estimate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Total (Commercial- Euro/ Public-m ²)
Infrastructure	252,828		32,535	32,755	45,709	6,462	28,986	42,480	22,755	20,000	21,146	0	0	0	0	0	252,828
Infrastructure (main roads, public)	252,828		32,535	32,755	45,709	6,462	28,986	42,480	22,755	20,000	21,146	0	0	0	0	0	252,828
Household - GBA/1.2 = 67 sqm useable			0	470	761	845	943	783	525	1,193	996	757	159	521	1,949	1,207	11,107
Inhabitants per year from residential element	3		0	1,410	2,284	2,535	2,828	2,348	1,574	3,578	2,987	2,271	476	1,563	5,847	3,621	33,322
Office occupiers	7		0	6,810	0	0	3,664	0	0	0	7,125	0	3,697	4,624	0	0	25,919
Total traffic			0	8,220	2,284	2,535	6,492	2,348	1,574	3,578	10,112	2,271	4,173	6,186	5,847	3,621	59,241
Commercial component sq m	1,100,579		0	103,290	62,066	69,323	102,689	63,165	47,082	97,783	129,531	60,556	38,563	74,043	155,930	96,558	1,100,579
TOTALS - Commercial component Euro			0	119,715,720	54,910,315	64,408,942	105,919,979	61,444,736	47,212,135	100,208,517	166,432,434	64,773,206	57,821,081	102,154,057	175,129,402	113,869,899	1,234,000,424
Retail (GF of blocks) sq m	13,979		0	1,438	1,170	1,728	1,629	540	5,105	2,368	0	0	0	0	0	0	13,979
Rent in Euro/sqm				8.0	8.0	8.0	8.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	
Yield to calculate Capital Value	8.5%		8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	
Capital Value in Euro/sqm				1,129	1,129	1,129	1,129	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271	
GDV (Gross Development Value) GF ELEMENT				1,624,564	1,321,412	1,951,624	1,840,194	686,086	6,486,076	3,008,868	0	0	0	0	0	0	16,918,822
Residential * sq m	888,577		0	37,597	60,896	67,595	75,410	62,625	41,977	95,414	79,656	60,556	12,684	41,679	155,930	96,558	888,577
Residential Capital Value euro net of VAT	880.00		0	33,085,259	53,588,903	62,457,318	69,679,102	60,758,651	40,726,059	97,199,649	81,146,184	64,773,206	13,567,459	46,810,495	175,129,402	113,869,899	912,791,588
Capital Value Eur/sqm built net of VAT	0.05		880	880	880	924	924	970	970	1,019	1,019	1,070	1,070	1,123	1,123	1,179	
Average unit price net of VAT	1,056.00		70,400	70,400	70,400	73,920	73,920	77,616	77,616	81,497	81,497	85,572	85,572	89,850	89,850	94,343	
Average unit price including of VAT			73,920	73,920	73,920	77,616	77,616	81,497	81,497	85,572	85,572	89,850	89,850	94,343	94,343	99,060	
Retail sq m	16,587		0	16,587	0	0	0	0	0	0	0	0	0	0	0	0	16,587
Rent in Euro/sqm			9	9	9												
Yield to calculate Capital Value	8.5%		8.5%	8.5%	8.5%												
Capital Value Eur/sqm built net of VAT			1,271	1,271	1,271												
GDV (Gross Development Value) RETAIL ELEMENT			0	21,075,119	0	0	0	0	0	0	0	0	0	0	0	0	21,075,119
Offices sq m	181,436		0	47,668	0	0	25,650	0	0	0	49,875	0	25,879	32,365	0	0	181,436
Rent in Euro/sqm				10.0	10.0	10.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Yield to calculate Capital Value				8.50%	8.50%	8.50%	8.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	
Capital Value Eur/sqm net of VAT				1,341	1,341	1,341	1,341	1,710	1,710	1,710	1,710	1,710	1,710	1,710	1,710	1,710	
GDV (Gross Development Value) OFFICE ELEMENT				63,930,779	0	0	34,400,683	0	0	0	85,286,250	0	44,253,622	55,343,562	0	0	283,214,895
Public Services sq m	108,111	0	0	0	722	965	39,254	27,389	2,220	0	0	33,000	3,481	1,080	0	0	108,111
Hospital and clinics	55,949		0	0	0	0	33,570	22,380	0	0	0	0	0	0	0	0	55,949
Education	13,089		0	0	722	965	0	5,009	2,220	0	0	0	3,093	1,080	0	0	13,089
Public Authorities offices	5,296		0	0	0	0	5,296	0	0	0	0	0	0	0	0	0	5,296
Public & Private Events	33,000		0	0	0	0	0	0	0	0	0	33,000	0	0	0	0	33,000
Cult	777		0	0	0	0	388	0	0	0	0	0	388	0	0	0	777
Total GBA (less infrastructure)	1,208,690	0	0	103,290	62,788	70,287	141,943	90,554	49,302	97,783	129,531	93,556	42,045	75,123	155,930	96,558	1,208,690

17.5 Municipality Strategic Consideration

Despite the differentiation elements between in the two scenarios, it is considered that general guidelines should be followed.

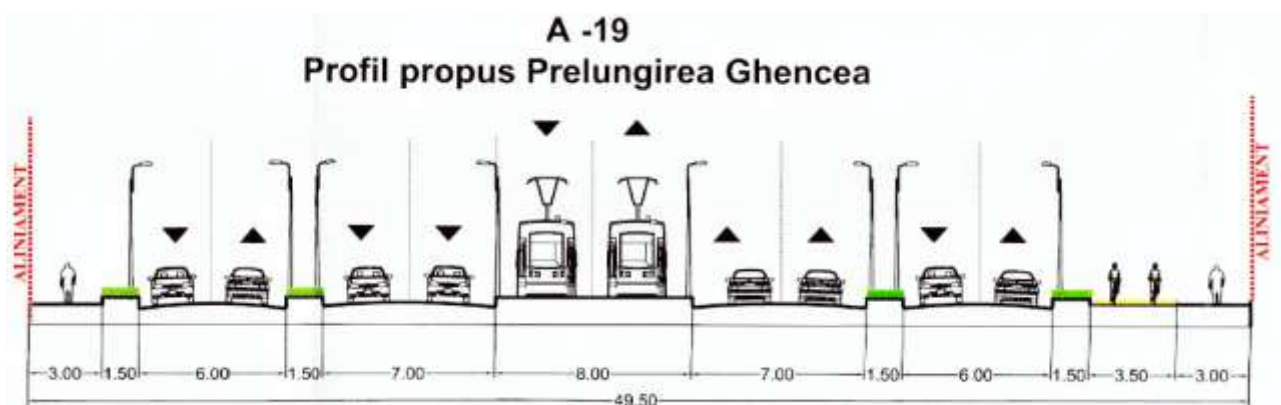
Several milestones in the development phasing will gradually unblock the potential of the project. Specifically, following the infrastructure development, the interest and worth would be reflected either as a Gross Development Value of the commercial projects raised with the developers, area built for public offices, healthcare, education, leisure elements or other public benefits or return as tax payments.

17.5.1 Step 1 – Preliminary

Public intervention construction of the first connection from the site to Prelungirea Ghencea Boulevard



This is a prior stage in development and as soon as finalized, it is expected to gain effective interest for the site potential as an entire. As guiding rule, the developers and potential investors or buyers are interested in a development if there is already the infrastructure in place including as a first step the roads and utilities.

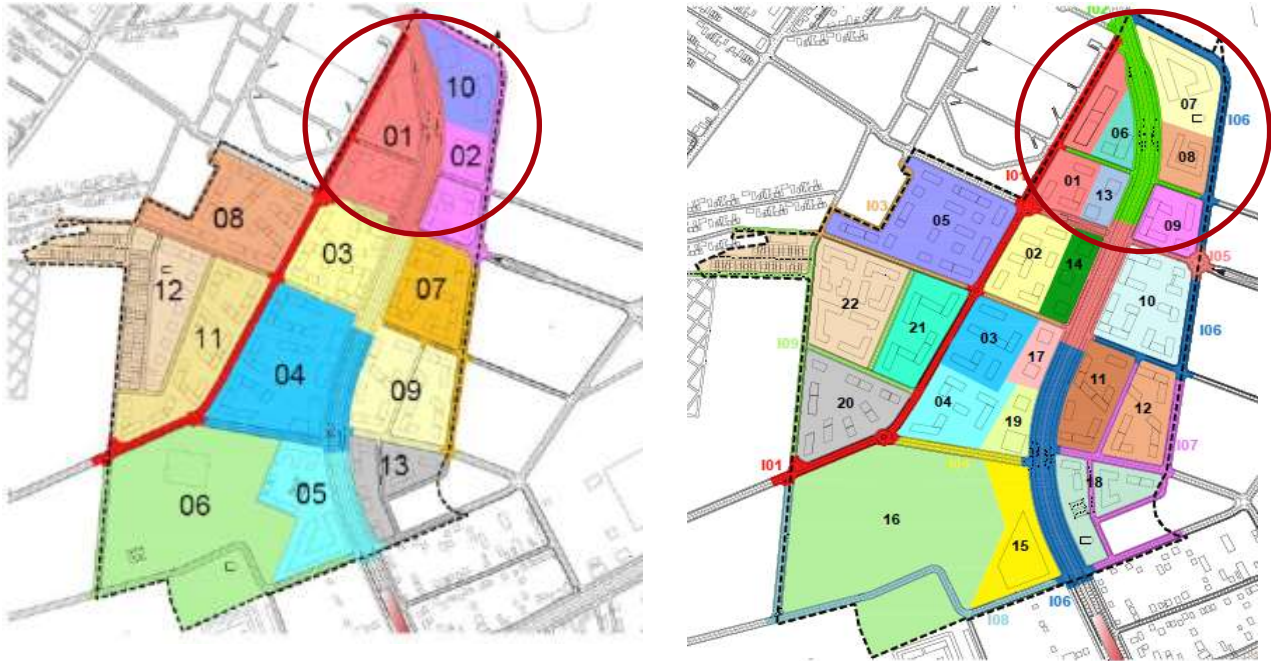


This part of the road has around 0.5km, mainly part of Sector 6 and therefore out of control of the Sector 5 City Hall. The connection should follow the general parameters of the planning of eight lanes, four on each direction plus the tram line, pedestrian and green areas, all of around 50meters width, as mentioned within the PUZ Sector 6 in the extract above. It should also provide an exit to the main boulevard and junction to the tram line 41.

Also it is expected within this prior stage period to also clarify any issues concerning planning, legal or technical pre-requirements for the development.

17.5.2 Step 2 – First section of the main boulevard

The second element is also a public intervention, of the first section of the main boulevard as well as local secondary roads (e.g. i01, i02). The public intervention is also essential in developing the first part of the boulevard inside the Subject Site areas, as thus this will unlock the potential of the north side of the Subject including the retail, office and residential potential development.



This stage assumed the main boulevard – sections mentioned as the step 1 and step 2 including the tram, road and utilities are available and the site is prepared to accommodate commercial developers. This will create trust in the city hall project and the developers will be confident in the potential of the project and attracted to invest.

17.5.3 Step 3 – Book of Rules/ Schedule of Conditions

A Book of Rules or Schedule of Conditions are required to draft for the further commitment as this engages the municipality on long term and will also gain developers' trust. It is a set of rules professionally drafted with specific commitment to provide a clear framework for investors and establish a good practice manual. As an example, this can include the requirements for maintenance of the public areas, green areas, disposal of various materials, to name just a few examples. In Romania the legal framework for condominium administration area is less regulated and solutions should be considered for instance in administration of the green areas.

17.5.4 Step 4 – Healthcare Benefits

This step is required to provide more traffic and interest from various ways.

A hospital of large size here would attract traffic and more interest on leasing & buyer sides for the residential units in the nearby, say 10% of the total employees in the hospital and nearby clinics will have an interest as potential buyers.

Together with a hospital, several private clinics of complementary specialties will manifest interest for the location close to the premises, unlocking the potential of private and healthcare investment for such occupiers. This is also a way to attract more professionals in the area. Part of the medical personnel will

establish here or will be motivated to choose this area to work. This is a plus for the area in the actual context when it is difficult to find labour force. An incentivized package can be considered to motivate such decisions, package to include for example special offers for buying residential or renting for the existing personnel.

Already in this stage a great interest for the project is expected, and it is possible to develop more public facilities with the support of the interested developers to contribute for the area.

17.5.5 Step 5 – Park

With limited resource of parks, the Sector 5 City Hall has one of the targets to provide more such elements and has the opportunity of building a new facility aligned with trends. With a size of around 15 hectares would be the first within the Sector 5 and close to Cismigiu Park, a central park in Bucharest. It is small compared to Herastrau (King Mihai) Park of around 110 hectares but this has only a third and the rest is Herastrau Lake area.

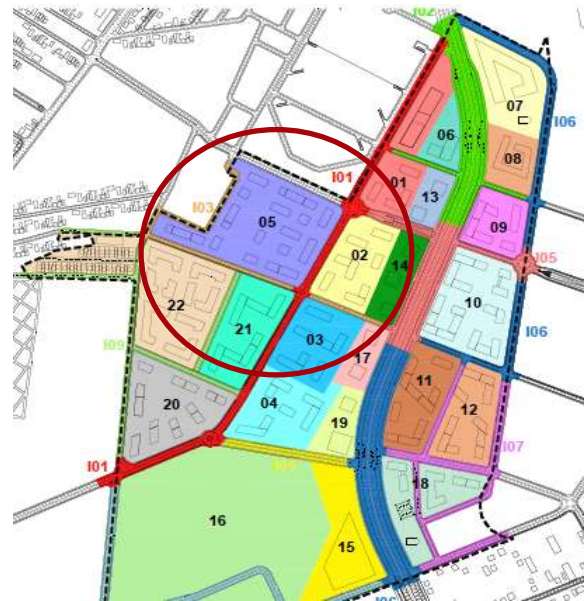
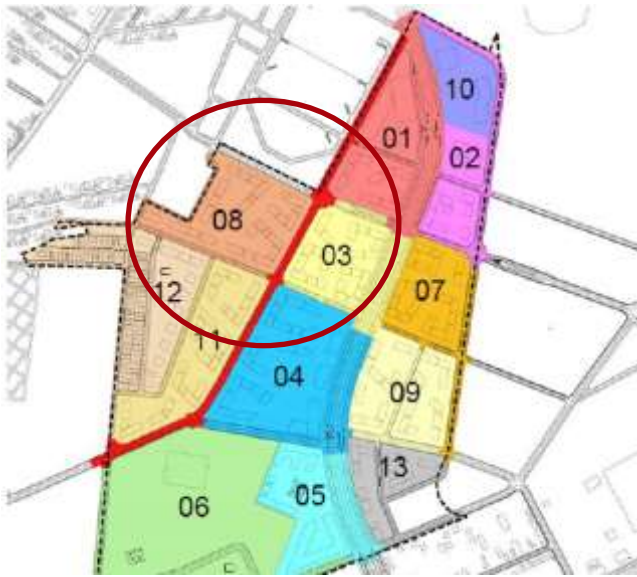
17.5.6 Step 6 - High School

An education facility would attract more interest on leasing & buyer sides for the residential units in the nearby, and for a part of the total employees in the education facilities. The potential of private school investment remains, mainly for the kindergarten and middle school. Such facilities should be however included in the first phases of development as public facilities.

A high school would also increase the attractiveness of the area and there are more chances to attract good teachers and good auxiliary personnel if the fundamentals of the Subject development will provide reasons for them to choose this area to work or even to relocate and buy a residential unit here. This is also a plus for the area in the actual context when it is difficult to find labour force. An incentivized package can be considered to motivate such decisions, package to include for example special offers for buying residential or renting for the existing personnel.

17.5.7 Intermediary steps

There are also intermediate steps in infrastructure development which will unblock more potential lots for development such as i03 will unlock the potential of the central side of the Subject including other office and residential potential development.



A phased road infrastructure will allow spending limited resources, however a large timing to finalise the entire boulevard as part of the inner ring road would not be beneficial for the public interest. A development phasing and lot sizes need to take into account that once the development is complete, it needs to be in a clean environment in order to make use of the opportunity. Having a development (however well thought) in a perpetual building site will not help increase the appeal of the project or the location.

Chapter VII. Appendices

Appendices

- Appendix 1 Sources of information
- Appendix 2 Terminology
- Appendix 3 Other evidence
- Appendix 4 Potential Development – Architect Views

Appendix 1

Source of Information

For the purpose of our Study, different types of information have been used, from different available sources, with the main sources as follows:

- INS - National Institute of Statistics - is the main producer of official statistical data of the country, playing the role of the coordinator of the National Statistical System, according to the stipulations of the Law no. 226/2009 on official statistical organization and functioning in Romania, with later modifications and completions;
- Bucharest City Hall site: www.pmb.ro
- CNP - National Commission for Strategy and Prognosis – is a public institution in Romania, under the subordination of the Government General Secretariat; amongst its main attributes is to elaborate forecasts regarding the economic and social development of Romania in the short, medium and long term, in correlation with the provisions of the Government Program, of the national, sectorial and regional strategies, as well as on the trends in the national and world economy;
- Sector 5 Bucharest Competitive Profile - a World Bank Group publication for the use of various beneficiaries, including investors; it provides information regarding the local specificities including information on workforce, education, trends, businesses, identified issues, recommendation and conclusions;
- Oxford Economics – is a leader in global forecasting and quantitative analysis. This economic consultancy born out of Oxford University provides economic forecasting and analytics on 200 countries, 100 industrial sectors and 3,000 cities tracking market trends and assessing their economic, social and business impact.
- Analize Imobiliare - is the first and most trusted Real Estate Intelligence platform in Romania, developed by Imobiliare.ro in collaboration with top statisticians and property valuers in Romania and Momentum Technologies Netherlands – leader in the Dutch market of automated evaluations;
- Eurostat - is the statistical office of the European Union situated in Luxembourg. Its mission is to provide high quality statistics for Europe;
- Different agencies sites - for information on available evidence for rent and sale;
- JLL / JLL Research – all information that has as source JLL databases and research.

NOTES:

- For GDP growth forecast there are different figures reported by different institutions, some being more conservative, whilst other being more optimist with forecasting figures with the mains versions, as follows: for 2019 GDP growth forecast: 5.1% (CNP), 3.8% (Eurostat), 3.5% (World Bank); for 2020 GDP growth forecast: 5.2% (CNP), 3.6% (Eurostat), 3.1% (World Bank).

Appendix 2

Terminology

A. General Real Estate Terms

A.1 General Terms

GBA – Gross built area: the total floor area of a building, usually measured from its outside walls (above and underground area).

GLA – Gross leasable area: the floor area that can be used by tenants. Generally measured from the centre of joint partitions to outside wall surfaces (includes the Net area + Add-on of the building)

Add-on factor – the number of usable sqm divided by the number of rentable sqm in a commercial real estate lease. The result of this calculation will be 1 if the two numbers are identical, but it is usually slightly lower than 1 because some sqm in a building will be partly or totally non-usable. Non-usable sqm includes space shared with other tenants (such as lobbies, hallways, stairwells, elevators and restrooms) or occupied by structural components (such as support poles and interior walls). In a poorly designed building, the usable area may be considerably less than the rentable area.

In commercial real estate, the lease cost is calculated based on rentable area, which includes areas that are not usable. This means that for the same amount of usable space, a building with a lower add-on factor will cost the tenant less than a building with a higher add-on factor. The add-on factor is important because the tenant pays for this unusable space in his lease. He pays for a fraction of shared common areas and he pays for all of the space he rents that is occupied by structural components. Potential tenants can thus use the add-on factor to help them compare leases and determine which lease offers the best value.

Prime rent

- **Prime Office Rent** - Represents the top open-market rent that could be expected for a notional office unit of the highest quality and specification in the best location in a market, as at the survey date (normally at the end of each quarter period). The rent quoted normally reflects prime units of over 500 m² of lettable floorspace, which excludes rents that represent a premium level paid for a small quantity of space.

The Prime Rent reflects an occupational lease that is standard for the local market. It is a face rent that does not reflect the financial impact of tenant incentives and excludes service charges and local taxes. It represents Jones Lang LaSalle's market view and is based on an analysis/review of actual transactions for prime office space, excluding any unrepresentative deals. Where an insufficient number of deals have been made for prime office space, an assessment of rental value is provided by reference to transactions generally in that market adjusted accordingly to equate to prime.

- **Prime Shopping Centre Rent** - Represents the top open market net rent that could be expected for a notional prime position shop situated in a specified shopping centre, as at the survey date (normally at the end of each quarter period).
- Rents are normally quoted in Euro per m² per month.

Passing rent: current rent, after indexation and/or after applying any steps as agreed in the contract. Different (higher) than the initial contractual rent;

ERV – Estimated Rental Value – estimated achievable rent for a certain type of property at a certain date - usually refers to the headline/ asking rent;

Average Rent - Represents the average mean value of all known face rents achieved on leasing transactions completed within a market during the survey period (normally calculated annually, or quarterly on a 12-month rolling basis). It excludes any unrepresentative deals.

Weighted Average Rent - Represents the average mean value of all known face rents achieved on leasing transactions completed within a market during the survey period weighted with the floorspace (normally calculated annually, or quarterly on a 12-month rolling basis). It excludes any unrepresentative deals.

Net effective rent – The actual rental rate achieved after deducting the value of all the incentives (rent free, fit-out contribution, relocation cost) from the base rental rate;

Occupancy Costs - Occupation Costs represent the sum of the prime net rent and estimates of prevailing local taxes and service charges liability that a retailer would typically be expected to pay in addition to the net rent.

NOI (Net Operating Income) – income from property or business after operating expenses have been deducted, but before deducting income taxes and financial expenses (Interest and principal payments)

$$NOI = \text{gross income} - \text{operating income}$$

Yield (Current) – measurement of investment returns based on the percentage relationship of annual cash income to the investment cost.

$$\text{Current yield} = \text{current income} / \text{investment cost}$$

Yield (Prime) - Prime Yield represents the best (i.e. lowest) “rack-rented” yield estimated to be achievable for a notional property of the highest quality and specification in the best location in a market, as at the survey date (normally at the end of each quarter period). The property should be let at the prevailing market rent to a first-class tenant with an occupational lease that is standard for the local market.

The Prime Yield represents Jones Lang LaSalle’s “market view”, based on a combination of market evidence where available and a survey of expert opinion.

Commonly used yield type in Central & Eastern Europe including the Romanian property market is the Gross Initial Yield (GIY) which, similar to the West European countries (e.g. UK, Germany or France) Net Initial Yield (NIY), divides net operating income by the market value of the property or the purchase price, however in the case of CEE markets excluding purchaser’s transaction costs. Because the GIY is calculated otherwise comparing to NIY i.e. without taking transaction costs into account, the outcome (yield) is usually higher than NIY. This is largely due to the fact that unlike in more established western markets there are no standard assumptions for average purchasers’ costs for any of the target markets in CEE in which a fund invests. Purchasers actual purchase costs on any transaction, vary widely, depending upon the nature of the transaction (e.g. whether it is a property purchase or SPV purchase) and the type and level of due diligence that may be required in either alternative purchase method. As a result, there is no established practice in any of the CEE markets in terms of purchasers’ costs level and the majority of available information about market yields refers to GIY. Therefore, in the estimation of GDV, the GIY was usually applied, resulting in the value net of purchaser’s costs. This is common market practice in CEE region including the Romanian property investment market.

Prime Capital Values - Represents the top open-market capital value (per square metre) that could be expected for a notional building of the highest quality and specification in the best location on the survey date (normally at the end of each quarter period). Prime capital values are derived from prime rents and prime yields:

$$\text{Calculation: Capital Value} = (\text{Prime Annual Rent} / \text{Prime Yield}) * 100$$

GDV – Gross Development Value – total gross development/ capital value of a certain scheme/ building upon completion, before considering any allowances for incentives, vacancy and other operational costs, calculated as follows:

$$\text{Calculation: GDV} = (\text{Annual ERV} * / \text{Specific Yield}) * 100$$

*Annual ERV = ERV/m² * Area (sq m)

WAULT – weighted average unexpired lease term - The WAULT is the sum of the remaining contractual fixed lease payments of the portfolio/assets (not including any further extensions or options to extend the term of the lease agreements) divided by the contractual annual rent of the portfolio/assets at a specific moment in time.

Stock - represents the total amount of completed space in buildings within a market that is capable of occupation regardless of the type of ownership or type of building quality, as at the survey date (normally at the end of each quarter period). The non-competitive stock (usually referred to within office market commentaries) excludes class A & B stock, not recorded in JLL database (for offices: Vilas, Class C).

Availability –Vacant space as of the reporting date (regarding if a pre-lease has been signed for such space). Counts from exit date in case of a relocation. Availability does not equal Vacancy. If tenant is still paying rent, even if they are no longer in the space – the space is available, but not vacant.

Vacancy rate - The Vacancy Rate represents immediately vacant floorspace in all completed buildings within a market as at the survey date (normally at the end of each quarter period), expressed as a percentage of the total stock. Does not include spaces available for sub-lease, nor spaces which are close to expiry, not occupied, but still under contract. Also, vacancy excludes "obsolete" or "mothballed" property, i.e. floorspace held vacant and not being offered for letting, usually pending redevelopment or major refurbishment.

Completions - Represents floor-space completed during the survey period (normally over the quarter) within a market, ready for occupation. Completions include both new development and refurbished accommodation that has been substantially modernized.

Under Construction - Represents floor-space under construction as at the survey date (normally at the end of each quarter period) within a market. Under Construction includes both new development and refurbished accommodation that is being substantially modernized. Construction is the stage at which building work is in progress.

Planned Developments - Represents unimplemented warehousing development within a market, where construction has not started at the survey date (normally the end of each quarter period). Only development that has received authorization from the appropriate planning authorities is included.

Planned development includes both new development and refurbished accommodation that will be substantially modernized.

Completions/Constructions are divided into:

- Speculative: Development (completed, under construction or planned) that is available on the open market at the survey date for occupation or will be available for occupation upon completion.
- Non-Speculative: Development (completed, under construction or planned) that has already been acquired for occupation at the survey date and is not available on the open-market. Non-speculative includes pre-let space and built-to-suit facilities (also referred to as design build).
- Owner - Occupier: Development (completed, under construction or planned) that is undertaken from the end user (normally a corporate) and will not come onto the market for lease.

Note: Built-to-suit facilities represent warehousing developments which are normally projected by a warehousing developer but where construction starts only upon the completion of a legally-binding agreement for occupation. Specification and concept of the facility will normally be adapted to the occupiers' needs.

A.2 Office

Gross absorptions (take-up) – A measure of the total sqm leased over a specified period of time with no consideration given to space vacated in the same geographic area during the same time period. It includes net absorptions (except space contraction) plus renegotiation and relocations from competitive stock to competitive.

Net absorption - The sqm leased over a fixed period-of-time after deducting space vacated during the same period. Net Absorption represents the change in the occupied stock within a market during the survey period (normally derived annually). Net Absorption is calculated on the basis of “top-down” estimates of occupied stock derived by subtracting vacant stock from the total stock. Mothballed stock, i.e. floorspace held vacant and not being offered for letting, usually pending redevelopment or refurbishment, is excluded. It includes relocation from non-competitive stock, expansions and new market entries.

Calculation: $X - Y = \text{Net Absorption}$

X = Current stock – current vacancy

Y = Previous stock (same quarter, previous year) – previous vacancy (same quarter, previous year)

A.3 Retail

RETAIL WAREHOUSE

Retail Warehouse Solus Units - Stand-alone single level retail store selling non-food goods, with adjacent surface car parking, occupying a purpose built “warehouse” type or converted industrial building, located in an edge of centre, suburban or out of town location. Generally, owner occupied by household goods, electricals, DIY retailer, although other sectors are becoming more common. May be located near other related retailers as part of an ad-hoc retail warehousing agglomeration. Solus units will generally be a minimum of 500-1000 m². Subsectors:

- Stand-alone single tenant
- Agglomerations: 2 or more solus units in the same area, possibly with shared parking but not physically attached.

Retail Warehouse Parks - Planned, centrally managed schemes, with adjacent surface car parking, occupying a purpose built “warehouse” type or converted industrial building, located in an edge of centre, suburban or out of town location. Must consist of at least 2/3 units with a total GLA of over 5,000 m². Any owner-occupied units that may be in the same development area should not be included in the GLA. Subsectors of Retail Warehousing parks:

- Fashion parks: tenants must be mainly fashion retailers that could also trade on the high street. Some of these types of parks will also include traditional retail warehousing retailers (DIY, household), although only a small proportion.

Note: This does not include Factory Outlets, which are a separate category

- Other/Non-bulky goods: Tenant mix will be in a range between pure Fashion Parks and Bulky goods. Other types of tenants could be multimedia, books, office supplies, car centres, toys, sportswear, etc.
- Bulky goods: limited to household, electricals, DIY, car and bike accessories, and other traditional retailers

SHOPPING CENTRES

A shopping centre (or shopping mall) is defined as a central location where shops, restaurants as well as service companies leisure operators are grouped together to serve a local or wider population whose conception and management have the following characteristics:

- The building/s is/are created and managed as a single entity
- The entity is managed by a single authority whose responsibility is to control the commercial mix, its implementation and adaption.
- Retail associations often support the SC management function by coordinating the views of the retail/leisure operators, which are then fed into the marketing and promotional activities organized by the management team.

The minimum gross lettable area of a shopping centres included for the purpose of the JLL database is 5,000 m².

A.3 Residential

Residential investment – a broad interpretation of purchasing residential for the purpose of generating a return (could include capital growth, rental growth, or a combination of the two). Residential investment could also include market rent, social rent, or other intermediate rented stock. It can also be used to refer to development, land and residential capital markets activity

Buy-to-Let – reflects residential investment on a unit by unit or small block basis, generally by non-professional landlords.

Build to Rent – the industry term for purpose-built private rented stock. Broadly analogous to the US multi-family sector, on which the model is based. While this has become for many the default term to describe this new sector, as development industry terminology it narrowly refers to the physical creation of this new asset class.

Build for Sale - is a term that is used to describe all residential property that has been (or is currently being) built by a developer and sold on the open market to either an owner occupier or a Buy-to-Let investor.

Affordability - While there is no universally agreed measure of what constitutes ‘affordable housing’, according to the United Nations program UN Habitat, there are three common measures, which are associated with two components: housing costs and household income.

- The first is **house price to income ratio**. The ratio is calculated by dividing the median house price by the median household income. It shows the number of annual median salaries it takes to buy a median priced house.
- The second measure is **house rent-to income ratio**. This ratio is calculated by dividing the median annual rent by the median annual renter household income. But, there is no universally agreed ratio or percentage at which owner-occupied or rental housing is deemed unaffordable.
- The third measure of affordability is the **residual income assessment**. It is represented as a percentage of household income spent on housing-related expenses and demonstrates a household’s ability to financially service housing without compromising on necessary non-housing expenditure. Although there is no universally agreed percentage, housing is generally deemed affordable when a household spends less than 30 per cent of their income on housing related expenses, such as mortgage repayments (for owner-occupiers), rent payments (for tenants), and direct operational expenses such as taxes, insurance and service payments, according to the same source.

A benchmark used to define housing affordability at the international level is the one proposed by Demographia International Housing Affordability Survey, using the “Median Multiple”. It measures housing affordability by dividing median house price by median annual gross pre-tax household income. A ratio of less than 3.0 is considered affordable, a ratio between 3.1 to 4.0 is moderately unaffordable, a ratio between 4.1 to 5.0 is seriously unaffordable and a ratio of more than 5.1 is considered “severely unaffordable”.

A.4 Hotel

Occupancy – Occupancy is calculated as the number of rooms sold divided by the total number of available rooms throughout the period being analyzed.

Average Room Rate (ARR) - Average room rate is the average price a room is sold for in a hotel in a given period, calculated by the room revenue for that period divided by the number of rooms sold/occupied. Also referred to as ADR (Average Daily Rate).

RevPAR - Revenue per available room or room yield is a measure of the revenue earned per hotel room derived by dividing the total Rooms Revenue by the number of rooms available in a given period.

A.5 Industrial & Logistics

The industrial real estate market encompasses a wide range of different building types used for manufacturing, light industrial assembly and processing, and storage and distribution. Industrial buildings were divided into two main building groups: light industrial and warehousing buildings.

Distribution Warehouse - Warehousing properties are defined as property assets dedicated to storage and distribution of goods with a minimum floor- space of 5,000 m² gross internal, with ceiling heights over 8 metres. Warehouse types include storage warehouses, distribution warehouses (freight forwarding), cross-docking warehouses and cold storage warehouses. Warehousing stock excludes light industrial buildings and manufacturing assets as well as warehousing space within mixed usage assets. The office component of warehousing properties is usually between 5-10%.

Light Industrial - Light Industrial properties are comprised of property assets < 5,000 m² dedicated to the assembly, disassembly, fabrication, finishing, manufacturing, packaging, repairing or processing of materials. Some light manufacturing which requires limited raw materials and physical changes to the materials might also be located in light industrial buildings. The office component of light industrial properties is usually less than 10%.

B. General urban planning terms

It was summarized below the general terms and main legal aspects that need to be taken into consideration for a new development:

■ *Plan Urbanistic General (PUG)*

This is a local area plan, which will stipulate many parameters, requirements and restrictions (such as building heights, parking requirements) on developments within a particular area. These plans are produced by the Department of Urbanism of the City Hall responsible for each particular area.

■ *Certificat de Urbanism (CU)*

This is a specific document issued by the Department of Urbanism of the City Hall, which will be a response to an application for development parameters on a particular site. The CU will stipulate what permits, applications and other official approval processes will be needed for a particular development, on a particular site. Examples of these requirements could be as follows: · Production of a PUZ; · Production of a PUD; · Approvals (Aviz) from relevant authorities (eg police, fire, environment etc);

■ *Plan Urbanistic Zonal (PUZ)*

This is a development proposal for the site, which may need to be carried out as a response to the CU. If a proposal is not in line with the PUG – eg: the PUG states buildings must be P+3 and a developer wishes to construct P+8, then a PUZ application must be made to change the parameters of the PUG. Upon approval of the PUZ, a client may proceed to apply for a Building Permit for the works. This allows construction to take place, as per the design and parameters contained in the PUZ. If a PUZ confirmed by the City Hall to comply with the CU, then occasionally no CU reapplication is required.

■ *Plan Urbanistic de Detaliu (PUD)*

Within the CU, the local City Hall will sometimes request a document called a PUD. This is a more detailed version of the PUZ, which will fix the parameters contained therein, and give the City Hall more details. This is often when the City Hall feels the PUZ, whilst approved, is not detailed enough. A PUZ may simply contain hatched areas where construction takes place, and the City Hall will want more details.

It is worth noting that some CU stipulations will not require a PUD or even a PUZ. If the proposal matches what is stated in the City Hall PUG, then the City Hall may well omit these processes from the CU.

■ *Building Permit*

Once all the requirements stated in the CU are satisfied – which normally includes a PUZ, and sometimes a PUD, as well as all the appropriate permissions from all the approving departments in the City Hall - a developer is able to apply for a Building Permit. This Building Permit will allow construction to commence. The Building Permit documentation will be a development of the PUZ/PUG/PUD, depending on what that particular CU stated, and will contain detailed design and construction information for the actual building project. Generally, the Building Permits are valid for 1 year from issue, meaning that construction must start within 1 year from when it was issued. The permit will then remain in place for the duration of the construction works. This duration of the construction works will be stated in the application (12 months, 18 months etc), and then in the Building Permit itself. If works are not commenced within 12 months of the date of the Building Permit, a one-off application can be made for a 12-month extension, which is normally granted. No further extensions are allowed after this.

■ *Construction Inspections*

Within the design documentation there must be a Quality Control Plan issued by each designer for its section of design and it consists of the specific works which must be checked and confirmed as compliant with design regulations in force. The checking should be done by the following: designer, Client's representative (Diriginte de Santier employed by the client), Building State Inspectorate (BSI) representative. This Plan must be submitted to the BSI for their review and approval, and they will periodically visit the site to ensure that the works are following design code and law. It is usual practice for the BSI to confirm their presence is needed only for part of the works noted within this plan. For any other works it is enough for the checks to be done only by the designer and the "Diriginte de Santier". The progress on site cannot run without the works in the plan being checked and approved as mentioned within the Quality Control Plan.

■ *Final Acceptance*

Upon completion of all works the Client must call for a committee of City Hall representatives and independent specialists to inspect and confirm the works as complete and compliant with the approved design, Building Permit documentation and regulations in place. For the purpose of this final inspection a 'Construction Book' needs to be completed which contains all as-built design, quality certifications, protocols and all documents as requested by the law. Such an inspection usually takes a few days and the outcome is a Completion Protocol signed by all members of the committee. The Completion Protocol does allow for an appendix where incomplete works are recorded at time of inspection. The law allows for maximum 90 days for such an appendix to be cleared out.

The Completion Protocol enables the Client to register the building as existing with the City Hall tax department and other authorities.

■ *Registry of the building with the Real Estate Registry (RER) – Land Book*

In order to register the building with the RER the following steps should be followed: i) register the building with the City Hall tax department following receipt of the signed Completion Protocol, ii) register the building with the Cadastral Office based on the Completion Protocol and cadastral measurements carried out on site upon completion of works by an authorized cadastral surveyor and iii) Register the building with the RER following receipt of tax certificate issued by the City Hall tax department and approved cadastral documents issued by the Cadastral Office.

■ *Main Urbanism Indicators: - CUT (Ro: "Coeficient de utilizare a terenului")*

The CUT is the density coefficient, meaning the ratio between the Total Built Area (without underground levels) and the Site Area. The CUT of a particular project is stipulated by the Authority in the CU.

■ *Main Urbanism Indicators: - POT (Ro: "Procent de ocupare a terenului")*

The POT is the maximum footprint percentage, meaning the percentage between the building Foot Print Area and the Site Area. Again, this will be stipulated by the Authority in the CU.

C. Specific urban planning – PUZ Antiaeriana

General information on each of the sub-zones have specific requirements of development and functions which are detailed below.

17.5.7.1 CA area

The central sub-area with the function of a business center with high-rise buildings and with height accents over 45 meters, with continuous and discontinuous construction;

Functions of general interest specific to a business center are allowed:

- headquarters of companies and firms in office buildings;
- financial-banking and insurance services;
- advanced autonomous services (managerial, technical and professional);
- research and development services;
- training and information services;
- libraries, mediators;
- mail and telecommunication (relays);
- publishing houses, media centers;
- various associative activities;
- hotels for business tourism and other reception areas;
- exhibitions, centers and art galleries;
- professional, collective and personal services, specialized services for trade and for the operation of the central area, transport services;
- various agencies (real estate, tourism, etc.)
- restaurants, cafés, cafes, bars, terraces;
- shopping centers, shops with indoor plaza, shopping galleries, art trade;
- casino, disco, cinema;
- recreation and sports centers in covered areas;
- small manufacturing and small-scale production units linked to the operation of the central area;
- housing with a special part including spaces for liberal professions;
- multi-layered parking lots in the central protected area.

Public representative functions of supra-municipal importance and offices of some international, regional or European bodies are admitted and also public facilities (pedestrian streets and squares, decorative plantations, advertising, urban furniture and decorative art items).

17.5.7.2 CB areas

CB1. Sub-zone of public services dispersed outside protected areas.

Allowed functions:

- Public and municipal public institutions and services, headquarters of extraterritorial bodies.

- Extensions and profile changes are allowed provided they do not inconvenience traffic and they do not generate pollution.

CB3. Public and municipal public institutions and services, headquarters of extraterritorial bodies

Allowed functions:

- Financial and banking services and insurance, post and telecommunication (relay infrastructure), advanced managerial, technical and professional services (headquarters of companies in specialized buildings); Research and Development, publishing houses, media services; information centers, library / media; various associative activities; professional, collective and personal services, hotels for business tourism and other reception areas, restaurants, cafes, bars, trade, exhibitions, recreation (casino, disco, cinema, recreation centers, sports in covered spaces), conference rooms, shows and cinemas of various capacities with annex services, housing with partition especially for liberal professions, higher education and in-service training;
- Small and medium-sized units specialized in abstract and concrete production activities in top-of-the-range areas; activities of small-scale manufacturing and storage related to the operation of the tertiary pole, multi-story parking lots.

17.5.7.3 L areas

L1a. Individual and collective dwellings with maximum GF + 2 levels outside the protection perimeters.

Allowed functions:

- Individual and small collective dwellings with maximum GF + 2 levels under continuous construction (in rows) or discontinuous (coupled or isolated);
- Public facilities specific to the residential area;
- Public squares.

L1c. Individual and collective dwellings with maximum GF + 2 levels located in new extensions or undeveloped enclaves, foreseen to be achieved through future urbanization operations under continuous construction (in rows), or discontinuous (coupled, isolated);

Allowed functions:

- Individual and small collective dwellings with maximum GF + 2 levels under continuous construction (in rows) or discontinuous (coupled or isolated);
- Public facilities specific to the residential area;
- Public squares.

L3a. Sub-area of collective dwellings with GF + 3 - GF + 4 levels forming predominantly residential assemblies located outside the protected area.

Allowed functions:

- Private dwellings;
- Constructions related to the technical-municipal equipment;
- Dwelling amenities: private roads and pedestrian ways, parking lots, garages, planted spaces, children's playgrounds, youth sports facilities, fencing.

17.5.7.4 L4a area

Sub-area of collective housing with GF + 5 - GF + 10 levels, forming predominantly residential assemblies, located outside the protected area.

Allowed functions:

- High-standard housing;
- Dwelling amenities: private roads and pedestrian access ways, car parks, semi-buried and underground garages, planted spaces, children's playgrounds, sports and recreation areas (possibly an uncovered swimming pool), technical equipment constructions, fences.

17.5.7.5 G area

Sub-area for construction and communal household facilities.

Allowed functions:

- Buildings, installations and facilities for communal household;
- Autonomous offices;
- Technical premises with buildings and installations for water supply, sewerage, power supply, electrical and thermal engineering, urban public transport, commercial markets, sanitation, maintenance of planted areas.

17.5.7.6 M area

M2. Mixed sub-area with buildings with continuous or discontinuous construction and maximum P + 14 heights with high accents;

Allowed functions:

- Public institutions, services and equipment at city, municipal, sectoral and neighborhood level;
- Company headquarters, business services, design, research, expertise, consulting in different fields and other professional services;
- Social, collective and personal services;
- Headquarters of political, professional organizations, etc.;
- Places of worship;
- Retail;
- Manufacturing activities;
- Small storage;
- Hotels, boarding houses, travel agencies;
- Restaurants, bars, cafés, etc.;
- Sports and recreation in covered areas;
- Ground and multi-story parking lots;
- Pedestrian free spaces, covered pedestrian passages;
- Planted spaces - squares;
- Dwellings with ordinary parts;

- special-purpose dwellings that include spaces for liberal professions.

17.5.7.7 T area

T1a. Isolated transport units.

Allowed functions:

- Bus stations and other constructions and arrangements for the carriage and maintenance of the means of road transport with tonnage and gauge admitted on the streets of the city, for the transport of passengers and goods, as well as the accompanying related services.

17.5.7.8 V area

V1a. Public parks, gardens, squares and strips.

Allowed functions – only publicly planted space functions are allowed, consisting of:

- Planted areas;
- Pedestrian traffic, some of which are occasionally caravans for maintenance of planted areas and access to allowed activities;
- Haulage roads that ensure - through proper sizing - direct access from public roads to lakes for the supply of high-powered fire trucks;
- Urban furniture, sports, play and rest facilities;
- Exhibitions, cultural activities (open air showrooms and open-air libraries, pavilions with flexible use or with different themes), sporting activities, public catering and trade;
- Shelters, sanitary facilities, administration and maintenance areas;
- Parking lots.

V3a. Amusement parks, and recreation areas.

Allowed functions:

- Specific constructions and installations are admitted in accordance with the legally approved projects.

V3b. Complexes and sports facilities.

Allowed functions:

specific constructions and installations are admitted in accordance with the legally approved projects.

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Appendix 3

Other evidence

A. Case Studies - Office

1. Green Gate	
22 Tudor Vladimirescu Boulevard	
■ Developer <ul style="list-style-type: none">- S-Group	■ Development type <ul style="list-style-type: none">- A
■ Location & Accessibility <ul style="list-style-type: none">- Green Gate- bus, tram- Construction status: completed	■ Specification <ul style="list-style-type: none">- 3-4 km to the Subject- Sub-market: Center-South- Years of delivery: 2014
■ Key indicators <ul style="list-style-type: none">- Average rent: 14.00 €/m²- Owner: S-Group	<ul style="list-style-type: none">- Leasable area: 31000 m²- Type: Modern office
2. Tati Center	
45 Tudor Vladimirescu Boulevard	
■ Developer <ul style="list-style-type: none">- tati Group	■ Development type <ul style="list-style-type: none">- B
■ Location & Accessibility <ul style="list-style-type: none">- Tati Center- bus, tram- Construction status: completed	■ Specification <ul style="list-style-type: none">- 3-4 km to the Subject- Sub-market: Center-South- Years of delivery: 2006
■ Key indicators <ul style="list-style-type: none">- Average rent: 10.00 €/m²- Owner: tati Group	<ul style="list-style-type: none">- Leasable area: 7500 m²- Type: Office
3. AFI Tech Park 1	
29 A Tudor Vladimirescu Blvd.	
■ Developer <ul style="list-style-type: none">- AFI Europe	■ Development type <ul style="list-style-type: none">- A
■ Location & Accessibility <ul style="list-style-type: none">- AFI Tech Park 1- bus, tram- Construction status: completed	■ Specification <ul style="list-style-type: none">- 3-4 km to the Subject- Sub-market: Center-South- Years of delivery: 2018
■ Key indicators <ul style="list-style-type: none">- Average rent: 12.00 €/m²- Owner: AFI Europe	<ul style="list-style-type: none">- Leasable area: 20000 m²- Type: Modern office
4. AFI Tech Park 2 & 3	
29 A Tudor Vladimirescu Blvd.	
■ Developer <ul style="list-style-type: none">- AFI Europe	■ Development type <ul style="list-style-type: none">- A
■ Location & Accessibility <ul style="list-style-type: none">- AFI Tech Park 2 & 3- bus, tram- Construction status: planned	■ Specification <ul style="list-style-type: none">- 3-4 km to the Subject- Sub-market: Center-South- Years of delivery: 2022

■ Key indicators

- Average rent: 12.00 €/m²
- Owner: AFI Europe
- Leasable area: 34000 m²
- Type: Modern office

5. AFI Business Park 1-5

4 General Vasile Milea Boulevard

■ Developer

- AFI Europe

■ Development type

- A

■ Location & Accessibility

- AFI Business Park 1-5
- bus, tram, trolley, metro
- Construction status: completed

■ Specification

- 2-3 km to the Subject
- Sub-market: Center-West
- Years of delivery: 2012-2016

■ Key indicators

- Average rent: 14.00 €/m²
- Owner: AFI Europe
- Leasable area: 70000 m²
- Type: Modern office

6. AFI Business Park 6-7

4 General Vasile Milea Boulevard

■ Developer

- AFI Europe

■ Development type

- A

■ Location & Accessibility

- AFI Business Park 6-7
- bus, tram, trolley, metro
- Construction status: planned

■ Specification

- 2-3 km to the Subject
- Sub-market: Center-West
- Years of delivery: 2021

■ Key indicators

- Average rent: 14.00 €/m²
- Owner: AFI Europe
- Leasable area: 30000 m²
- Type: Modern office

7. Campus 6.1

6 Iuliu Maniu Boulevard

■ Developer

- Skanska

■ Development type

- A

■ Location & Accessibility

- Campus 6.1
- bus, tram, trolley, metro
- Construction status: completed

■ Specification

- 3-4 km to the Subject
- Sub-market: Center-West
- Years of delivery: 2018

■ Key indicators

- Average rent: 14.2500 €/m²
- Owner: CA Immo
- Leasable area: 20000 m²
- Type: Modern office

8. Campus 6.2 & 6.3

6 Iuliu Maniu Boulevard

■ Developer

- Skanska

■ Development type

- A

■ Location & Accessibility

- Campus 6.2 & 6.3

■ Specification

- 3-4 km to the Subject

- bus, tram, trolley, metro
- Construction status: under construction
- Sub-market: Center-West
- Years of delivery: 2020

■ Key indicators

- Average rent: 14.25 €/m²
- Owner: Skanska
- Leasable area: 37000 m²
- Type: Modern office

9. Campus 6.4

6 Iuliu Maniu Boulevard

■ Developer

- Skanska

■ Development type

- A

■ Location & Accessibility

- Campus 6.4
- bus, tram, trolley, metro
- Construction status: planned

■ Specification

- 3-4 km to the Subject
- Sub-market: Center-West
- Years of delivery: 2022

■ Key indicators

- Average rent: 14.2500 €/m²
- Owner: Skanska
- Leasable area: 21000 m²
- Type: Modern office

10. The Light

6 Iuliu Maniu Boulevard

■ Developer

- River Developments

■ Development type

- A

■ Location & Accessibility

- The Light
- bus, tram, trolley, metro
- Construction status: under construction

■ Specification

- 3-4 km to the Subject
- Sub-market: Center-West
- Years of delivery: 2019

■ Key indicators

- Average rent: 14.00 €/m²
- Owner: River Developments
- Leasable area: 21000 m²
- Type: Modern office

11. Global Business Center

4A Iuliu Maniu Boulevard

■ Developer

- O

■ Development type

- A

■ Location & Accessibility

- Global Business Center
- bus, tram, trolley, metro
- Construction status: completed

■ Specification

- 3-4 km to the Subject
- Sub-market: Center-West
- Years of delivery: 2004

■ Key indicators

- Average rent: 18.00 €/m²
- Owner: Immofinanz
- Leasable area: 10000 m²
- Type: Office

12. The Grand Offices

90, 13 Septembrie Road

■ Developer

- Strabag

■ Development type

- B

<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - The Grand Offices - bus - Construction status: completed ■ Key indicators <ul style="list-style-type: none"> - Average rent: 18.00 €/m² - Owner: Strabag 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 3-4 km to the Subject - Sub-market: Center-West - Years of delivery: 2000 - Leasable area: 10000 m² - Type: Office
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13. Metropol	
Timisoara Boulevard	
<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Anchor Grup ■ Location & Accessibility <ul style="list-style-type: none"> - Metropol - bus, tram - Construction status: on hold ■ Key indicators <ul style="list-style-type: none"> - Average rent: 14.00 €/m² - Owner: Anchor Grup 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - A ■ Specification <ul style="list-style-type: none"> - 2-3 km to the Subject - Sub-market: West - Years of delivery: 2021 - Leasable area: 36000 m² - Type: Modern office

14. Renault Bucharest Connected	
Preciziei Boulevard	
<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Globalworth ■ Location & Accessibility <ul style="list-style-type: none"> - Renault Bucharest Connected - bus, tram, metro - Construction status: completed ■ Key indicators <ul style="list-style-type: none"> - Average rent: 11.00 €/m² - Owner: Globalworth 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - A ■ Specification <ul style="list-style-type: none"> - 3-4 km to the Subject - Sub-market: West - Years of delivery: 2019 - Leasable area: 47000 m² - Type: Modern office

15. Globalworth Preciziei	
Preciziei Boulevard	
<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Globalworth ■ Location & Accessibility <ul style="list-style-type: none"> - Globalworth Preciziei - bus, tram, metro - Construction status: planned ■ Key indicators <ul style="list-style-type: none"> - Average rent: 11.00 €/m² - Owner: Globalworth 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - A ■ Specification <ul style="list-style-type: none"> - 3-4 km to the Subject - Sub-market: West - Years of delivery: 2020 - Leasable area: 60000 m² - Type: Modern office

16. West Gate 1-5	
Preciziei Boulevard	

<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - ID Group 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - A
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - West Gate 1-5 - bus, tram, metro - Construction status: completed 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 3-4 km to the Subject - Sub-market: West - Years of delivery: 2008-2013
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average rent: 14.00 €/m² - Owner: Liviu Tudor 	<ul style="list-style-type: none"> - Leasable area: 60000 m² - Type: Modern office

17. Anchor Plaza

Timisoara Boulevard	
<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Anchor Grup 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - A
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - Anchor Plaza - bus, tram, trolley, metro - Construction status: completed 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 2-3 km to the Subject - Sub-market: West - Years of delivery: 2006
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average rent: 12.500 €/m² - Owner: Anchor Grup 	<ul style="list-style-type: none"> - Leasable area: 25000 m² - Type: Modern office

18. Plaza Romania Offices

Timisoara Boulevard	
<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Anchor Grup 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - B
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - Plaza Romania Offices - bus, tram, trolley, metro - Construction status: completed 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 2-3 km to the Subject - Sub-market: West - Years of delivery: 2016
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average rent: 12.50 €/m² - Owner: Anchor Grup 	<ul style="list-style-type: none"> - Leasable area: 10500 m² - Type: Office

19. Ghencea Business Center

Ghencea Boulevard	
<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - local investor 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - B
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - Ghencea Business Center - bus, tram - Construction status: completed 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 1-2 km to the Subject - Sub-market: West - Years of delivery: 2007
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average rent: 9.00 €/m² - Owner: local investor 	<ul style="list-style-type: none"> - Leasable area: 7000 m² - Type: Office

20. One Cotroceni Park

44 Sergent Nutu Ion Street

■ Developer

- One United

■ Development type

- A

■ Location & Accessibility

- One Cotroceni Park
- tram, metro (M6)
- Construction status: planned

■ Specification

- 3-4km to the Subject
- Sub-market: Center-West
- Years of delivery: n/a

■ Key indicators

- Average rent: n/a €/m²
- Owner: One United

- Leasable area: 100000 m²
- Type: Modern office

B. Case Studies – Residential

78-82 Drumul Cooperativei Street – New Residence Drumul Taberei

<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - ARDC UK 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - Apartment
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - immediate to Subject - bus, secondary streets - Construction end: October 2017 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 216 planned units - Project is: Finalised - Sale status: On market
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average price: 1038 €/m² - Broker: Direct Sale 	<ul style="list-style-type: none"> ■ Sale status <ul style="list-style-type: none"> - Available for sale units:10 - Completed units:21

Valea Oltului Street – Alfamar 59 Residence

<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Alfamar Grup Imobiliare 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - Apartment
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - close to Subject - 0 - Construction end: April 2018 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 38 planned units - Project is: Finalised - Sale status: Sold out
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average price: 1050 €/m² - Broker: Alfamar Grup Imobiliare 	<ul style="list-style-type: none"> ■ Sale status <ul style="list-style-type: none"> - Available for sale units:0 - Completed units:38

Valea Doftanei Street – Brancusi Residence 4

<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Private Developer 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - Apartment
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - close to Subject - 0 - Construction end: May 2018 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 48 planned units - Project is: Finalised - Sale status: On market
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average price: 1078 €/m² - Broker: Direct Sale 	<ul style="list-style-type: none"> ■ Sale status <ul style="list-style-type: none"> - Available for sale units:24 - Completed units:48

Valea Doftanei Street – Brancusi Residence 3

<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Private Developer 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - Apartment
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - close to Subject - 0 - Construction end: May 2018 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 81 planned units - Project is: Finalised - Sale status: On market
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average price: 1132 €/m² - Broker: Hogas Grup 	<ul style="list-style-type: none"> ■ Sale status <ul style="list-style-type: none"> - Available for sale units:20 - Completed units:81

Valea Oltului Street – Alfamar 58 Residence

<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Alfamar Grup Imobiliare 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - Apartment
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<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Alfamar Grup Imobiliare 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - Apartment
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - close to Subject - 0 - Construction end: December 2018 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 15 planned units - Project is: Finalised - Sale status: On market
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average price: 1057 €/m² - Broker: Alfamar Grup Imobiliare 	<ul style="list-style-type: none"> ■ Sale status <ul style="list-style-type: none"> - Available for sale units:15 - Completed units:15

106 . Drumul Crețeștilor Street – Next Residence

<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Metalurgiei Park Residence 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - Apartment
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - immediate to Subject - 0 - Construction end: January 2019 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 62 planned units - Project is: Finalised - Sale status: On market
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average price: 950 €/m² - Broker: SUD REZIDENTIAL S.R.L. 	<ul style="list-style-type: none"> ■ Sale status <ul style="list-style-type: none"> - Available for sale units:20 - Completed units:36

35 D, Prelungirea Ghencea Street – Astrelor Residence Ghencea

<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Astrelor Residence 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - Apartment
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - close to Subject - 0 - Construction end: May 2019 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 144 planned units - Project is: Under construction - Sale status: On market
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average price: 977 €/m² - Broker: Direct Sale 	<ul style="list-style-type: none"> ■ Sale status <ul style="list-style-type: none"> - Available for sale units:36 - Completed units:0

131-141 Drumul Valea Doftanei Street – Coral Residence

<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Private Developer 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - Apartment
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - close to Subject - 0 - Construction end: December 2019 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 112 planned units - Project is: Under construction - Sale status: On market
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average price: 1000 €/m² - Broker: Direct Sale 	<ul style="list-style-type: none"> ■ Sale status <ul style="list-style-type: none"> - Available for sale units:16 - Completed units:0

25L Brasov Street – Moghioros Park Residence

<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Sido Union Properties 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - Apartment
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - close to Subject - good to bus and Brasov Street 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 1300 planned units - Project is: Under construction

<ul style="list-style-type: none"> - Construction end: December 2019 	<ul style="list-style-type: none"> - Sale status: On market
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average price: 1035 €/m² - Broker: Direct Sale 	<ul style="list-style-type: none"> ■ Sale status <ul style="list-style-type: none"> - Available for sale units:24 - Completed units:144

B-dul Prelungirea Ghencea nr. 350-356 – Dimri West Towers

<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - DIMRI CONSTRUCTION & DEVELOPMENT S.R.L. 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - Apartment
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - close to Subject - bus, residential complex - Construction end: December 2019 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 1004 planned units - Project is: Under construction - Sale status: On market
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average price: 1050 €/m² - Broker: Direct Sale 	<ul style="list-style-type: none"> ■ Sale status <ul style="list-style-type: none"> - Available for sale units:70 - Completed units:600

20A Drumul Cooperatiei Street – Quadra Trees

<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Conarg 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - Apartment
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - immediate to Subject - bus, secondary streets - Construction end: March 2020 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 281 planned units - Project is: Under construction - Sale status: On market
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average price: 1150 €/m² - Broker: Direct Sale 	<ul style="list-style-type: none"> ■ Sale status <ul style="list-style-type: none"> - Available for sale units:110 - Completed units:150

Intrarea Dilorului 36 - Condorului Street – Rim Residence

<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - Private Developer 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - House
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - immediate to Subject - bus, secondary streets - Construction end: December 2018 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 0 planned units - Project is: Finalised - Sale status: Sold out
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average price: 1050 €/m² - Broker: Direct Sale 	<ul style="list-style-type: none"> ■ Sale status <ul style="list-style-type: none"> - Available for sale units:n.a. - Completed units:58

59 Ghidigeni Street – BuRo Garden Residence

<ul style="list-style-type: none"> ■ Developer <ul style="list-style-type: none"> - BuRo Gareden Residence 	<ul style="list-style-type: none"> ■ Development type <ul style="list-style-type: none"> - House
<ul style="list-style-type: none"> ■ Location & Accessibility <ul style="list-style-type: none"> - immediate to Subject - secondary street, bus line within a distance - Construction end: September 2019 	<ul style="list-style-type: none"> ■ Specification <ul style="list-style-type: none"> - 0 planned units - Project is: Under construction - Sale status: On market
<ul style="list-style-type: none"> ■ Key indicators <ul style="list-style-type: none"> - Average price: 679 €/m² - Broker: Direct Sale 	<ul style="list-style-type: none"> ■ Sale status <ul style="list-style-type: none"> - Available for sale units:4 - Completed units:0

C. Case Studies – New District

Rieselfeld Case Study



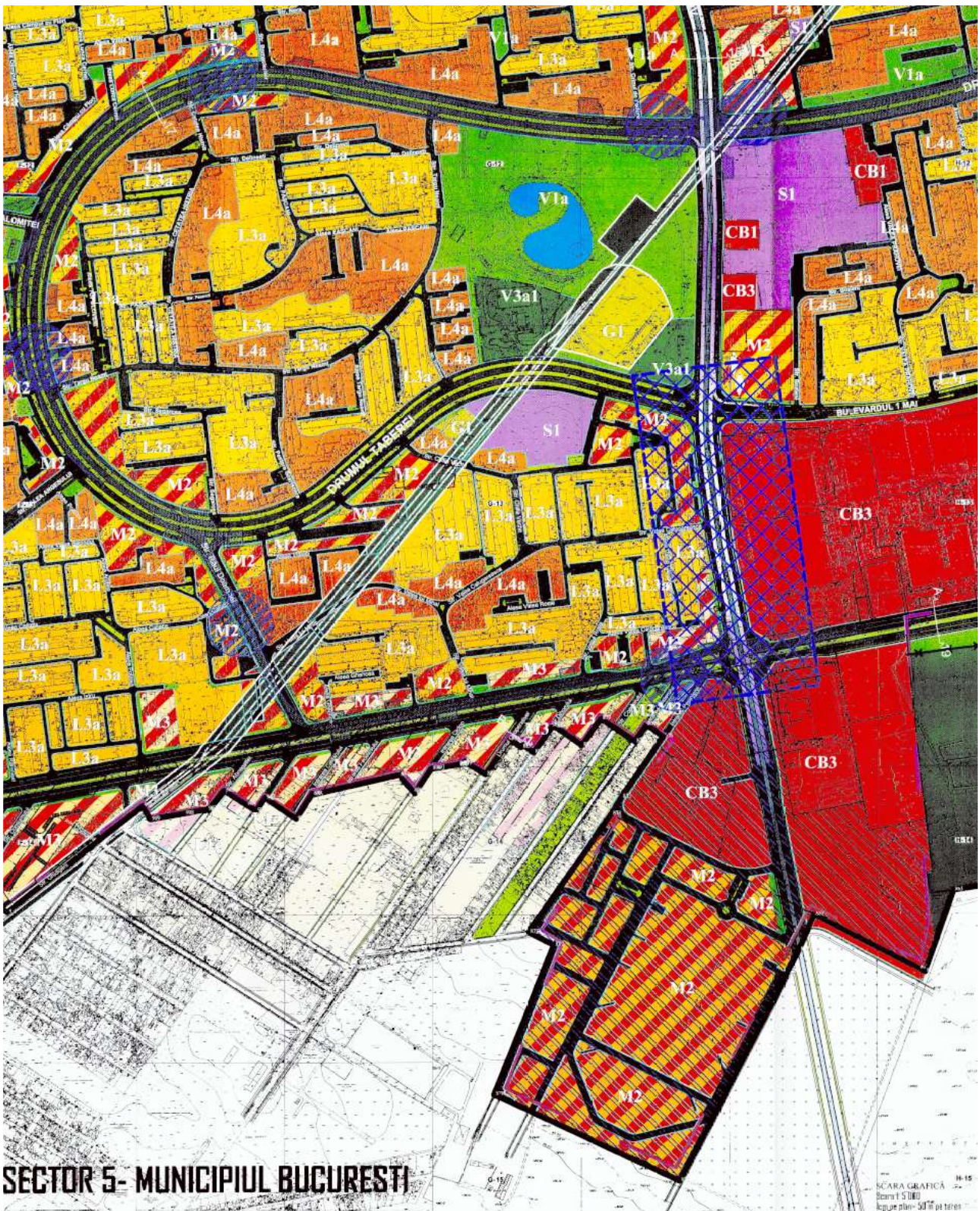
- The new Rieselfeld residential district, in the city of Freiburg, in the state of Baden-Württemberg, Germany, was developed between 1994 and 2012 as a public initiative of the Freiburg City Hall and involving private investors.

- The project includes about 4,200 residential units, providing home to 10,000 – 11,000 people, plus public services and a small commercial component on a total area of around 70 hectares.

- The project started with a main residential component starting from the main road access to the plot. At this stage the main boulevard with a tram line was also built along with the public services.

- The last component to be developed was the retail component situated along the main boulevard.

D. Extract form PUZ Sector 6 – under debate



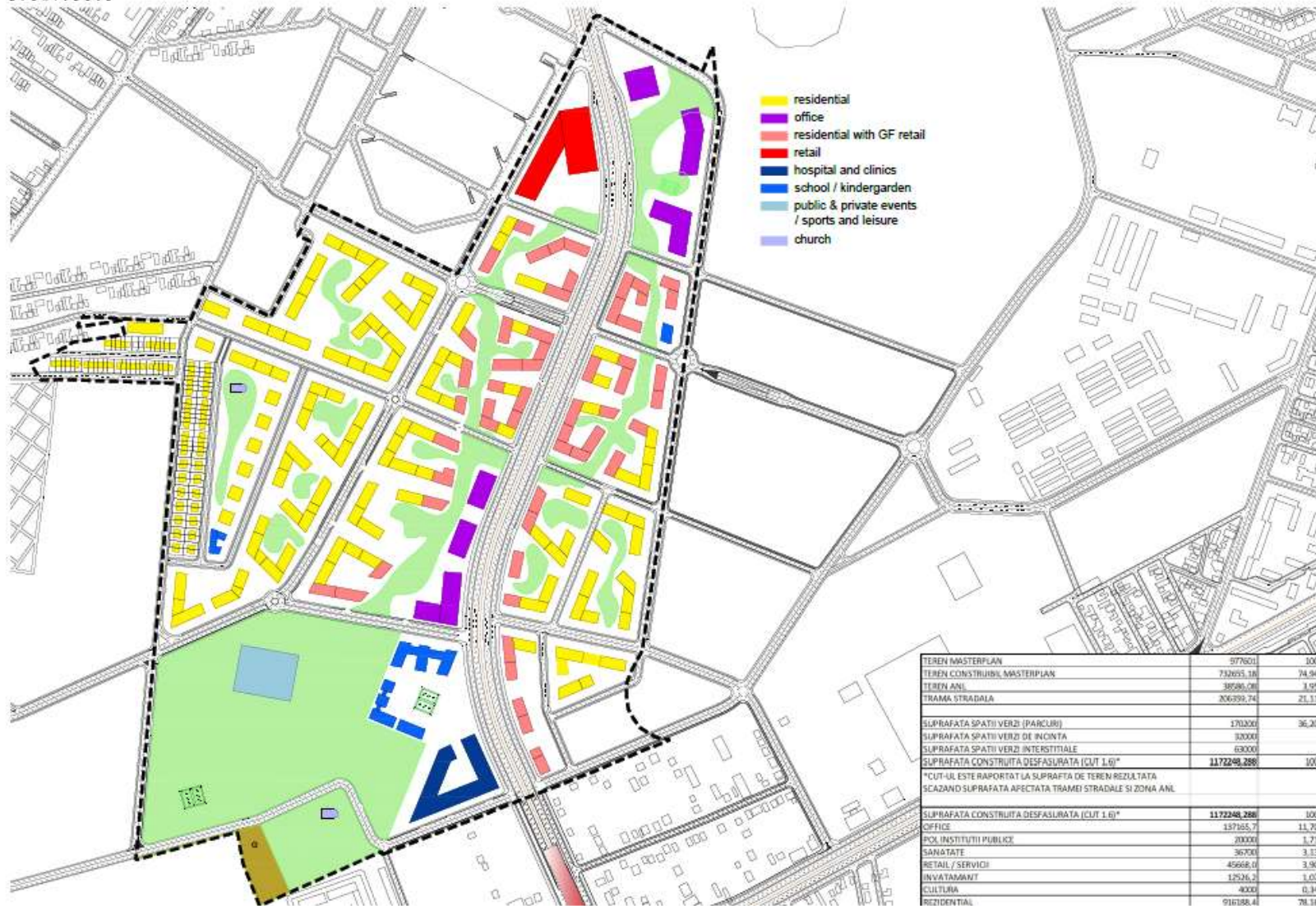
Appendix 4

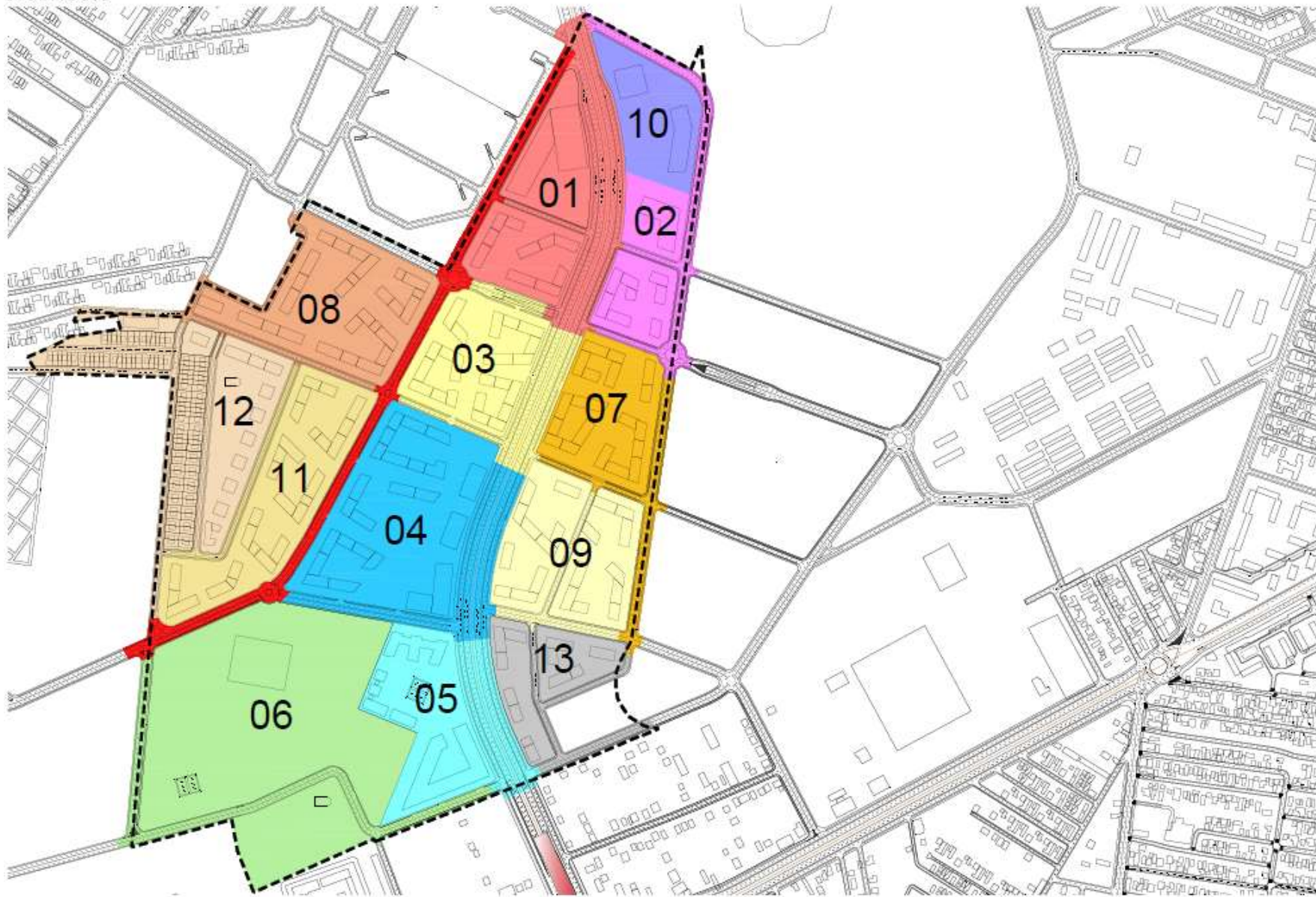
Potential Development

- Architect's View

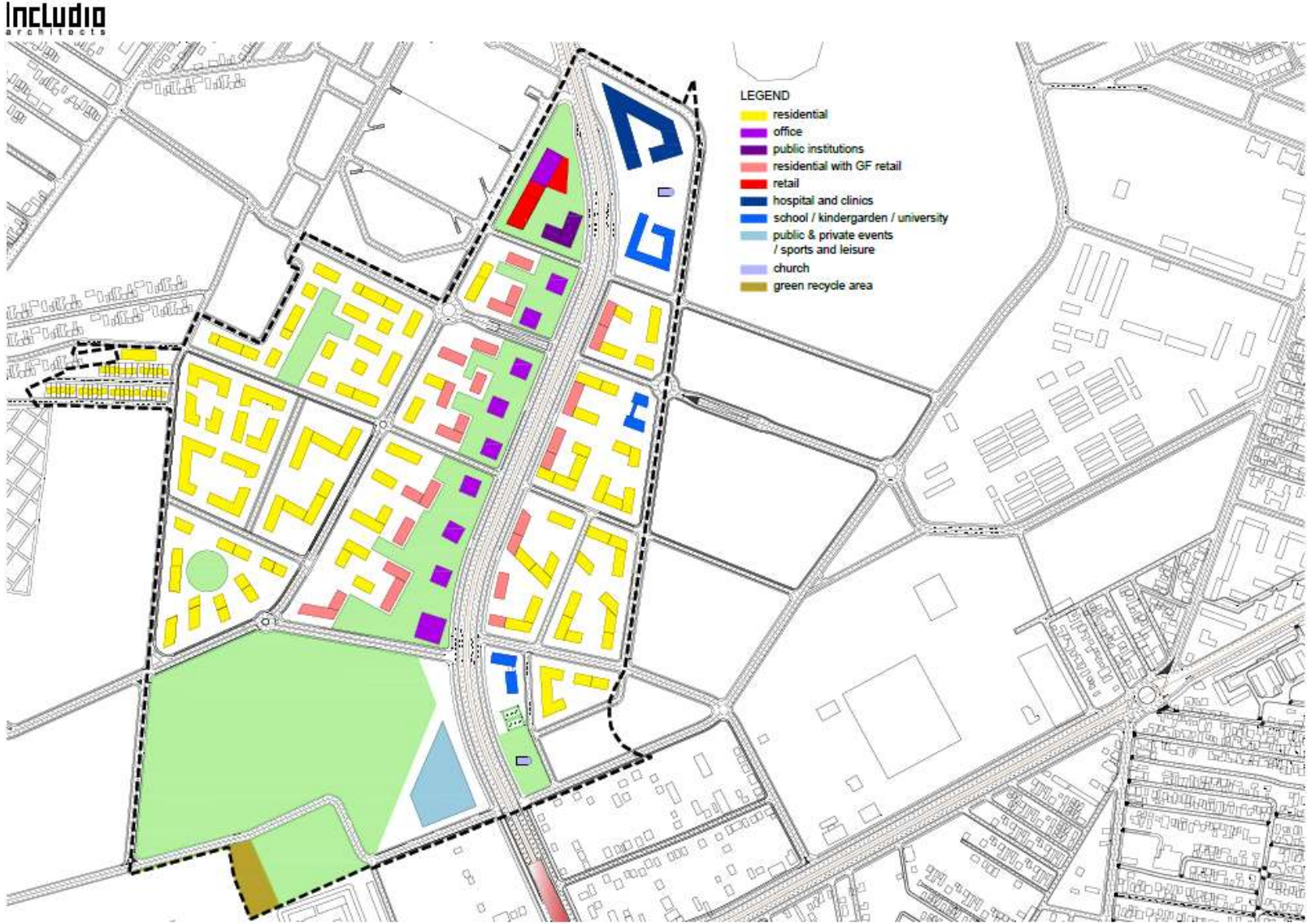
VERSION 1 Scenario: 1. Functions and 2. Phases

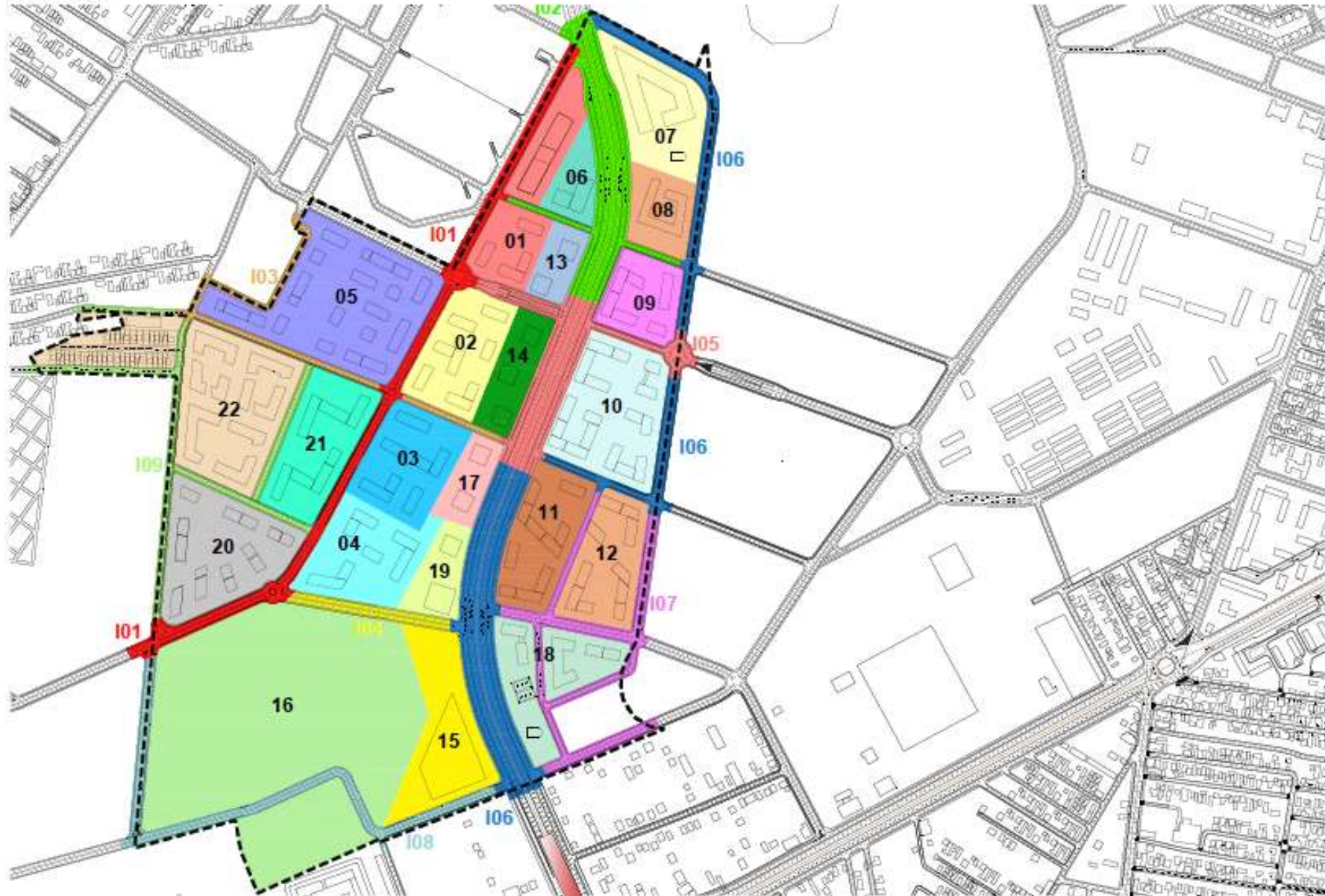
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VERSION 2 Scenario: 1. Functions and 2. Phases

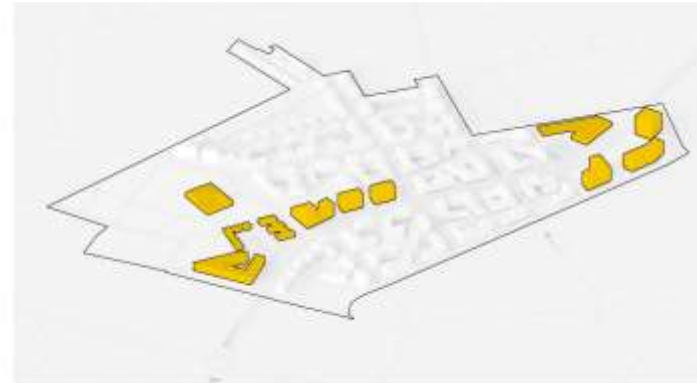






Accessibility

The site is crossed by the city's inner ring road that connects the new urban development to some of Bucharest's most important boulevards: Prelungirea Ghencea, Soseaua Alexandriei, Bulevardul Iuliu Maniu, etc., and to the city center.



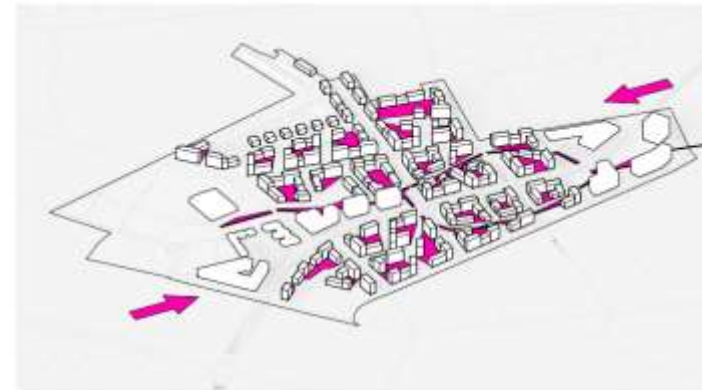
Urban "cores" that generate new development

The proposed „cores“ include office buildings, mixed-function, cultural establishments and public institutions that are interconnected by a grid of public spaces and parks. Located in strategic points of the plot -visible from both entrances in the area- they become kernels that will support the economic and social dynamics, attracting new residential development.



Pedestrian ring- a dynamic scene for social encounters

Along the main pedestrian ring, the masterplan proposes a chain of mixt services on the ground floor of the residential and office buildings, such as: retail, HoReCa, exhibitions spaces, etc. Combined with a variety of public and green spaces, urban follies, this area becomes a dynamic grid that fuels the entire neighborhood throughout day and night.



Residential - know your neighbor

Residential areas are organised into semi-open enclosures where public activities, playgrounds, small parks, shared gardens with fruit and vegetables, transform common living scenarios into a participatory social life, that promotes a sense of safety and belonging amongst neighbors. „Know your neighbor!“ becomes a catch phrase.





Developed areas

VERSION 1

LOTS PER PHASE	PHASE	TOTAL BUILT AREA	RESIDENTIAL	GROUND FLOOR SERVICES AND COMERCIAL	RETAIL	HEALTH	OFFICE	PUBLIC OFFICES	EDUCATION	CULT	CULTURE	INFRASTRUCTURE	LAND AREA
		0											32,535
26,01,02	1	65,222	49,579	5,329	10,314	0	0	0	0	0	0	0	35,865 48,598
23,22,21	2	71,186	30,388	4,460	0	0	34,718	0	1,620	0	0	0	20,462 30,447
03,04,05	3	111,050	102,647	8,403	0	0	0	0	0	0	0	0	22,468 41,359
06,07,08,09,10,11	4	192,773	100,924	5,427	0	0	35,940	50,482	0	0	0	0	26,255 81,554
27,28	5	64,809	0	0	0	48,813	0	0	15,996	0	0	0	44,212 44,669
29,30,31	6	16,388	0	0	0	0	0	0	0	388	16,000	0	20,000 161,894
18,19,20	7	103,483	94,794	8,689	0	0	0	0	0	0	0	0	13,732 40,850
32,33,34,35	8	128,537	128,537	0	0	0	0	0	0	0	0	0	10,407 60,117
14,15,16,17	9	131,302	128,637	2,665	0	0	0	0	0	0	0	0	7,245 53,217
25,24	10	74,205	0	0	0	0	74,205	0	0	0	0	0	0 30,346
47,48,49,50	11	129,351	129,351	0	0	0	0	0	0	0	0	0	6,344 59,391
36,37,38,39,40,41,42,43,44,45,46	12	54,575	52,114	0	0	0	0	0	2,072	388	0	0	12,347 67,945
12,13	13	62,993	59,765	3,228	0	0	0	0	0	0	0	0	10,075 27,879
TOTAL		1,205,874	876,737	38,201	10,314	48,813	144,863	50,482	19,688	777	16,000	229,412	748,266

VERSION 2

LOTS PER PHASE	PHASE	TOTAL BUILT AREA	RESIDENTIAL	GROUND FLOOR SERVICES AND COMMERCIAL IN RESIDENTIAL BUILDINGS	RETAIL	HEALTH	OFFICE	PUBLIC OFFICES	EDUCATION	CULT	CULTURE	LAND AREA
	0											
2,6	1	103,290	37,597	1,438	16,587	0	47,668	0	0	0	0	30,214
15,16,17	2	62,788	60,896	1,170	0	0	0	0	722	0	0	28,277
30	3	69,323	67,595	1,728	0	0	0	0	0	0	0	28,231
31	4	77,040	75,410	1,629	0	0	0	0	0	0	0	29,561
38,39,40	5	63,590	62,625	0	0	0	0	0	965	0	0	39,617
1	6	30,945	0	0	0	0	25,650	5,296	0	0	0	10,376
3,4	7	56,338	0	0	0	55,949	0	0	0	388	0	32,769
5	8	5,009	0	0	0	0	0	0	5,009	0	0	10,654
8,9	9	43,327	41,977	1,350	0	0	0	0	0	0	0	17,370
19,20,21,22	10	101,338	95,414	3,703	0	0	0	0	2,220	0	0	40,855
34,35	11	82,616	79,656	2,960	0	0	0	0	0	0	0	27,441
36,37	12	60,556	60,556	0	0	0	0	0	0	0	0	25,776
7	13	12,375	0	0	0	0	12,375	0	0	0	0	7,996
18	14	37,500	0	0	0	0	37,500	0	0	0	0	13,082
42	15	33,000	0	0	0	0	0	0	0	0	33,000	25,345
41,46,47	16	0	0	0	0	0	0	0	0	0	0	181,228
32	17	25,879	0	0	0	0	25,879	0	0	0	0	13,786
43,44,45	18	35,191	31,710	0	0	0	0	0	3,093	388	0	27,879
33	19	32,365	0	0	0	0	32,365	0	0	0	0	9,976
10,11,12,13,14	20	114,343	113,263	0	0	0	0	0	1,080	0	0	60,117
28,29	21	65,320	65,320	0	0	0	0	0	0	0	0	29,975
23,24,25,26,27	22	96,558	96,558	0	0	0	0	0	0	0	0	62,237
TOTAL		1,208,690	888,577	13,979	16,587	55,949	181,436	5,296	13,089	777	33,000	752,762

Commentaries regarding the infrastructure

Road	Estimated area m ²
I01	32,535
I02	32,755
I03	45,709
I04	6,462
I05	28,986
I06	42,480
I07	22,755
I08	20,000
I09	21,146

General Commentaries regarding utilities

The functionality of the Masterplan is conditioned by the existence of utilities.

For the **water** supply it's necessary to extend the existing water supply network in the area and ensure a flow rate of approx. 125 l / s. At the same time, water supply will be provided for ensuring the fire reserve, compensating the consumption flow and raising the pressure. A gravitational extension of the sewage network as a separate system is needed.

As the existing **sewage network** in the area does not have the capacities to collect the rainwater flow collected from the surface of approx. 97.7 ha, it is necessary to provide rainwater retention basins with a total volume of about 22000mc and pumping stations for their evacuation in the existing sewage network or natural emissary, according to the conditions imposed by the Apa Nova Bucharest permit. The development of the site on "Phases" requires the development of a solution study for the municipal equipment, so that the expansion of the water-channel networks and the related capacities can be functionally correlated with the "phases".

GAS CONSUMPTION

PHASE	PLOTS PER PHASE	TOTAL BUILT AREA SQM	GAS CONSUMPTION NMC/H	MONTH GAS CONSUMPTION NMC/MONTH
1	26,01,02	65222.0	1160	835200
2	23,22,21	71185.7	1420	1022400
3	03,04,05	111050.0	1870	1346400
4	06,07,08,09,10,11	192772.8	3440	2476800
5	27,28	64809.0	1200	864000
6	29,30,31	16388.4	340	244800
7	18,19,20	103483.0	1880	1353600
8	32,33,34,35	128537.3	2400	1728000
9	14,15,16,17	131302.0	2550	1836000
10	25,24	74205.0	1200	864000
11	47,48,49,50	129350.8	2400	1728000

PHASE	PLOTS PER PHASE	TOTAL BUILT AREA SQM	GAS CONSUMPTION NMC/H	MONTH GAS CONSUMPTION NMC/MONTH
12	36,37,38,39,40,41,42,43,44,45,46	54574.8	820	590400
13	12,13	62993.4	1020	734400
TOTAL		1205874.2	21700	15624000

ELECTRICAL CONSUMPTION

PHASE	PLOTS / PHASE	TOTAL BUILT AREA SQM	ELECTRICAL POWER CONSUMPTION USED (MW)	ELECTRICAL POWER CONSUMPTION ABSORBED (MW)
1	26,01,02	65222.0	4.7	3.2
2	23,22,21	71185.7	6.4	4.4
3	03,04,05	111050.0	6.4	4.3
4	06,07,08,09,10,11	192772.8	16.3	11.1
5	27,28	64809.0	11.8	8.0
6	29,30,31	16388.4	1.8	1.3
7	18,19,20	103483.0	5.9	4.0
8	32,33,34,35	128537.3	6.5	4.4
9	14,15,16,17	131302.0	6.8	4.6
10	25,24	74205.0	8.9	6.1
11	47,48,49,50	129350.8	6.5	4.4
12	36,37,38,39,40,41,42,43,44,45,46	54574.8	2.7	1.9
13	12,13	62993.4	3.5	2.4
TOTAL		1205874.2	88.4	60.1

