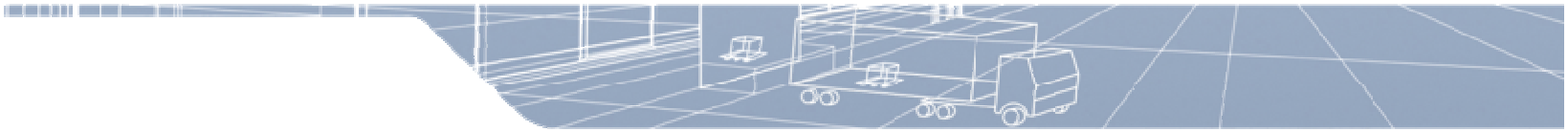

SUGAR

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Joint Planning Exercise
General presentation of the city
Municipality of Palma

CO-FINANCED BY EUROPEN REGIONAL DEVELOPMENT FUND

RegioneEmilia-Romagna

INTERREG IVC

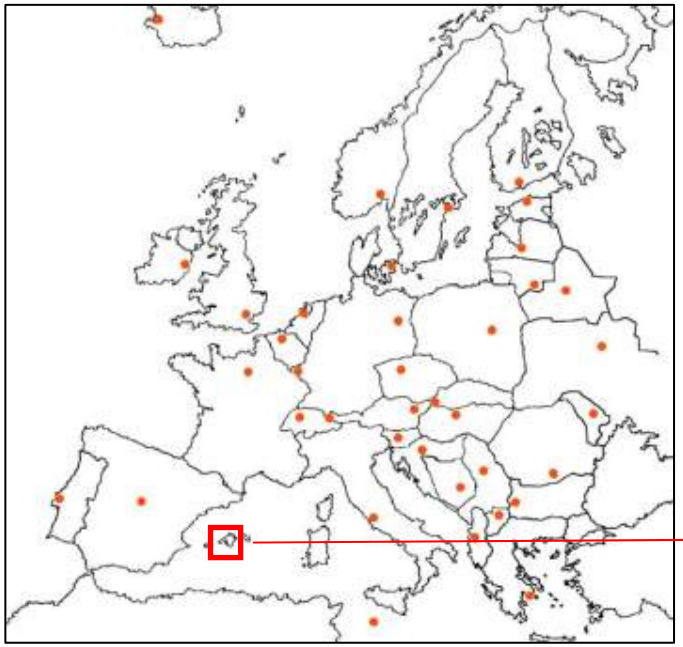
Made possible by the INTERREG IVC programme

Contents

1. The municipality: geography and territorial analysis

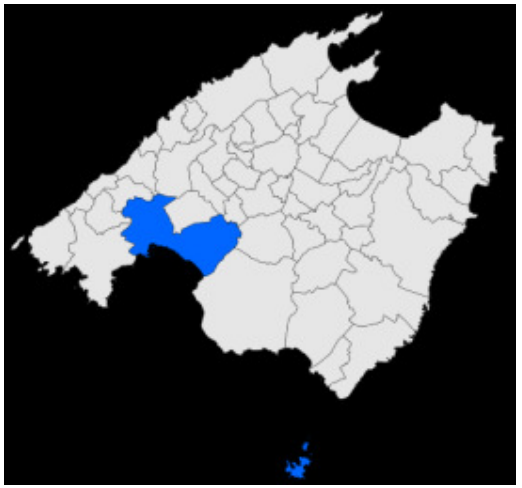
1.1 Geography and location

• The **Balearic archipelago** is located in the western Mediterranean Sea, being one of the most tourist and dynamic economic regions throughout Spain.



• The **city of Palma** is located on the west coast of the island of **Mallorca**, forming the archipelago's capital and main **population center** of the island, gathering most of the economic and social activities. Moreover, as we will see later, is the pole of **concentration** of most of the facilities, services and infrastructures in the region.

• The municipality has an area of **208.6 km²**, being the third largest in Majorca.



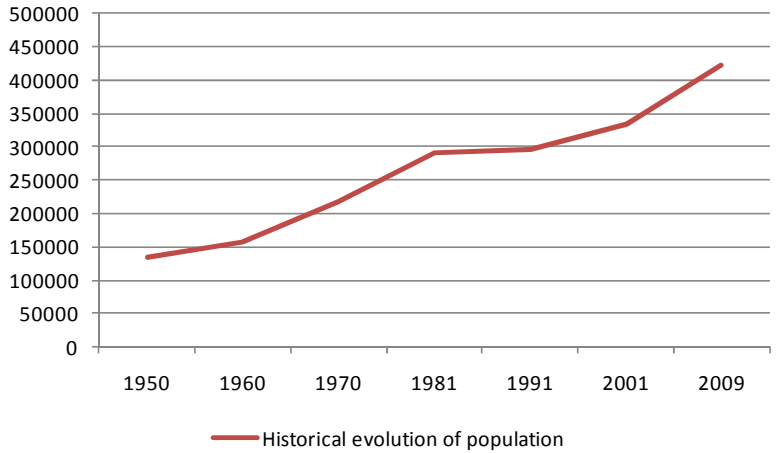
1. The municipality: geography and territorial analysis

1.2 Population analysis

• The city of Palma is one of the most dynamic urban areas of Spain. Since the adoption of Stabilization Plans (1959), its economy has been characterized by a continuous growth addressed to **services**, with **tourism** as a vital source of income. This economic development led to a first major **wave of immigration**, with people coming from the rest of the State.

• Secondly, in the 90's, the intensification of **trade relations** with foreign states and the high levels of quality of life gained, motivated the activation of new intense waves of immigration, being the emitters focus in developing countries and countries in northern Europe. The motivations of each social group were very different: search of better living conditions or search for a leisure space where to spend their jubilation.

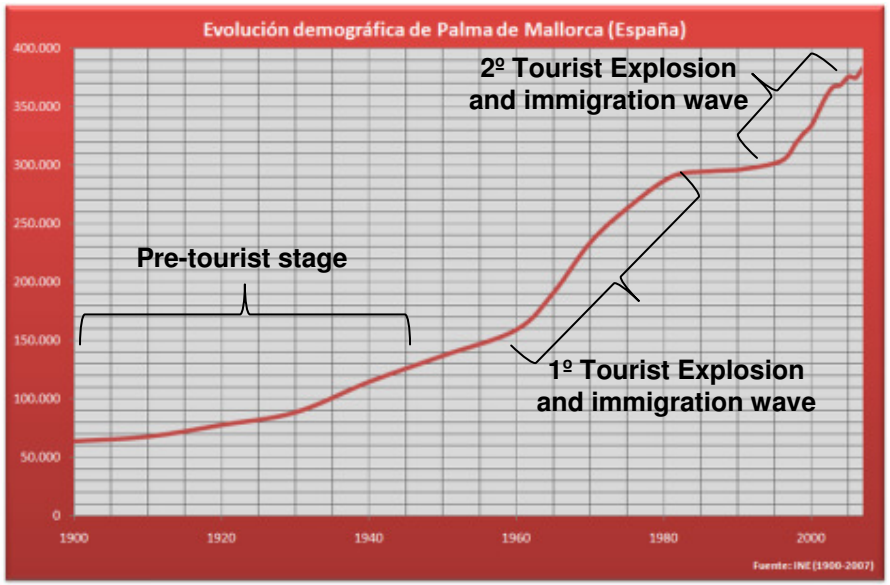
• The direct outcome of these economic and demographic factors, has resulted in a **sustained increase of the population**, from 133.397 inhabitants in year 1950 (pre-tourism stage), to a population of 422.387 by today. (consolidated tourist stage).



1. The municipality: geography and territorial analysis

• Moreover, if we follow the references given by the National Institute of Statistics, demographic trends can be determined from the municipality since the beginning of the twentieth century.

• As it can be seen, growth has been spectacular, particularly during the period included between the year 1960-1980 and 1990-2005 (corresponding to the two great waves of immigration).



Year	Municipality	Interanual Growth	Absolute Growth
1998	319.181	-	-
1999	326.993	2,4%	2,4%
2000	333.925	2,1%	4,6%
2001	346.720	3,8%	8,6%
2002	358.462	3,4%	12,3%
2003	367.277	2,5%	15,1%
2004	368.974	0,5%	15,6%
2005	375.773	1,8%	17,7%
2006	375.048	-0,2%	17,5%
2007	383.107	2,1%	20,0%
2008	396.570	3,5%	24,2%
2009			-100,0%

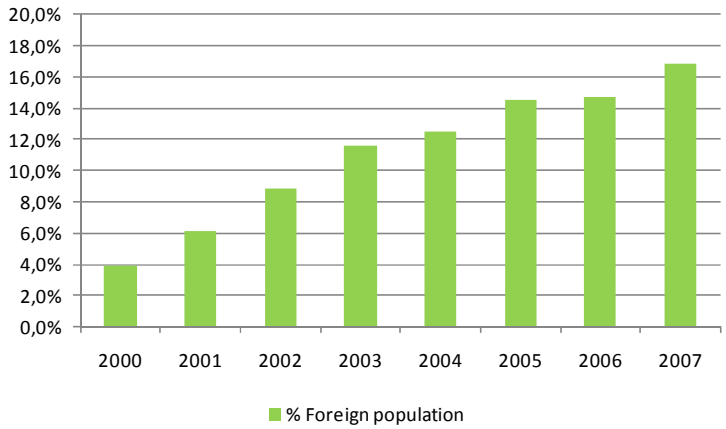
• The table on the left, reflects the evolution of this population. According to these data, there has been an average year growth of **2,2%** over the last decade, with an absolute growth of **24%** for the period 1998-2008. The most dynamic population moment corresponds to the beginning of the XXIst century and the last years of this decade.

1. The municipality: geography and territorial analysis

• There are two phenomena that help to understand the large population growth produced during the last decade:

• **Natural growth**, therefore endogenous growth, has been weak over the last decade, although it has been reactivated recently, perhaps motivated by the different fertility rates of the foreign population from developing countries.

	2000	2001	2002	2003	2004	2005	2006	2007
Births	3.587	3.748	4.519	4.621	4.671	4.585	4.359	4.492
Deaths	3.045	3.167	3.146	3.084	3.103	3.134	2.888	3.152
Natural growth	**542**	**581**	**1.373**	**1.537**	**1.568**	**1.451**	**1.471**	**1.340**



• On the other hand, the **foreign population** has an increasingly higher specific weight. Thus, their representation has shown an increase from a **4%** by 2000, to more than **18%** today.

Year	National pop.	%	Foreign pop.	%	Total	%
2000	320.960	96,1%	12.965	3,9%	333.925	100,0%
2001	325.324	93,8%	21.396	6,2%	346.720	100,0%
2002	326.725	91,1%	31.737	8,9%	358.462	100,0%
2003	324.734	88,4%	42.543	11,6%	367.277	100,0%
2004	322.823	87,5%	46.151	12,5%	368.974	100,0%
2005	321.350	85,5%	54.423	14,5%	375.773	100,0%
2006	319.818	85,3%	55.230	14,7%	375.048	100,0%
2007	318.541	83,1%	64.566	16,9%	383.107	100,0%

1. The municipality: geography and territorial analysis

• The **demographic distribution** depends on the census unit considered. This distribution differs in three major areas: the **Old Town**, the **city** and **outlying suburbs**.

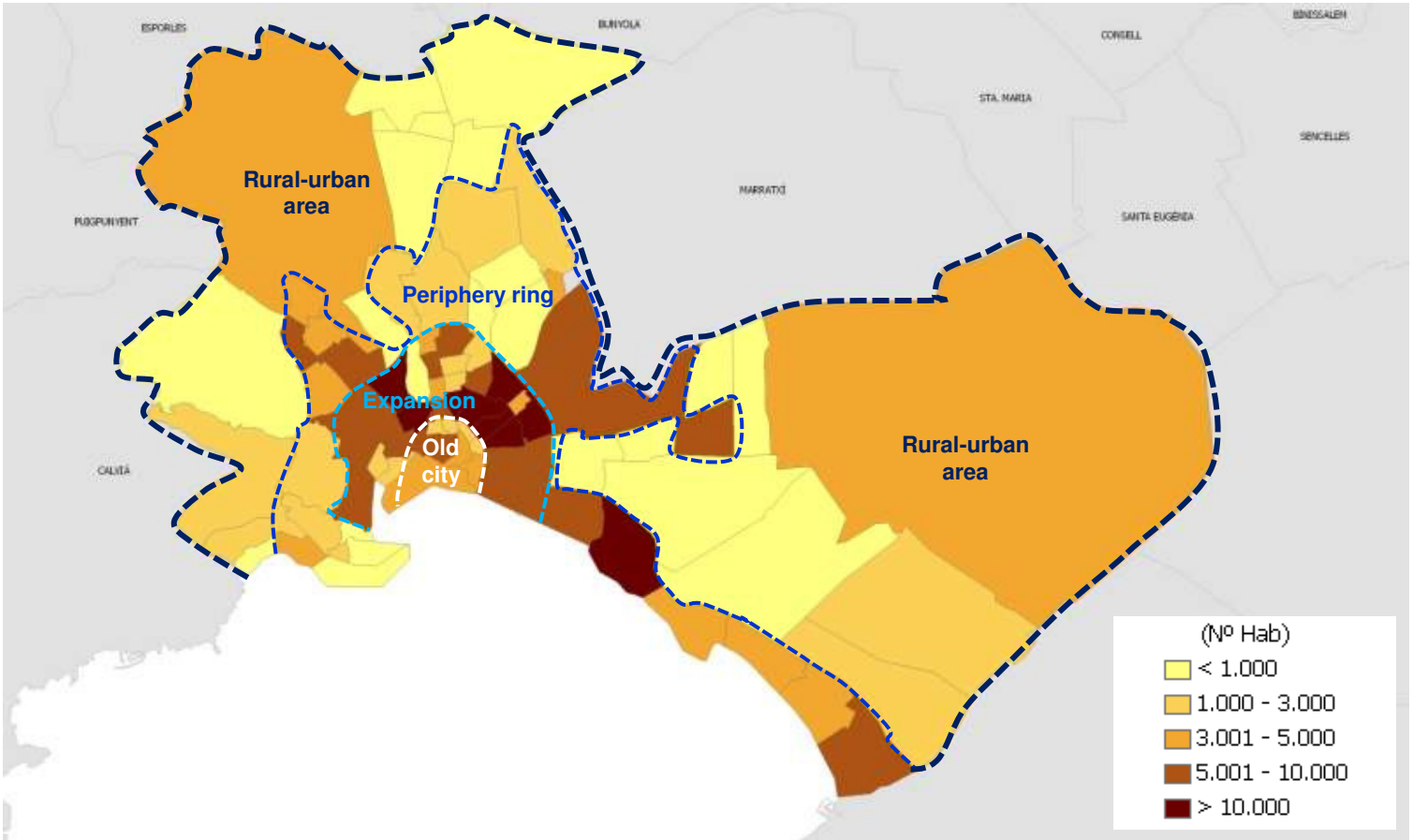
a)The old town. It is characterized by low population density, with a strong presence of businesses, commercial facilities and tourist attractions. The old city gathered the major part of the population until the late nineteenth century.

b)The expansion area. This is the area that absorbed the first demographic explosion of the city. It is the space that surrounds the old city, with very high densities.

c)The periphery. Comprises the whole set of satellite suburbs. The suburban area/ urban sprawl started to expand in the late 50's but it exploded after the 80's with the massive use of private cars. In terms of population, underscores the urban corridor of Palma – Inca and tourist corredor of Palma – Platja de Palma, which are dense. However, most of the periphery is composed by low density urban areas.

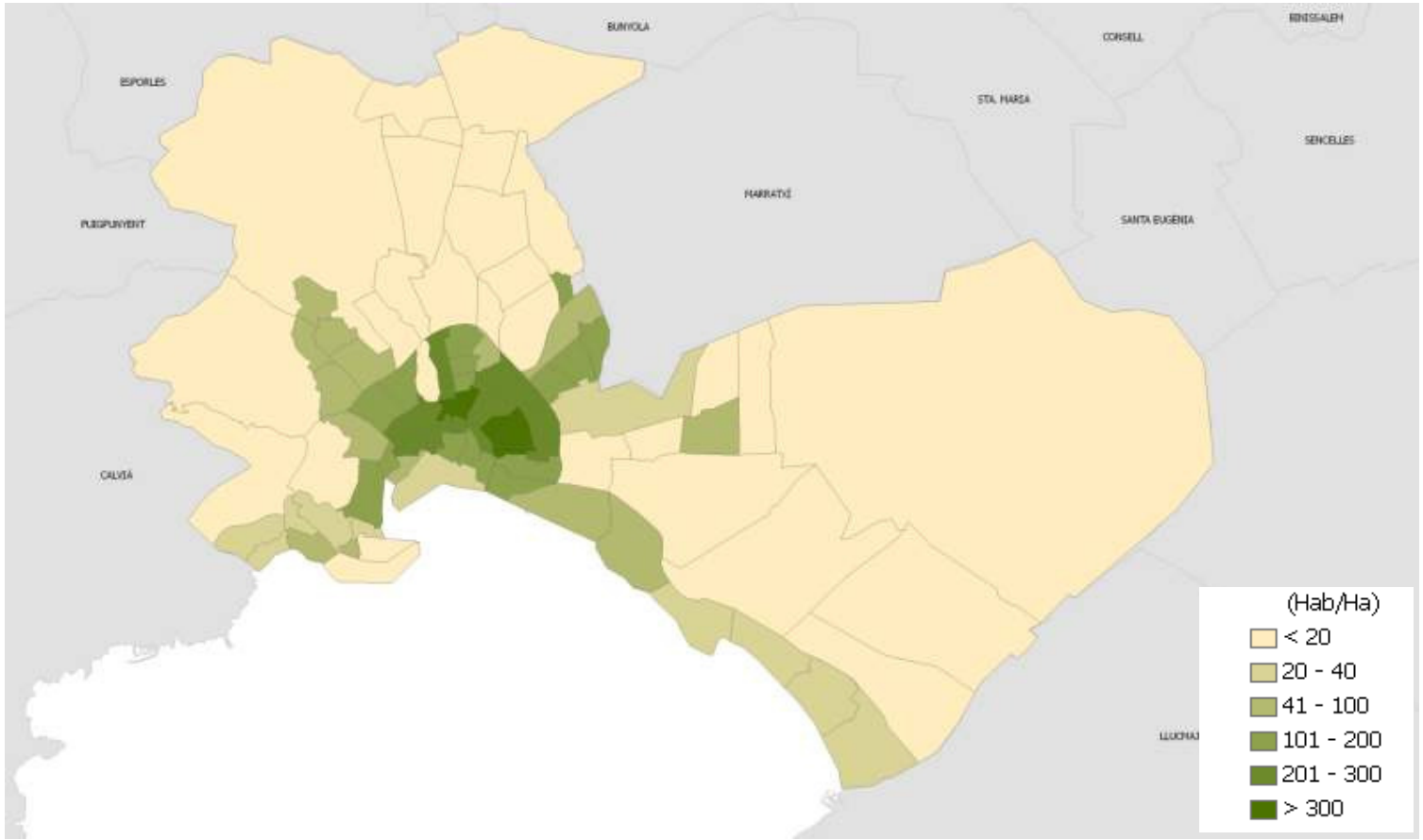
1. The municipality: geography and territorial analysis

• The map indicates the **concentration of population** by sections. As mentioned, this focuses on areas close to the Eixample and certain peripheral urban corridors.



1. The municipality: geography and territorial analysis

•The **density** of each section shows that the districts with the highest population per hectare are those in the Eixample, the seafront fringe and the urban corridor to Inca, with values always over **100** inhabitants / hectare.



1. The municipality: geography and territorial analysis

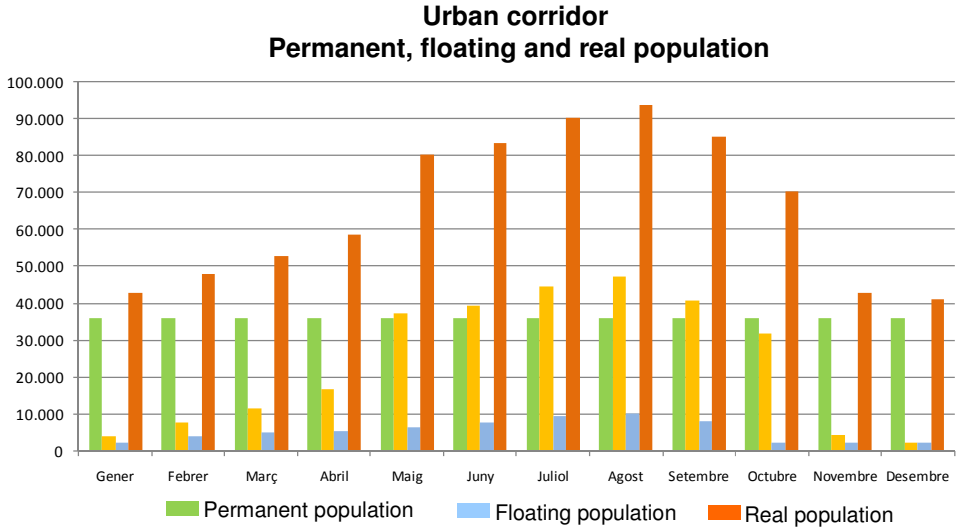
• The **Platja de Palma** strip is an area with a mixture of land uses, mainly residential or touristic, depending on the specific section analysed. Overall, the urban fringe has a resident population of approximately **36.695** inhabitants (referred to 1 January 2008).

Town	2008	%
es Coll d'en Rabassa	10.273	28%
Can Pastilla	5.175	14%
Platja de Palma	11.040	30%
s'Arenal	10.207	28%
Total corridor	**36.695**	**100%**

1. The municipality: geography and territorial analysis

• In addition, the volume of floating population linked to non-legal accommodation is quite important. Thus, appreciating aggregated data for the whole urban fringe of Playa de Palma, we proceed to calculate the total volume of floating population and, therefore, the final volume "true" population by month of the year.

• It can be observed how, during high season, the real population remains above the threshold of **80.000** inhabitants, reaching a maximum peak in summer (August), with around **94.000** inhabitants (it means the resident population is multiplied by 2,6).



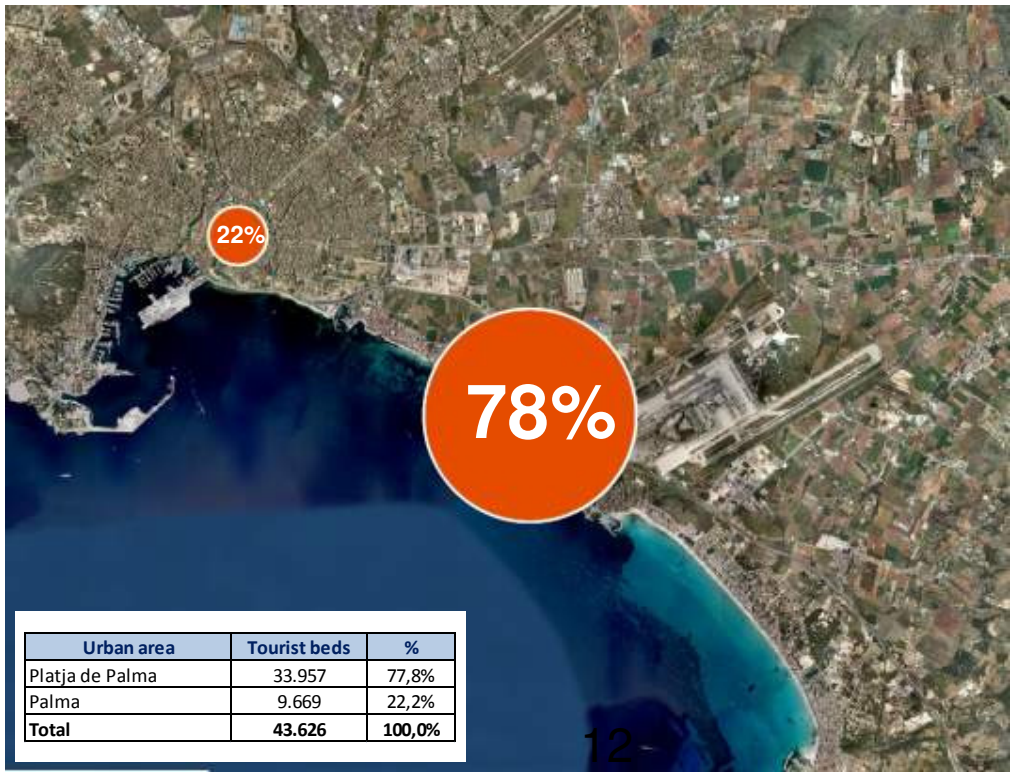
Month	Real population	Seasonality rate
Gener	42.835	65,0%
Febrer	48.007	72,8%
Març	52.920	80,3%
Abril	58.859	89,3%
Maig	80.293	121,8%
Juny	83.530	126,7%
Juliol	90.511	137,3%
Agost	93.930	142,5%
Setembre	85.373	129,5%
Octubre	70.588	107,1%
Novembre	42.884	65,1%
Desembre	41.103	62,4%
Average	**65.903**	**100,0%**

1. The municipality: geography and territorial analysis

• Therefore, we conclude that **78%** of the total capacity of legal tourist accommodation in the municipality is concentrated in Platja de Palma (**33.957** beds), while the city centre (urban tourism) represents the remaining 22% (approximately **9.669** beds).

• Knowing the location of most tourist accommodation (and therefore much of the supplementary) is important in order to determine potential freight traffic flows. In particular, more than **750** stores are located in this corridor.

Typology	Establishments	%
Bar, café	216	17,7%
Restaurant	237	19,4%
Retail	766	62,8%
Total	**1.219**	**100,0%**

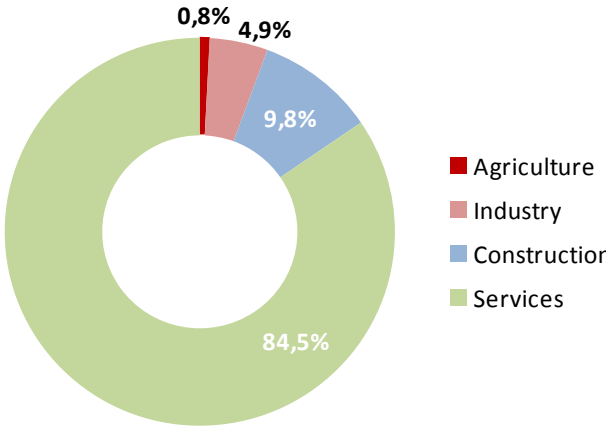


1. The municipality: geography and territorial analysis

1.3 Economic structure

• The volume of freight traffic can vary depending on the type and importance of the existing **productive city network**. Therefore, to study how the **economic activity** is structured and located is needed in order to determine the theoretical model of behavior of this type of traffic.

• According to the social security system figures, almost the entire economy is related to the **services sector**, which absorbs more than **80%** of the employees. Moreover, the construction sector represents the **10%**, and industrial activities a low **5%**. Finally, with residual nature, agriculture reaches less than a symbolic **1%**.



1. The municipality: geography and territorial analysis

• Regarding the number of companies registered in the municipality, these are about **19.329** (2007).

Sector	Companies	%
Agriculture	15.718	81,3%
Industry	1.062	5,5%
Construction	2.323	12,0%
Services	226	1,2%
Total	**19.329**	**100,0%**

• Among them, **80%** were included within the services sector, followed by a **12%** belonging to construction, **5,5%** to industry and **1,2%** to agriculture.

• Therefore, underlines the strong dependence of the city with services, and especially the poor industrial footprint of the productive network. This last fact is apparent when analyzing the functional nature of industrial land in the capital (industrial estates), which can be considered as areas for the storage of goods and for the provision of services rather than to produce and / or transform.

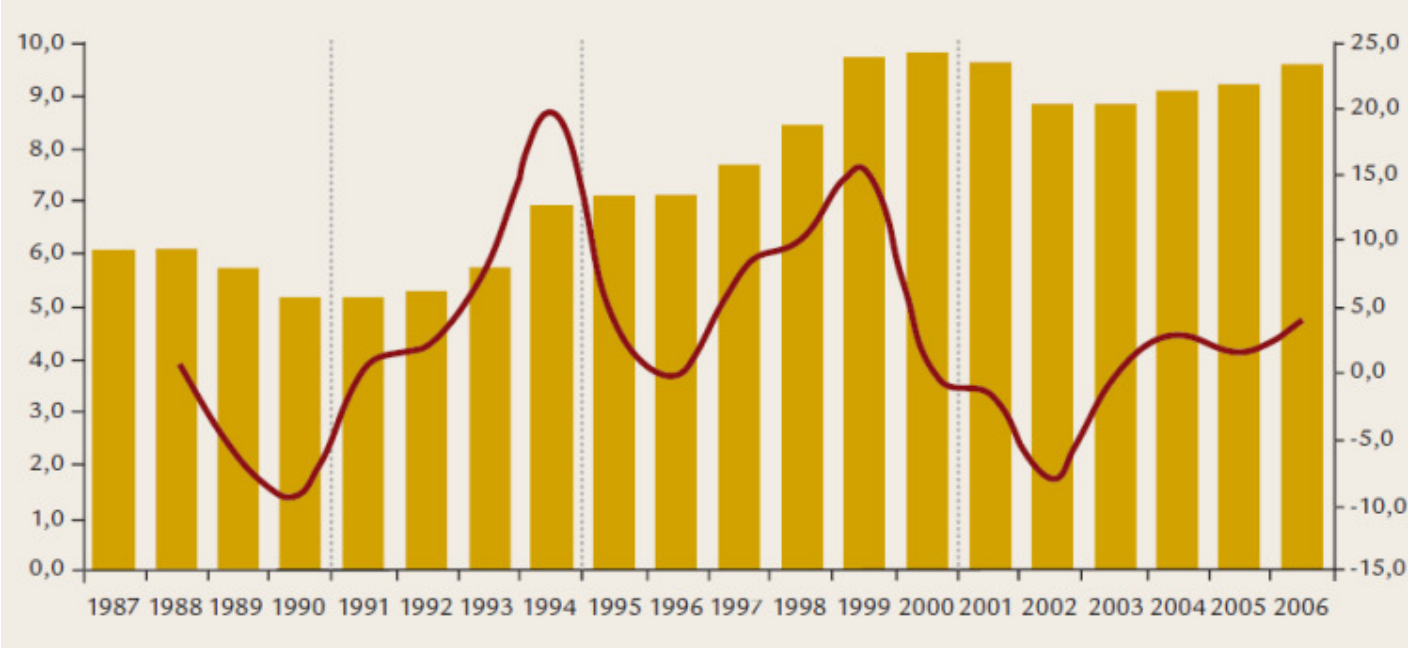
• According to data collected from the Social Security Institute, the number of companies linked to commercial activities reaches nearly **3.800** stores.

Type of company	Companies	%
Wholesale	1.084	28,9%
Retails	2.671	71,1%
Total	**3.755**	**100,0%**

1. The municipality: geography and territorial analysis

• The graph below reflects the **evolution** of the number of tourists throughout much of the twentieth century. With this image, we want to understand the importance of tourism as an economic activity. It is observed that the trend, except for very specific periods, has continuously increased since the arrival of the first tourists to the island. In addition, during the last decade of the 20th century, the rhythm of growth showed an increase of about 1 million/year. During the last year, the number of arrivals has been stabilized around 9 million/year.

Tourist arrivals to Mallorca

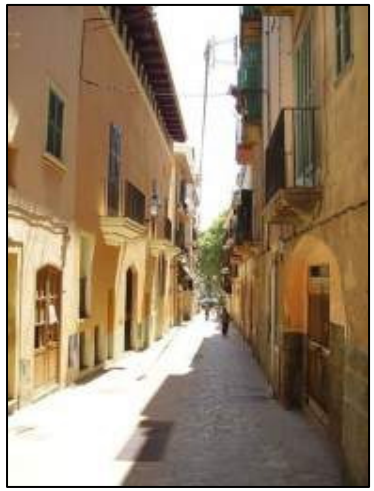


2. Urban morphology, land use and road network

2.1 Historical development and construction of the city

• The city of Palma has its origin in the current location of Almudaina Palace, where the former settlement of Sa Riera mouth of the river, a strategic point for controlling the bay of Palma as well as immediate access to large areas of agricultural production. Here took place the Roman settlement (123 BC), with an urban structure of regular ground, rectangular streets with well-defined perimeters.

• During the Muslim domination (centuries VIII-XI), it was developed a totally different type of urban structure, with irregular streets, narrow lanes and labyrinthine morphologies. During this period the city had spread to almost the inner ring that today define the "avenues" (medieval period). It is important to take into account these morphologies therefore represent an important condition for the distribution of goods.



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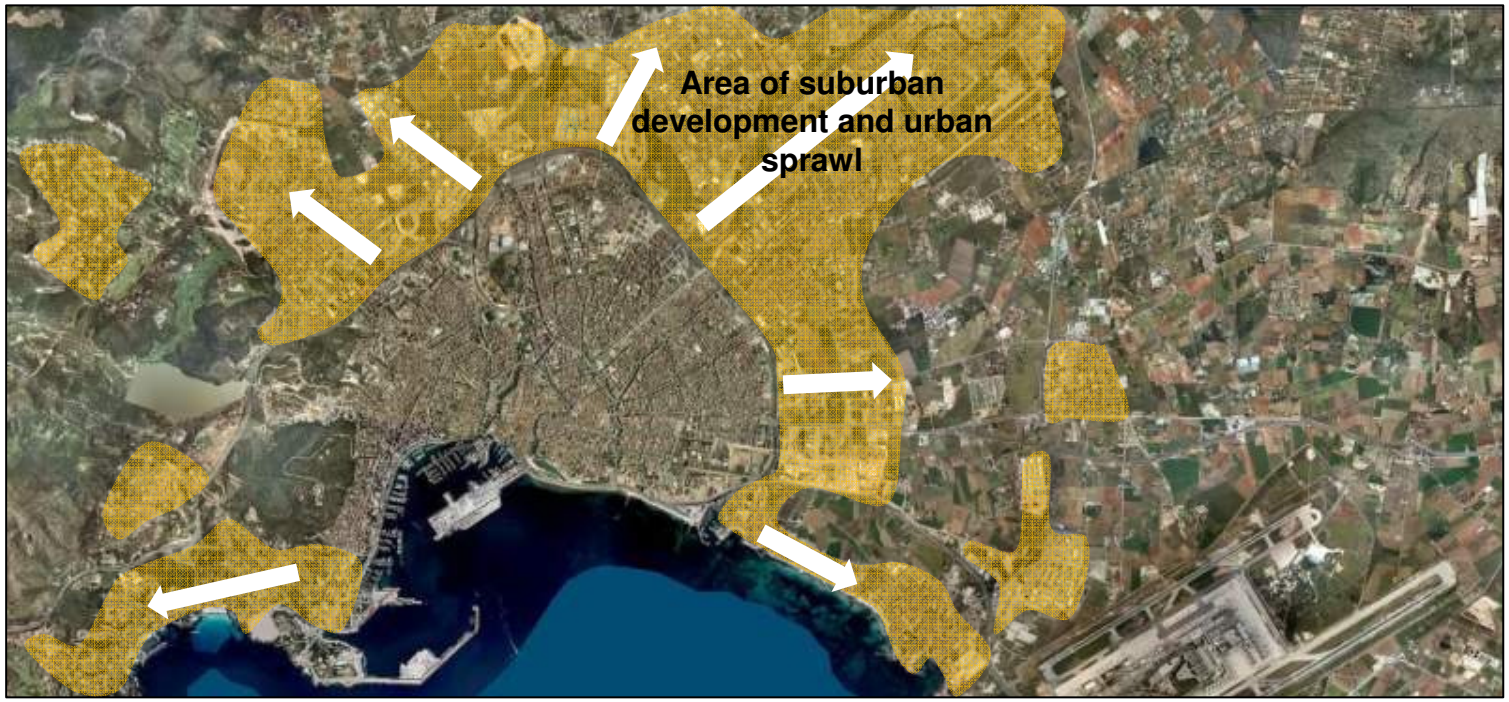
2. Urban morphology, land use and road network

2.2 City's model evolution: dispersed city and functionality of urban and suburban space

• The current **city model** is a juxtaposition of the structures established in the past and the economic and demographic trends that have characterized the last decade. The main feature of the current model is the dispersion of urban land uses, colonizing the suburban fringe outside the city ring known as the highway Ma-20 or **"via de cintura",** which served as a retaining wall that "controlled" the expansion of the city during a few decades beyond these limits.

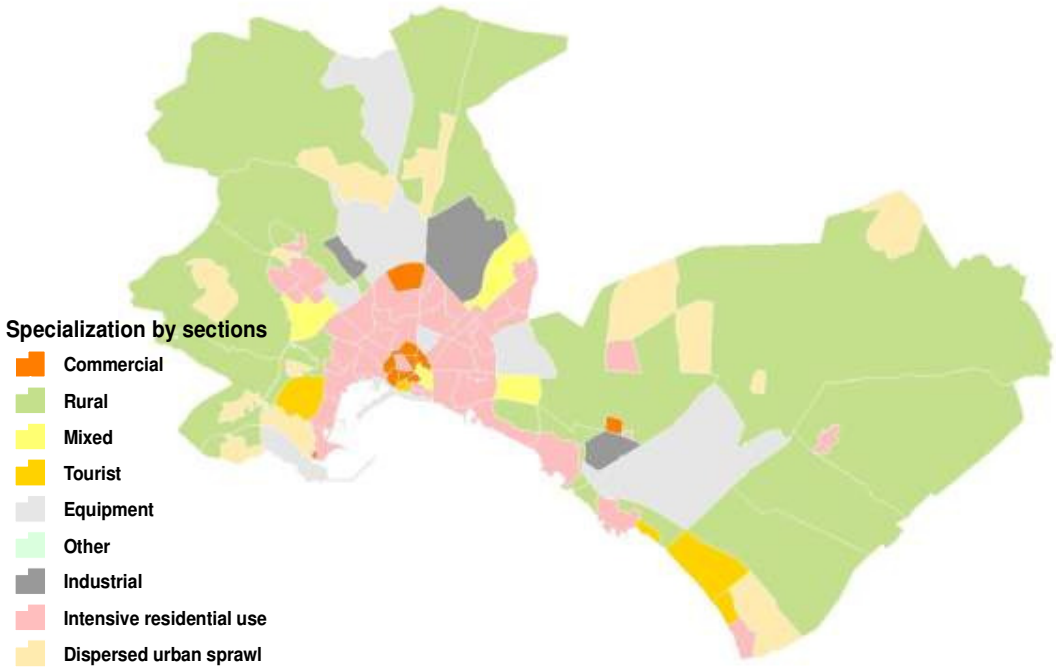


2. Urban morphology, land use and road network

• Thus, in recent decades the corridor Palma - Inca, the corridor of the Platja de Palma and numerous residential estates with an extensive horizontal use of the land have been developed rapidly. Three trends dominate: urban sprawl, concentration and urban developments in the seafront and conurbation processes. In parallel, the Internal Reform Plans (PERI's) have been implemented in different parts of the old city (Puig de Sant Pere, sa Gerreria, sa Calatrava), in order to avoid their progressive degradation. The result is a revival of these areas from the residential, commercial and tourist point of view (phenomenon of gentrification).

• The result of all this is a new urban functionality, where each section of the city has a dominant role in terms of predominant specific land use.

• The map on the right represents the functionality of each section. There is a predominance of residential uses. On the other hand, it is needed to stress the importance of the old city from the commercial standpoint.



2. Urban morphology, land use and road network

• The territorial articulation of Palma has a close link with the constant growth in the rate of motorization (around 516 cars/1.000 inhabitants, according to municipal sources), which has contributed to a continuous development of the road network and other infrastructures and facilities.

• The most important civil work carried out has been the construction of the city ring ("via de cintura"), the highway that surrounds Palma, which was designed in 1973 and fully completed in the early 90's.

• It has an approximate length of 11km, and its total cost was over 60M€.

• The reasons for its construction were mainly: provide cross accessibility to the Eixample and connect with the main gates of the city. It was seen as a solution for reducing traffic congestion in the internal avenues. Until then, the freight traffic had to pass these avenues to get to the industrial estates.

2. Urban morphology, land use and road network

• Within the analysis of freight traffic, takes special interest to know the commercial and industrial centers, since they act as key areas in terms of distribution of goods.

INDUSTRIAL LAND USE: "Storage and service" estates

• As a result of the economic and demographic development that began in the late 60's, Palma needed to move former land occupied by industries to the periphery. Thus, in the late 60's appeared Son Castelló industrial estate and, in the late 70's, Can Valero.

• The municipality focuses almost 30% of total island's industrial land. In particular, Son Castelló represents half of the available industrial land in Palma, while the rest is split equally among other smaller estates.

Industrial Estate	Extension (ha)	%
Son Castelló	216	48,0%
Can Valero	52	11,6%
Mercapalma	50	11,1%
Son Oms	49	10,9%
Resta sòl industrial	83	18,4%
Total municipality	**450**	**100,0%**
Total Mallorca	**1.560**	

2. Urban morphology, land use and road network

• Regarding freight traffic, and until the year 2008, the actions of loading and unloading take place directly occupying the public road, thereby obstructing traffic.

• Moreover, with corrective purposes, was created the Local Regulation of Activities (23/12/2008), which includes an article (Art. 11) which obliges all warehouses over 200m2 and all commercial stores over 500m2 to install loading/unloading facilities inside the property.

• However, it is noted that most of the vehicles carrying goods continue still carry out on-street loading and unloading activities, although there are delivery bays inside the companie's facilities.

2. Urban morphology, land use and road network

COMMERCIAL LAND USE: commercial areas and freight attraction points.

• Secondly, the distribution of commercial uses is important because it is a good indicator of which areas are more likely to demand goods.

• Rescuing the map of functionality by municipal sections, it stands out as eminently commercial spaces:

a)the historic center (especially between the outer avenues and the Muslim town).

b)the Eixample (expansion), which surrounds the historic center.

c)the northern edge of the city.

d)other areas where uses are mixed: the west area, seafront, tourist areas and major urban arteries.

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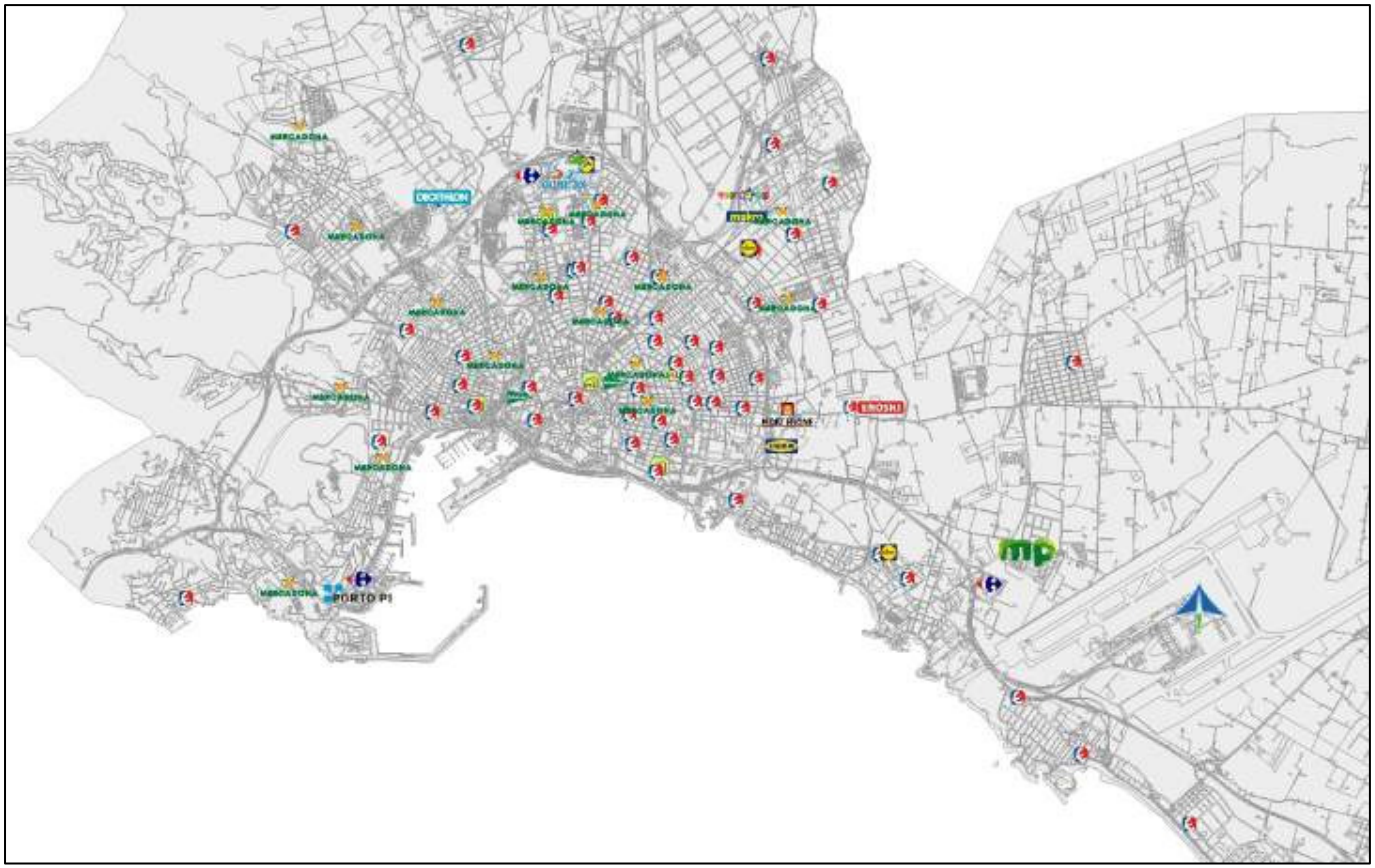
2. Urban morphology, land use and road network

• Furthermore, it has been mapped the exact location of several poles, identifying shopping centers, supermarkets and other large stores. These are important because they generate a regular flow of traffic and goods demand.



2. Urban morphology, land use and road network

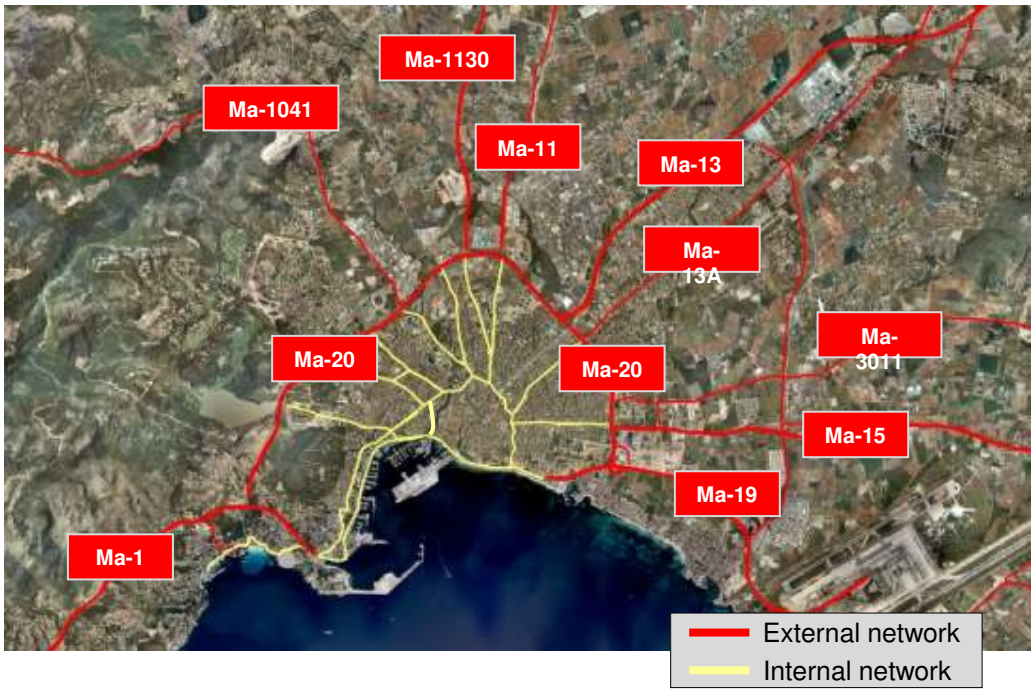
2.3 Categories and characteristics of the road network

- The road network can be classified according to the order of magnitude and functionality of the road. There are three basic categories: external network, internal network and complementary networks.
- The external network is composed by radial high capacity roads and the city ring:

1. Eastern highway, Ma-19. Communication artery that links with the southern half of the island and the airport. Its average daily intensity ranges between 20.000-50.000 vehicles, and varies depending on the season. In the section adjacent to the city (3 lanes on each direction), this volume normally exceeds 50.000 vehicles/day.

2. Via cintura, Ma-20. It is the artery that surrounds the entire city (3 lanes on each direction in the eastern half), providing accessibility to both the city and its outlying villages. The intensity is around 50.000-70.000 vehicles, exceeding this threshold in the section between the Ma-13 and Ma-1130.

3. Ma-13 highway to Inca. Axis that allows to connect Palma with Inca (third city of Mallorca) and Alcúdia, the 2nd industrial and commercial port of the island. The intensity ranges between 20.000-50.000 vehicles per day (3 lanes on each direction).



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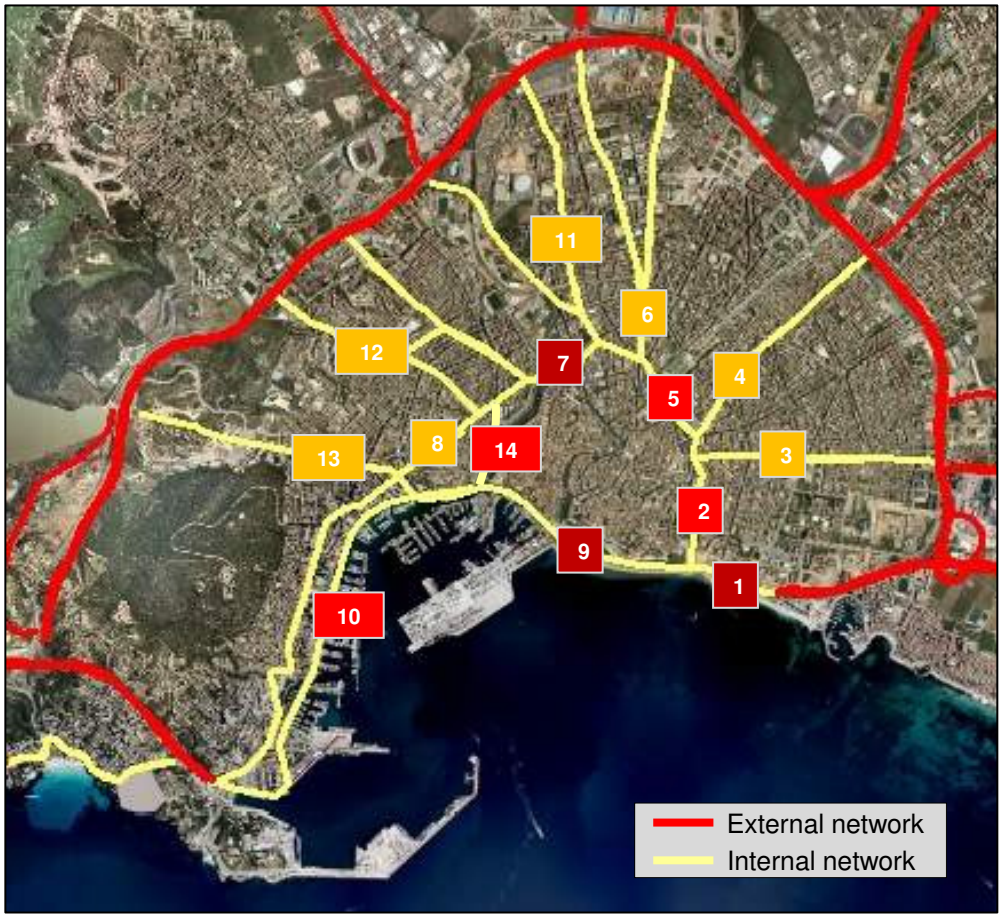
2. Urban morphology, land use and road network

• Furthermore, the internal network is configured by all the main streets and areas that give access to different interior points / sections of the city.

• A comparison of the IMD network based on the selection of a number of sampling points (14), distributed as follows:

Punt	Localització	IMD total	Sentit	IMD/sentit	%
1	Avda Gabriel Roca	101.126	Centre	49.545	49%
			Perifèria	51.581	51%
2	Avda Gabriel Alomar	50.015	Centre	24.189	48%
			Perifèria	25.826	52%
3	Carrer Manacor	27.990	Centre	10.986	39%
			Perifèria	17.004	61%
4	Carrer Aragó	14.669	Centre	8.083	55%
			Perifèria	6.586	45%
5	Avda Alexandre Rosselló	64.132	Nord	31.929	50%
			Sud	32.203	50%
6	Carrer 31 de Desembre	15.159	Centre	7.956	52%
			Perifèria	7.203	48%
7	Avda Alemanya	80.037	sa Riera	44.275	55%
			Avda A.Ros.	35.762	45%
8	Carrer Comte de Barcelona	31.613	Centre	15.055	48%
			Perifèria	16.558	52%
9	Avda Gabriel Roca	84.578	Est	43.865	52%
			Oest	40.713	48%
10	Avda Gabriel Roca	46.275	Est	24.761	54%
			Oest	21.514	46%
11	Avda General Riera	33.306	Centre	17.923	54%
			Perifèria	15.383	46%
12	Carrer Indústria	23.727	Centre	9.041	38%
			Perifèria	14.686	62%
13	Carrer Andrea Doria	17.608	Centre	8.125	46%
			Perifèria	9.483	54%
14	Avda Argentina	52.471	Centre	26.136	50%
			Perifèria	26.335	50%



2. Urban morphology, land use and road network

• Analyzing the above data, we conclude that sections of the city with the highest burden of daily traffic is located in the avenues, with constant values ranging from 20.000-50.000 vehicles per day (average of 3 lanes on each direction). Therefore, although the city ring was designed in order to decrease much of this traffic ring of boulevards, there is still an excess of vehicles that use these avenues to move between different parts of the city.

• The recently approved road plan of Mallorca (2009-2016) proposes many infrastructure interventions:

•- Provision of the 3 lane in the western half of the city ring.

•- Construction of a 2nd city ring with 2 lanes per direction.

•- Addition of a 3rd lane in radial highways: Ma-1, Ma-13 and Ma-19.

•- Improvement of the most important junctions of the city ring.

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2. Urban morphology, land use and road network

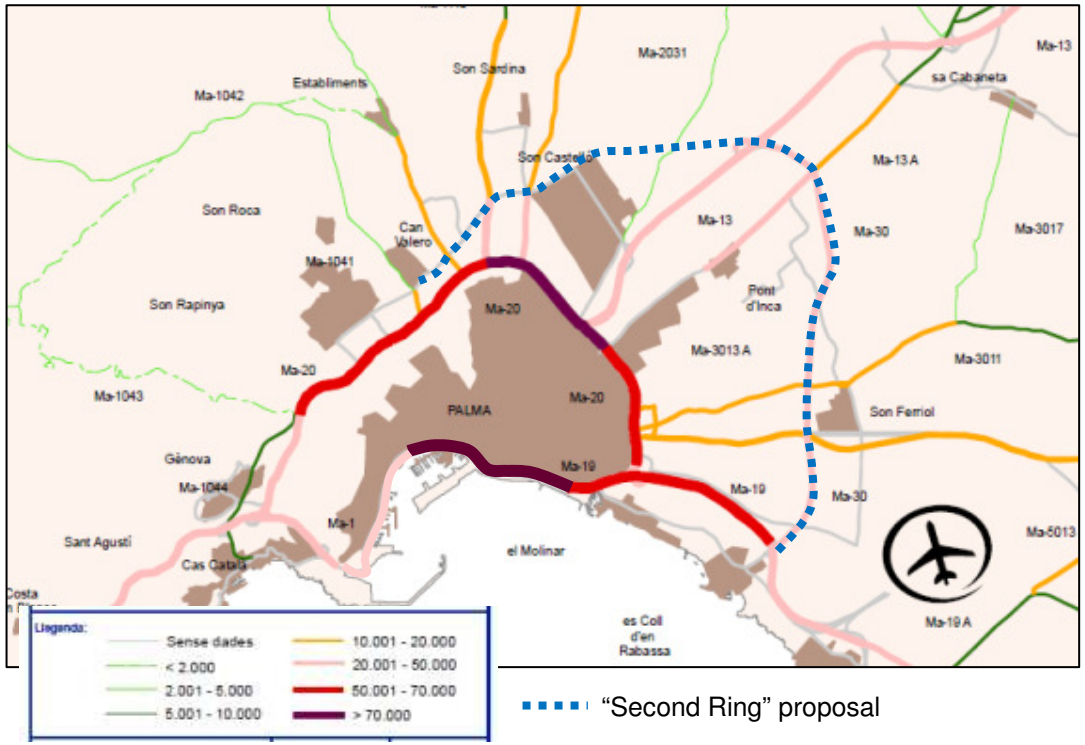
4. Ma-1 western highway. This is the continuation of the Ma-20 to Calvià, providing access to many important tourist areas. Their intensity values are comparable to Ma-13, (even though it has only 2 lanes on each direction).

5. Ma-15 expressway, to Manacor. The motorway from Manacor, recently inaugurated, is the other major structuring axis of the island, connecting Palma with Manacor. In its first half (Palma - Algaida), the intensity moves between 10.000 and 20.000 vehicles/day (2 lanes on each direction).

6. Other road links and accesses. Moreover, there are a whole series of external accesses to major roads. They are the roads connecting the capital with other peripheral areas such as the Ma-13A (physical support of the urban conurbation between Palma and Marratxí), Sóller (Ma-11) or the University and Valldemossa (Ma-1110).

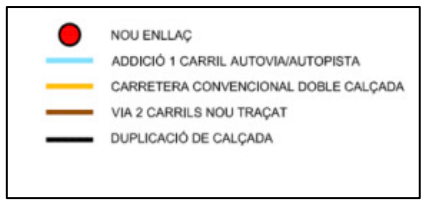
• In order to obtain a clearer idea about the intensities aforementioned, the accompanying map shows the classification of the external network according to their average traffic intensity per day.

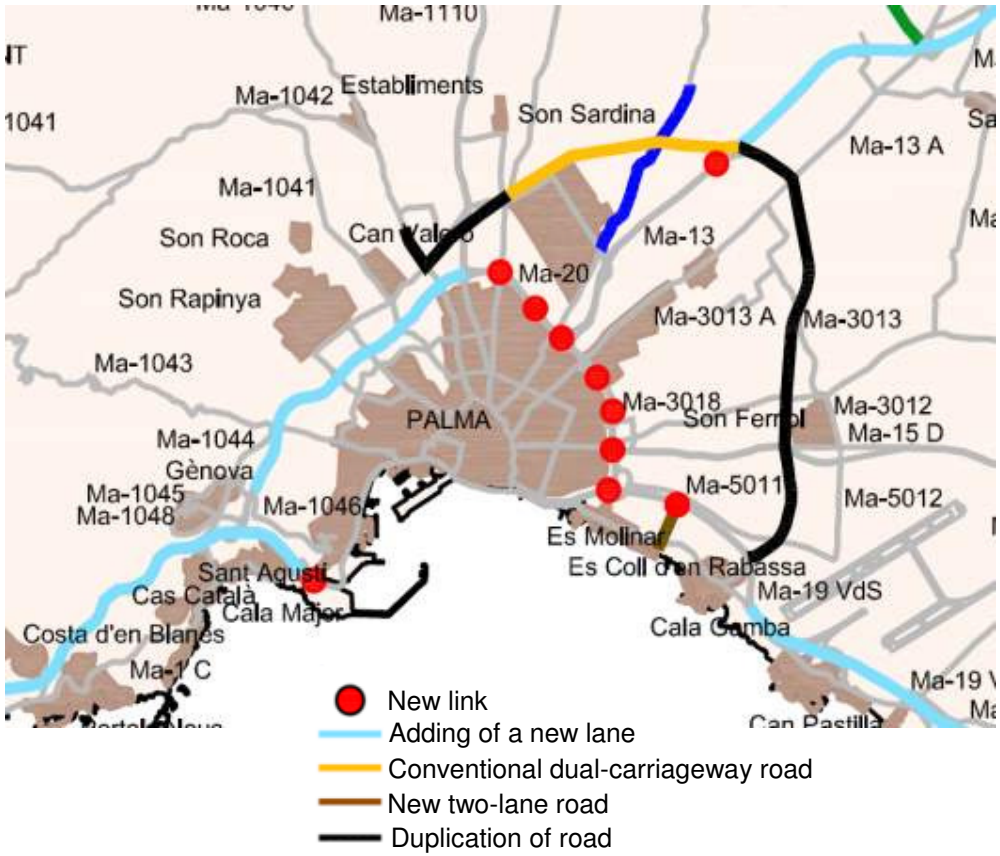
• Moreover, it's also foreseen the construction of a second city ring linking directly the eastern highway (Ma-19) with different peripheral spaces, like the Industrial Estates.



2. Urban morphology, land use and road network

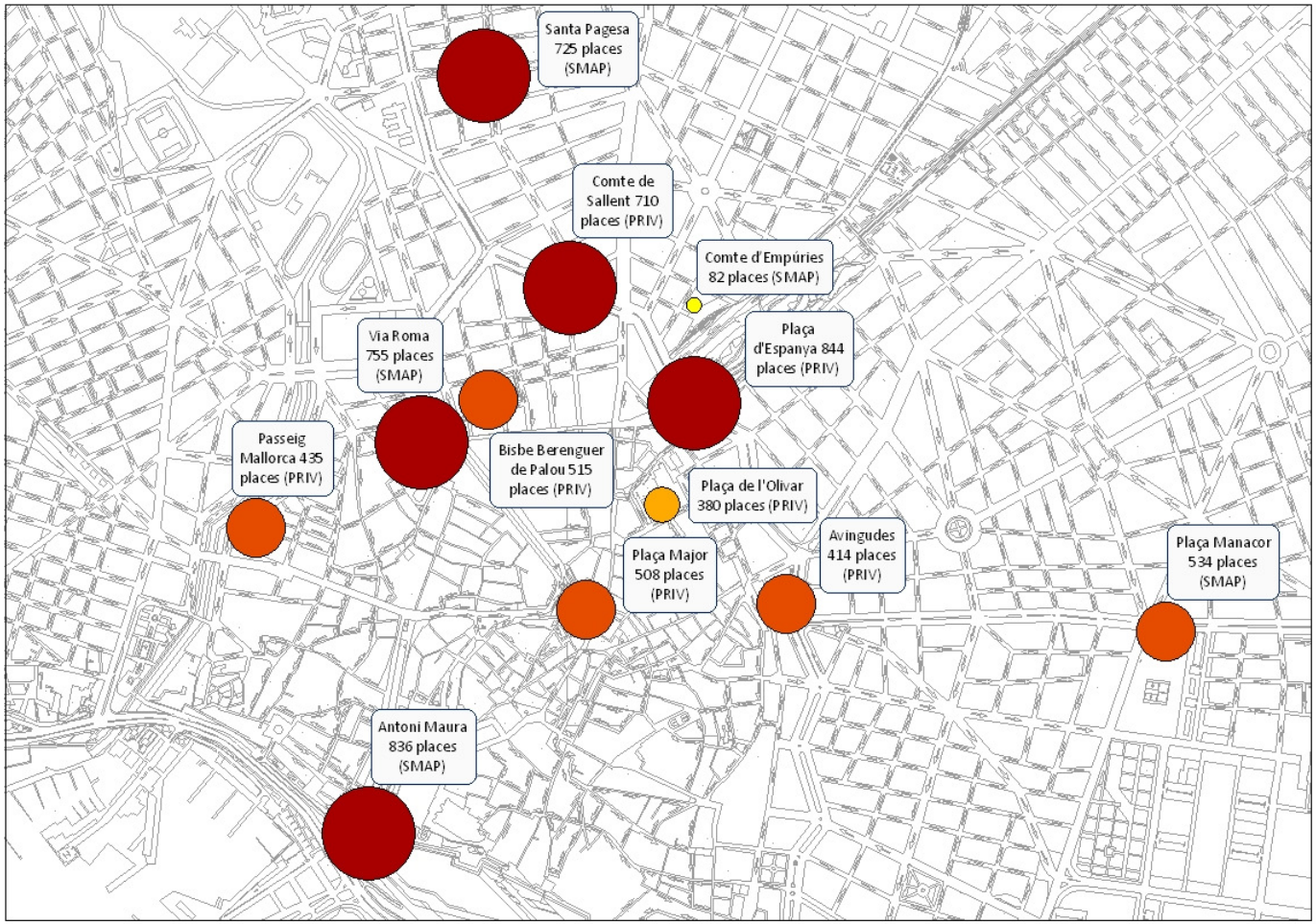
• The map on the right indicates the action plans included in the first phase for the construction of the “second ring”.



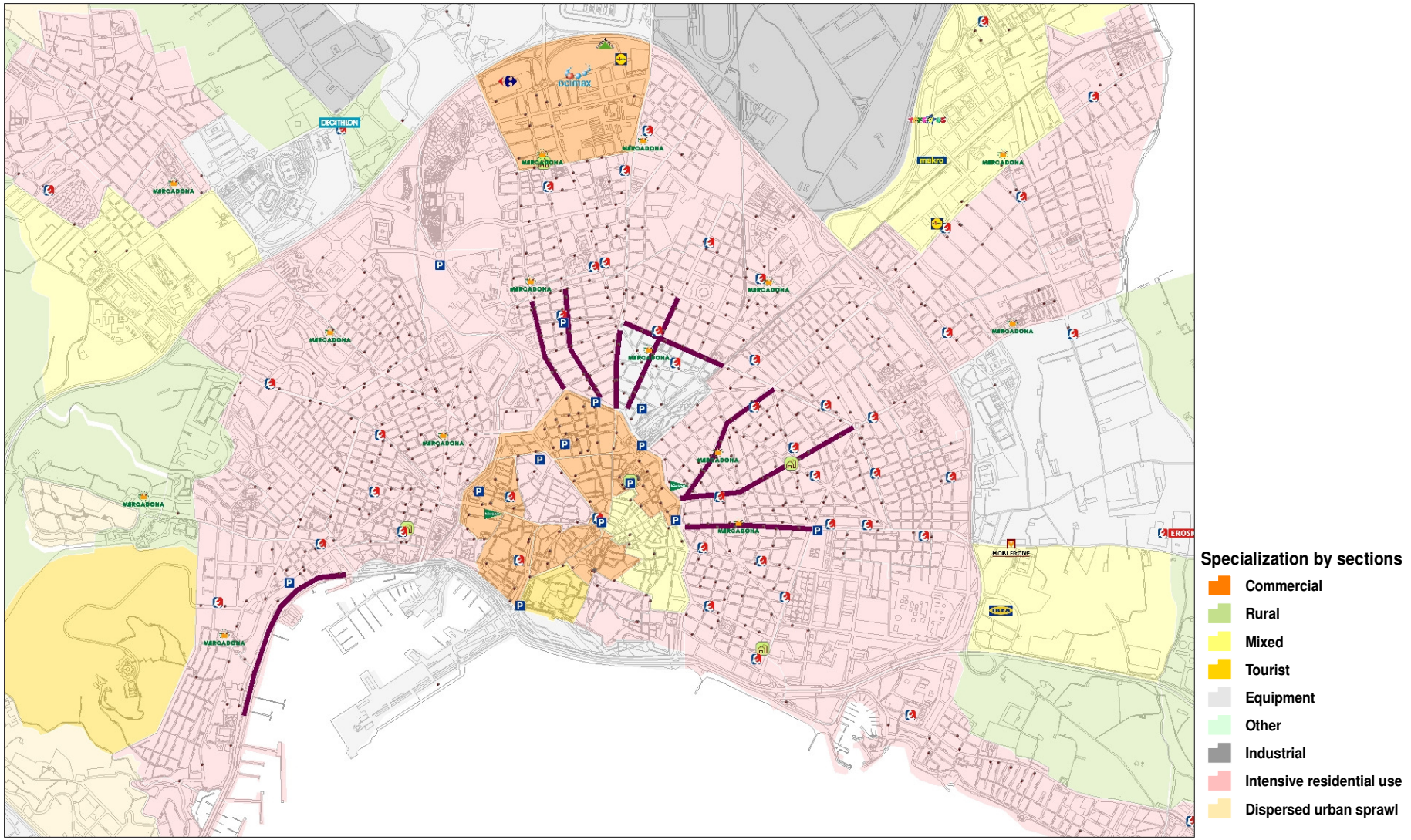


2. Urban morphology, land use and road network

• The next figure shows the main underground car parks in the centre of Palma. Some of them are managed by private operators and some of them by a public local operator (SMAP).



2. Urban morphology, land use and road network

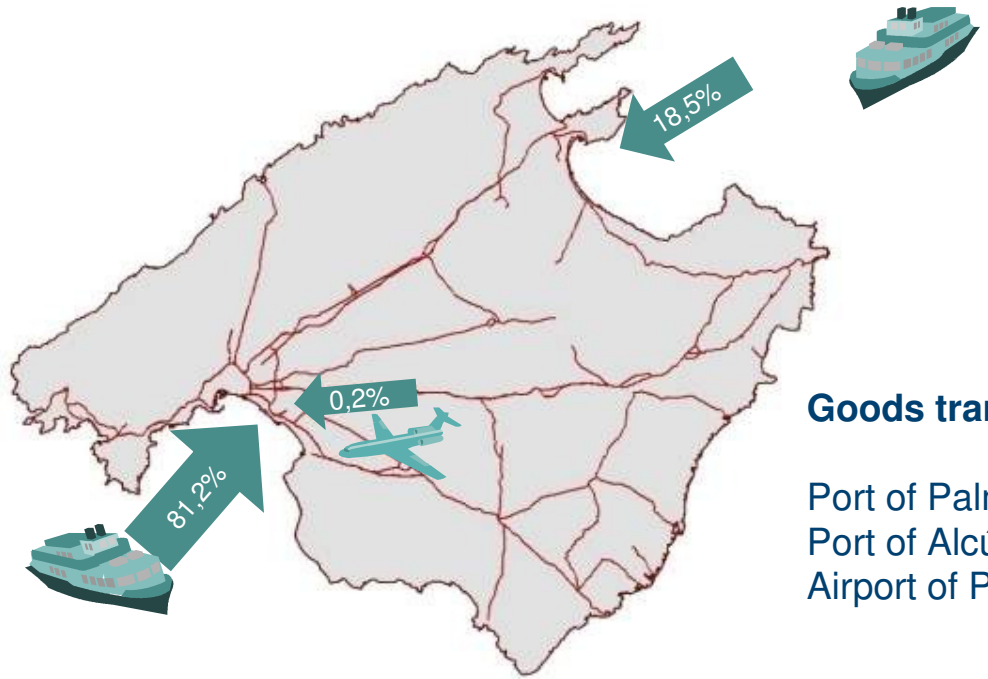


2. Urban morphology, land use and road network

2.4 Main goods entry points

The main points of entry / exit of goods by sea is the port of Palma and the port of Alcúdia. On the other hand, the movement of goods by air arrives/departs to/from the airport of Son Sant Joan.

The distribution of logistics companies at the three entry points island is as follows:



Goods transported in tons in 2008:

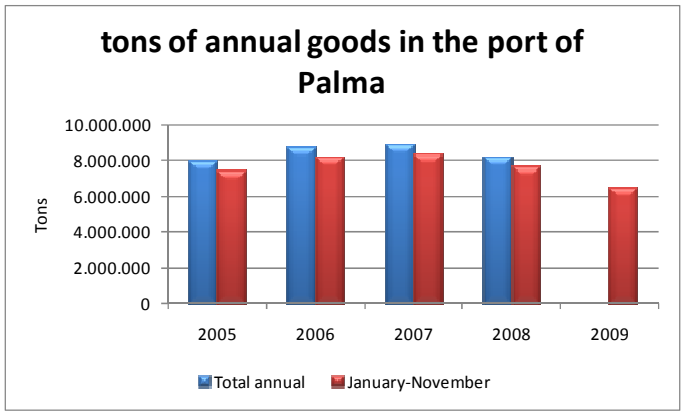
Port of Palma: 8.192.931 (81,2%)
Port of Alcúdia: 1.870.399 (18,5%)
Airport of Palma: 21.396 (0,2%)

2. Urban morphology, land use and road network

Port of Palma

As has been seen in the previous slide, this is the largest point of entrance and exit of goods in the island, with a total of 8,192,931 tons moved in 2008, representing the 81,2% of the island. The area use available for freight logistics is 43 ha.

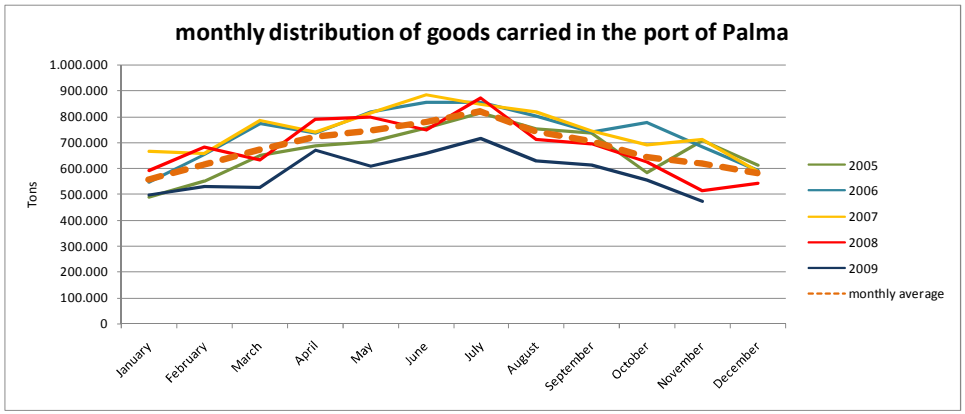
The evolution of freight traffic since 2005 can be appreciated in the graph on the right.



It can be observed that from the year 2008 the trend is decreasing, with a reduction of 18% of goods transported on the same period last year, and 29% for the year 2007.

Given the considerable increase in population experienced in both the city and the island, it can be concluded that the reduction in the trade of goods produced is the result of a reduction in the consumption patterns of society.

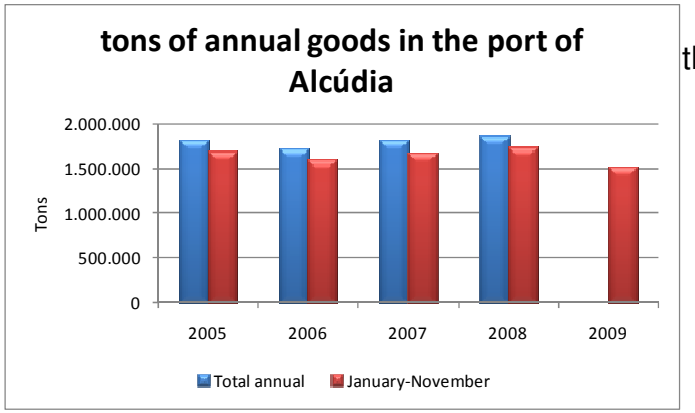
Regarding the monthly distribution of freight, the central period of the year has a higher level of activity.



2. Urban morphology, land use and road network

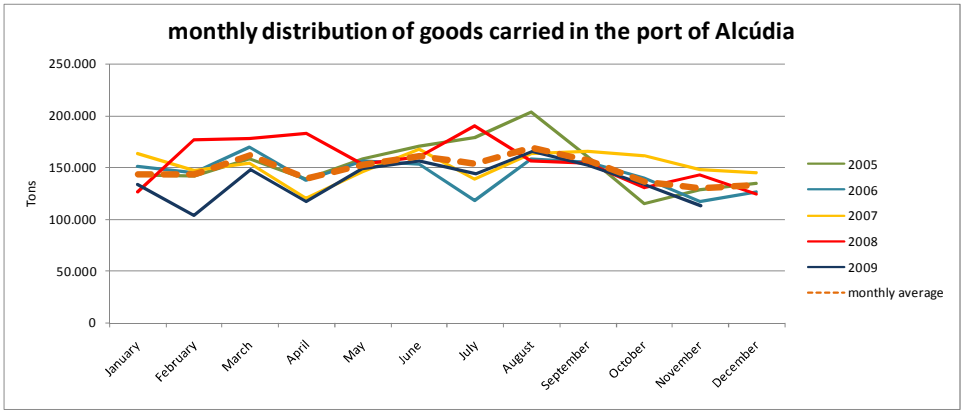
Port of Alcúdia

This port is the second logistical point of entry / exit of goods, with a total of 1,870,399 tons in 2008, representing 18.5% of the total moved in the island. This port has a platform area for freight logistics of about 9 ha.



the left it is shown the annual evolution since the year 2005.

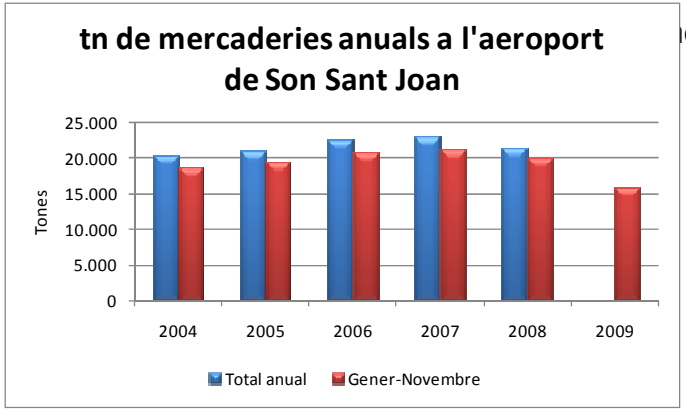
The graph on the right presents the distribution of tons transported per month. This volume does not vary much throughout the year. Moreover, it is possible to appreciate the decline of the goods moved this year (specially at the beginning of the year).



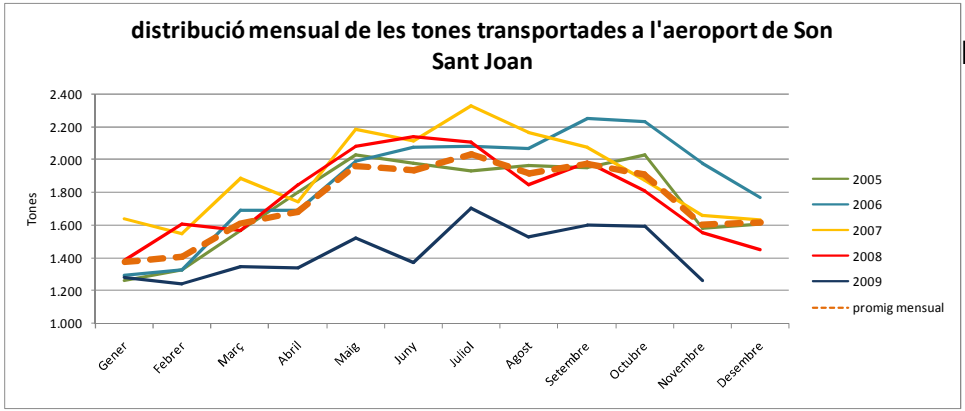
2. Urban morphology, land use and road network

Airport of Son Sant Joan

This is the only entrance of goods by air. Compared to transport by sea, the freight transported is much lower, 21,396 tons in 2008, representing a 0.2% of the total. The airport has also a space for logistics activities (5 ha).



e evolution of tones of goods transported from the year 2004 has an increasing trend until the year 2007, where the pattern changed dramatically, with a reduction of 7% between 2007-2008. During the last year, this negative trend has been accentuated, with a fall of 26% (between 2008 and 2009).



his case we can see clearly how the central months of the year more goods are transported (when compared to the rest of the year).

As mentioned previously, the tendency is similar to the port of Palma, with a substantial decline of tons transported this period and increased load central months of the year.

2. Urban morphology, land use and road network

Type of goods arrived by sea

It has been observed that the vast majority of goods that entered the port of Palma in 2008 (80%) belong to "ro-ro" typology (roll-on/roll-off by own means) and by regular shipping services (trucks that use the services of shipping lines that connect the mainland to the island on a daily basis: Trasmediterrània-Acciona, Balearia, Iscomar), with a daily return service between Palma and the ports of Barcelona and Valencia.