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Small metropolitan areas in rapid transition: the case of Patras

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Summary

Patras is the third urban complex in Greece, concerning the population size, sited in the North-West Peloponnese and one of the oldest, having a continuous history of 4.000 years.

The modern history of city of Patras is characterized by a rapid and continuous development and transformation, concerning its structure, function and its physiognomy. This fact is documented by studying a lot of facts and figures, but mainly from a simple reading of its spatial evolution, characteristics and changes.

Although Patras is the first city having an official Master Plan, in modern Greece (since 1827), its historical route and evolution is far from a rational and planned one. On the contrary, and as the typical Greek model of cities' development is, it follows an absolutely non-rational, non-planned model, that does not secure the quality of living and mainly does not form a visual and sustainable development aim in the European or, at least, in the Greek context.

The city – whatever that means – seems to be unready to face these challenges and does not have the proper infrastructure and planning framework to be able and conscious to form its own development route. No matter how it sounds, the city is a simple viewer of its own restructure and transformation route. The strategic planning alternatives are missing or are absolutely insufficient. The planning process is limited to fragmentary studies, actions, activities and/or initiatives.

This work presents and analyses Patras' main characteristics, its evolution, the limitations and problems, in planning process, and forms and documents a proposal concerning a modern planning framework based on a, social controlled, planning conservancy.

1. Introduction

While the international specialized bibliography uses the term "metropolis" with big frequency, there is not an explicit and widely acceptable definition¹, but it is used with terms that belong in sphere of common perception and acceptance through the abundance of differentiated definitions. Usually the term is reported in the large modern urban complexes that present certain common characteristics from which can be reported, as the most important, the following:

- Their demographic size is reported in certain hundreds thousands residents,
- They have and determine a powerful region and allocate multifunctional character,
- They play international role via individual specializations (infrastructures of health, education, trade, transports, etc).

¹ Aggelidis Minas, "Land-planning and sustainable development", Symmetry Publications, Athens 2000 (*in Greek*).

Generally in the last three decades, in the developed countries, they take place a line of economic reformations mainly focused on the sector of services and its appointment as the basic economic activity². This process, as it is obvious, has consequences in the built space, in the land uses and in the whole structure of urban space. Accordingly, this process, affects the whole process of cities' development and evolution, as composite and complicated systems, and, of course, in the way of reading, analyzing and planning of space.

Patras, following the example of most big cities, and after it passed – or at many it continues passing - the phase of deindustrialization, it presents intense rhythms of economic changes. Consequently its function as city - in the wider region - and its spatial structure - is oriented in the tertiary sector having characteristics of a small size metropolitan center³. Additionally if we consider its geographical site, the programmed and under construction works in the wider region (the new port, the new national road axis from north to south, the Ionian road, the new bridge Rion-Antirion, the new railway line, etc), these changes are very rapid and influence intensely the development of building environment, its relation with the adjacent regions, and mainly the quality of environment (natural and build-up) and the quality of life of its residents. "New" replaces "old" with rapid rhythms without any planning frame. All the responsible organizations and services function with out-of-date terms and the way of management and control of operation and development of city becomes a critical affair that requires new terms, conditions and administration environment of operation and planning.

Figure 1. Patras, Geographical site.

In this complex frame the critical question is the dialogue for the developmental way of city, the planning and monitoring process of this developmental route and its space, as the arena of all these activities, where the consequences in the urban structure and function must specialized and planned for the common affair that is the sustainable development and the quality of living. At the same time it should examined and specialized its role in the wider region as a metropolitan center with international influence.

Critical role in this urban complex plays (apart others) the operation of new junction of canal Rion-Antirion and the way that influences the urban dipole Patras –Navpactos, where the policy of management of bridge, in combination with the way of extension, planning and control of urban space, is nominated as a critical factor for the urban unification of two centers and the metropolitan operation of all region.

2. The new bridge

The permanent junction of strait Rion-Antirion with a technical work of continuous operation constitutes a demand of residents and institutions of Region of Western Greece for a lot of decades. The factors that strengthened and actualized the demand of permanent junction, should be sought in the wider frame of economy, social, and regional evolution, and the development of last three decades, as well as in the "cultural" dimension of developmental requests and objectives. The importance of junction, and its role in the basic national road network, was studied in the frame of National Regional Plan and Program of Greece (Doxiadis office, 1972 – 1980)⁴. The junction Rion-Antirion was considered by the study as "key" on the completion of National Road Network and as an essential element for the connection of Western Greece with Athens

² Oikonomou D., Getimis P., "The international role of Athens", University of Thessaly publications, Volos 2001

³ cf. the Doxiadis scale of territorial units, ph. Ekistics international journal, "The anthropocosmos model", pp. 226, volume 56, number 338/389, Sept./Oct. – Nov./Dec. 1989

⁴ Doxiadis Office, (1980), "National Regional Plan and Program of Greece", report No 19, Volume 6, Networks of Transports, Ministry of Co-ordination and Programming, Athens

and Peloponnese and Western Peloponnese with Western, Central and North Greece.

Figure 2. Bridge Rion-Antirion, aerial view (photo from WWW)

Concrete initiatives for discussion and study of possibilities and feasibility of the connection were undertaken in the past. Particularly important should consider the International Congress in the University of Patras in 1978, which the proceedings contain useful information⁵. The proposals covered technical, economical, traffic and development subjects, and present particular interest from the opinion of main problematic of those years. The absence of permanent junction was engaged in all this bibliography, as factor that:

- It negatively affects the exploitation of developmental possibilities of Western Greece, concerning the "privileged" east axis North-South, considerably decreasing the indicators of investments competitiveness in the region.
- It deters the organization of a main vertical road and transport network that would promote processes of unification of regional space of Western Greece.
- It imposes an exceptionally high extended cost in the communication of Westerner continental Greece and Corfu with the Capital and remaining regions of country, either with the form of economic surcharge, either with the uncertainty and delays in the realization of traffic movements.

Therefore the demand of junction was adopted, targeting to the lifting of negative repercussions, without however an in depth study of real relations of dependence and developmental potential of Westerner Greece in relation –mainly- with the Capital, and without any research concerning the internal structure of this geographic space and its regional constitution.

We contrast, in the above admissions, the following research questions, as:

- What is the real regional constitution of Western continental Greece and Western Peloponnese (raster of regional pixels)?
- Where and what are the "intraregional" dependences?
- What is the relation of these regional pixels with main poles as Athens, Patras and Thessalonica?
- How influence the intensity of dependences the characteristics of accessibility of these regional pixels that will be developed/changed from the bridge?
- How are fixed or detected the limits of these dependences in the geographic space?
- How many are expected to be the dependences of each regional pixel, from the operation of permanent work of junction, and how are differentiated?
- Finally, how sensitive are the above tendencies in decisions and interventions of political, budgetary and economic developmental character?

These questions are not possible, neither to be answered, neither to be ignored in the attempt of approaching of wider character of consequences of junction. They are placed in order to strengthen the ascertainment that is very difficult to define the repercussions of junction in the wider regional level. Their scientific and systematic approach requires information that is difficult determinable and definable and their confrontation imposes the composition of conclusions in administrative and political level. In conclusion, it should mark that the choice has done and the bridge already functions and therefore the research and study of any potential consequence and prospective receives a new character: a posteriori evaluation and exploitation.

The new relation of two prefectures is reported substantially and is depended from the relation of axes "Kato Achaia – Patras – Aegio" on the one hand, and "Navpactos - Messologgion –

⁵ University of Patras, Prof. Goudas K., (1978), "Junction Rion-Antirion", proceedings, International Congress, Patras

Agrinio” on the other, through the prism of their reformation and redefinition due to the permanent junction. The relations of interdependence of two regions are powerful, with decisive the nodal role of Patras. The dependences from Patras are pointed out in the allocation and development of concrete activities:

[a]: Industrial concentration, of considerable scale, exists only in the region of Patras, where in traditional industrial sectors were added new activities based on the operation of industrial area. On the opposite, in Aitoloakarnania Prefecture is not observed noticeable industrial infrastructure, with unique exception the naval industrial area in Astakos.

[b]: In the sector of manufacture, also by the side of Achaia, it is observed much more important concentration of activities.

[c]: In the sector of services and trade, the presence of Patras is catalytic. The commercial activities, particularly in Mesologgion and Navpactos, have local only scope and present limited potentialities for extension and is required an in-depth study if they are threatened immediately by the junction. Also the sector of services and social security and despite the efforts of decentralization, the dependence from Patras has been intensified with the growth, operation, and continuous extension of University of Patras, Regional hospital in Rio and the other private investments, mainly, in the sector of health.

The above remarks are confirmed, on the one hand, by the general picture of statistical indicators, and, on the other hand, by the dependencies of job market of Aitoloakarnania regions from Patras and from the visual tendencies of "urban diffusion" of Patras north of strait. Today, the tendencies of urban diffusion of Patras are presented with the form of land demand for recreation residence (real estate market) in the axis of "Navpactos – Antirion – Rizes" and they have been intensified and extended from the junction. In any case, it should mark that these tendencies do not have the expected intensity as they directly depended from the economic management policy of the bridge (tolls).

Additionally is pointed out that the intensity of the environmental problems in Patras and in the southern coast of Patraikos gulf, will be intensified with the operation of new port of Patras, and that leads to the estimation of appearance of a considerable demand for summer recreation to coastal areas of Aitoloakarnania, where exist a lot of developmental potentialities if, of course, have the proper support and infrastructures.

Concisely, it appears that the following findings and conclusions, of an older study by the University of Patras (1987)⁶, still are up-to-date and perhaps some of them are intensified:

- *The current tendencies of urban diffusion of Patras are documented as well as the attraction that Patras practices today in the urban centers of Aitoloakarnania.*
- *These tendencies will be strengthened with the junction. The facilitation of traffic and the reduction of travel time will cause consequences, in regional level, in the job market, the services, the trade and the tourism. They are, in any case, tendencies that already exist and their future evolution is not based only in function of bridge.*
- *It is required however a programmed planning and co-ordination in the level of Region. In first phase, the analysis, documentation and estimations on the qualitative and regional characteristics of these tendencies should be attempted at the process of syntax of Prefectural and Regional Development Programs.*

3. Patras Urban complex

⁶ Research Team of Documentation and Planning, Professor Polydorides N., (1987), "Urban and Regional effects from the Junction Rion -Antirion", Civil Engineering Department, University of Patras, Patras.

Figure 3. The region of junction

The urban complex of Patras is constituted, according to the National Statistics Service of Greece (1991), by the next regions: Patras, Aktaio(c), Vrachnaiika(c), Mintilogli(c), Monodendri (c), Ovria(c), Paralia(c), Agios Georgios Riou(c), Rogitika(c), and Tsoukaleika(c)⁷. Today, and according to the extents of built space and all natures of flows and networks in this, the wider urban complex tends to include and the Municipalities of Rion, Antirrion and Navpactos.

The relation of interdependence Patras – Rion is undeniable. The other two Municipalities, Antirrion and Navpactos present today a relative lifting of pre-existed "withholding of" contacts, because the cost (time and economic) of passing the canal via ferries, but not in the expected rhythms. Resent unofficial measurements show that the increase of vehicles traffics, via the bridge, has been increased in a percentage of 20–25%. Undeniably and in any case, Patras constitutes a first degree centre of services for the three other Municipalities, as well as for the entire region of Western Greece.

At the same time the process of urban diffusion and unification have been intensified, but without a clear explanation if this phenomenon is based – mainly in the south part of canal – in the operation of junction or it takes place under the powerful effect of other factors (ph. bypass road of Patras).

According to the last national census (2001), the wider urban complex has approx. 200.000 residents which appear to be also the most retained estimation. The total extent of four Municipalities is the 434 sq.km., from which the 110 sq.km. constitute the wider urban region around the bridge (the less populated regions and the mountainous areas of Municipalities are not included). It is unambiguous therefore that it is an important urban complex, third in national scale, and with important prospects as a national gate from Western Europe.

During the last thirty years the region presents a continuous demographic increase as it appears in the following table and graph. More specifically in the graph, the demographic evolution is presented in weighing prices (population 1971 = 1) in order to give the bigger relative demographic increase, which is presented in the Municipality of Rion.

Figure 4. Demographic evolution in Study area

Additionally the local municipal services of Antirrion have a strong argument that the official census data give an underestimate icon for the population size of settlement. At their opinion, the residents of Antirrion are considerably more and this underestimation is based to the known phenomenon of, during the census, a lot of residents move to their native rural areas⁸.

Respectively the same positive demographic evolution presents the wider region that it encompasses the study area as the Region of Western Greece. In the rule of continuous demographic

⁷ Since 1997, the communities (c) have administratively changed into municipal apartments.

⁸ Arguments documented this opinion, are based to the water consumption meters, the telephone bills, and the households electricity consumption within the municipality. These figures give estimation about 2100 connections. Therefore the households in Antirrion are estimated about 2000 and consequently the inhabitants are at least 6000.

increase, exception constitutes the urban complex of Aegion for the decade 1991 – 2001, that presents a reduction of 2.4% (which however might not be real and is owed in recent administrative changes) and the Municipality of Messologgion for the decade 1971–81 (reduction 8.3%).

Figure 5. Population evolution of wider region

3.1. Main characteristics of urban complex

Today, the main characteristics of urban complex are the followings:

(a) It has a single-center. The unique center of entire complex is the central core of Patras, as roughly it is delimited by the roads Kanakari, Aratou, Corinthu, Karolou, Othonos-Amalias and Trion Navarchon. In this area are assembled the bigger percentage of commercial activities, central administrative and economic functions, cultural, and also a big part of winter recreation facilities and activities.

(b) It is characterized by a relatively homogeneity on built-up environment and growth based on "general residence" land use, in which are interfered small areas of other character. Moreover, as wider urban complex, it has an intense linearity parallel to the coastal line of Patraikos-Corinthian gulf⁹.

Figure 6. Built-up growth and tendencies

(c) The southern area, that is to say the Municipalities Patras and Rion, is crossed by the National Road axis Athens – Corinthus – Patras – Pyrgos, where already exists the bypass road of Patras, which begins from Rio, almost immediately afterwards the tolls, and leads to the south-western exit of city. A direct result of its operation is to strength the tendencies of built-up extension of city to the southerners – south-eastern.

The operation of bypass road has eased the traffic in the center of Patras, from the going-through traffic (north to south), but remains as one important question the absorption of traffic caused by the port, as the connecting roads are still missing.

(d) The urban complex includes three regional (if not national) poles-activities:

- I. The port.
- II. The University campus.
- III. The University - Regional Hospital.

(e) The northern area, Antirion-Navpactos, is characterized by a corresponding linear development with a parallel traffic, the National Road Agrinio - Antirrio – Navpactos - Itsea. Even if the tendencies of built-up expansion, in the northern side, have not been expressed still in intense degree, it is estimated that the increase of degree of accessibility, with the operation of bridge and the bypass road of Navpactos, will cause the same phenomenon that was observed in the southern side in the axis of Patras – Rion: an intensive linear build-up expansion of the city

(st) The two areas, with their corresponding parallel axes of traffic, are connected with the Bridge (*map 2*). With the beginning of operation of bridge, the two areas, "southern" and "north", have come closer than before the junction. A characteristic remark is that the distance Rio - Navpactos is henceforth 15 km and is covered in 15 minutes, while the distance from the center of Patras (Georgiou square) – Antirrio is 12 km and is covered in 15 minutes on average. The calculation of these time-distances is based on modern techniques of Geographic Information Systems as it is shown on the following maps (*maps 3 and 4*).

⁹ It should not exist confusion with the bilinear character of growth of city of Patras: North – South and West – South-eastern.

Figure 7. Equal- time lines, from the centre of Patras, before and afterwards the junction

Figure 8. Equal-time lines, from the center of Navpactos, before and after the junction

3.2 Remarks - Conclusions

The systematic analysis of urban complex structure and data set off the followings:

(a) The urban group is already in a process of "*extension and intensive growth of urban web*", which will be intensified the next years. The term "*extension and intensive growth of urban web*" is reported in the systematic enlargement and diffusion of urban density and also in the continuous transformation of suburban areas in urban.

Figure 9. Population and area evolution of official master plan of city of Patras

This phenomenon, in some degree, is in effect in all urban complexes under transition. In previous periods, the continuous extension of urban web was based only (or mainly) in the increase of urban population. However, the phenomenon in which we were reported here, has explicit qualitative differences and it is not related immediately with the increase of urban population but with the city dynamics (accumulation of activities, land use changes, land value, land investments, planning parameters, etc.). The figure 2 with the relevant graph reinforces this remark and is presented the development of official Master Plan of the city concerning the population evolution (weighed values: area and population 1858 = 1).

We have the strong conviction that, in the urban complex of Patras, the previous process has been recently intensified for the following reasons:

[a1] The percentage of detached houses in the total of residence was increased. The middle-class residents of Patras, following, as it is natural, and models of other countries and regions (e.g. Athens), consider as the most desirable type of residence the detached house in independent plot, and not the apartment of block of flats. This is a not massy trend, as it is obvious, as the high cost of land and construction of a detached house. However, and precisely because of this high cost, and if we consider the availability of land in peri-urban areas, the whole process is carried out in the periphery of the city (sub/semi-urban areas), strengthening the phenomenon of city extension and urbanization. A typical example of this process is the construction of buildings for first residence in the suburban areas of Rio, Kato Kastritsi, Ag. Vassilios, Arachovitica and also in southerner /southern-east areas of Eglykada, Glavkos, etc (*map 2*).

[a2] Consecutively and with intense interdependence with the previous remark, the increase of private car property, that is observed the last twenty years, strengthens the tendencies of urbanization and city extension¹⁰.

[a3] The commercial land uses, mainly focus on food market, and also more general on cloths shops, goods, supplies, cars, etc, present an intensive trend of expansion on the last years, not only arithmetically, but also in the size of each individual unit and therefore in the necessary land coverage. In other words, one small grocer's store, in a neighbourhood, gives its place to a supermarket, with much bigger land coverage per customer. The same phenomenon stands for almost all other types of stores. They present an absolute increase additionally with a growth of necessary commercial urban space per capita.

¹⁰ *It is estimated that each year are added in the city approx. 5000 new vehicles.*

[a4] The combination of all above parameters (reduction of building density in suburban residential areas with the consequential urbanization, the increase of private cars, spatial expansion of commercial sector), which are interdependent and interprovisioned, strengthen and support the use of private car, resulting to the increment of urban space that is been disposed for this aim: car traffic and parking.

It has been observed in other urban complexes, with increased property of private car, to which tends Patras, that the land use "car traffic and parking" constitutes henceforth one of the larger consumers of urban space

The interrelations and interactions of all above parameters, create (and it is already visible) a dynamic extension and growth of urban web. In the next years, these phenomena will be intensified and be extended further. It is expected that in few years, the majority of residences in Rion and Aktaion, and respectively a considerable percentage in Ag. Vassilios and Arachaovitica, will be primary residence buildings.

(b) The extension and intensive growth of urban web, take place in all the directions, but in a different way of each land use. The residence is extended to north-eastern, the urban complex is extended dynamically to Rio, following the axis of old and new National Road, but also the coastal line.

This phenomenon is not new. It was firstly presented with the construction of new national road [NNR] and the formation of entrance of Patras, in the middle of 80ies, mainly in the district of Ag. Sofia and Agyia. The growth of University and the installation and operation of Regional Hospital, intensify this tendency. It is absolutely certain that the bridge Rion-Antirion will be, for the current decade (2001-2010), the new corresponding urban magnet and for the two sides of strait (*map 2*).

(c) At the same time with the extensions of residence to north-eastern, the industrial uses, as well as the heavy commercial (large supermarkets, etc.), show intense movements to south-western, Akti Dymaion district and beyond. This is based in three mainly reasons:

[c1] There are a lot of abandoned big industrial properties, what are offered for urban growth with relatively low price, in that area (Akti Dymaion and beyond to south, south-western and south-eastern).

[c2] Big private investments, mainly in the entertainment (as the group Veso-Mare), and the initiatives of Municipality (formation and renovation of Ladopoulos installations for the needs of "Patras: cultural capital of Europe, 2006), are already two powerful forces, the one with a relative success and the other as an on-going promising activity.

[c3] But the most important of all is the planned and already under-construction the new port of Patras in the Akti Dymaion area with all relative activities, infrastructures and connections (new railroad, new connecting roads, ect.)

More of the above constitute simultaneously poles of a relative repulse of residence land use, which, because of the specialised growth of south-western region of Patras, will tend to extend north, north-eastern and south-eastern. It is appreciated that, at least, for the next 20 years, the entire region (Akti Dymaion) will accept developmental pressures, for land uses related with the port (that is to say commercial, offices, and the equivalentents) with activities of short-term support of tourists and passengers.

(d) A third direction of urban expansion, is to south-eastern, on the Kalavriton road. The whole region is characterized already by intensive land uses (as Ag. Andreas hospital, Technological Institute, National stadium, large supermarkets, etc.). These tendencies are already present with the operation of bypass road (interchange Glavkos), and are in close relation with the land uses of new port (under construction), such as logistics installations, etc.

(e) The operation of bypass road with the operation of Bridge Rion - Antirion have changed the

existing model of city's accessibility. It is known that big road axes create enormous urban developmental powers and tractions. Particularly in the exits of traffic systems (as these two cases are) the centripetal forces are exceptionally powerful. This fact gives a particular importance in the region of Rion, as, in this area, are come together the two endings of bridge and bypass road in a unique point (*map 2*).

It is absolutely certain, that the next years, this point will become one of the more dynamic nodes of wider urban complex, where already has begun to appear this character as a simple measurement of traffic volumes documents.

(f) The process of urbanization has already begun in the zone "Antirrion – Navpactos", based on the increased accessibility from the center of urban complex, and also due to the promptly operation of new bypass road of Navpactos. What is not absolutely evident, this moment, is what kind of development, between the two following possibilities, will follow this zone:

[f1] the main land uses will be primary and secondary residence, recreation, and tourism, for the entire urban complex, with priority the needs of resident of Navpactos.

[f2] the main land uses will be light manufacture, deposits, transshipment and logistics due to the exceptional accessibility that this zone will have.

(g) We have to say that a similar dilemma was also presented the last years in the zone of Ag. Vassilios - Arachovitika, in the southern side of the strait, across the old national road. For more than two decades (1980-2000), the growth of summer/secondary residences and installations of recreation across the beach, was in strong competition with installations of small industries and deposits across the old national road.

Recently, it seems that the secondary/summer residence and recreation has gained the game, in entire zone, as it is also supported by the tendencies of creation primary residence (as it was already reported). The small industries and the similar activities have been installed in the eastern region of old and new national roads, without be visible or distribute the area of residence across the coastal line.

Therefore a considerable possibility exists concerning the northern zone Antirrion – Navpaktos to be a serious outlet for small and light industries, and for relevant land uses, at the expense of primary and secondary residence. This dilemma needs to be examined with attention and any answer and choice, is certain that it will need direct and substantial interventions and actions from the State and the Local Government in a well documented framework of spatial planning and programming.

4. The scale of Rion - Antirrion

Summarizing all the above, and as it was expected, it is more than obvious the nodal role of operation of bridge in the prospect of urban completion and metropolitan operation of the whole urban complex Patras – Rion - Antirrion – Navpaktos. And precisely in this prospect, the operation of two regions, north and south of the bridge, Rion – Antirrion, play the most important role, where an integrated planning in strategic level, but also in the level of urban interventions, constitutes a nodal element. It is crucial to strength the function and the character of urban complex with all the necessary action and plans in order to find a new role and to face challenges not only in the national, but even in the European context.

4.1 Rion Settlement

The main activities and the high density of land uses, in Rion Municipality, are developed in a particularly narrow band of space (the mountains to the east and the sea to the west), where are

observed rapid mutations, changes and interventions, which are specialized in the following way:

- Coexist big pressures of land uses change and activities of national importance, as: the University campus, the Regional Hospital, the Scientific Park, the linear industrial – commercial area across new national road, the linear coastal area of recreation with increased attractiveness mainly the summer months, and the installations of cement industry.
- Big density of interventions and project constructions in the road traffic national system, as: the bridge, the new national road (PATHE), the city bypass road, the new railway line, the old national road, big node traffic and interchanges, etc.

Figure 10. The urban structure of Rion

- The whole region is in period of intense change, where the traditional resort is mutated rapidly into region of primary residence with intense tendencies of urbanization that are connected immediately to the extension of urban space of complex and the development of new national road Athens – Patras.
- There are regions with high building density, spread across the old national road, still having all characteristics of the core of old settlements/villages (mainly high building density and narrow road network).
- Intense tendencies of land parceling out and building construction works, simultaneously with particularly high land values, are observed in the area. This phenomenon records and certifies the intense development of urban complex to the side of Rion.
- The urban infrastructures and flows have many operational problems in local and regional level. Such problems are: the non satisfactory local road network, the simultaneous double role of old national road as a local and regional/national importance and function road, the traffic connecting node of Hospital and University Campus with the new and old national roads, the operation of ferries, the local centers of settlements, the commercial activities, etc.

4.2 Antirrion Settlement

The total area of Antirrion is an agricultural one, where the beaches are suitable for recreation during summer and there is an elementary industrial area around the conjunction of road axes Navpactos - Messologgion and Antirrion.

Figure 11. Satellite picture of Antirrion (Quickbird 03/11/03).

The settlement of Antirrion is built inside the old walls and in continuity of the castle. There is a cohesive center having some shops, restaurants, fuels stations, drugstore, etc. There is an urban public bus line between Antirrion and Navpactos. Antirrion is depended from Navpactos concerning the urban functional services.

In the coastal area from Antirrion to Navpactos, there are strong tendencies for development primary and secondary residence area for the citizens of Navpactos and Patras (Ag. Panteleimon). In the southern coastal area the relevant tendencies come from the city of Agrinio. Finally, tendencies for seasonal residence are presented by abroad, mainly immigrants of the wider region.

From the Platanitis torrent begins the under construction bypass road of Navpactos, aiming to have a positive contribution in traffic problems of region and to increase the accessibility. The installations for recreation and tourism are not important contrasting the coastal area of Rion.

The region depends mainly from Navpactos concerning the services and urban facilities. There is a light dependence from the Mesologgion (mainly services of prefectural level), and from Agrinion for commercial facilities. Finally, are observed intense dependences from Patras (third level

services, specialized commercial services, social infrastructure and education). Therefore this region constitutes an exceptionally sensitive space of interdependences and has been influenced, in high degree, by the realization of work of junction (considerable changes in land uses, reduction of employment, etc.).

Navpactos is the administrative center of region, and constitutes, comparatively with the surrounding settlements, center of recreation and tourism because it presents particular comparative advantages based on its cultural wealth, the natural environment, as well as its geographical position in the tourist route Delphi –Olympia –Epidaurus. Additionally, it assembles retail trade services and facilities for the wider region of north coast.

A particular mention is worth the existence of a big public area, in Antirrion and in direct adjacency with the existing settlement core. This area was the worksite for bridge construction and now has no visible use (“empty space”). It is a level extent of approx. 300 coastal acres, with very good orientation and view and exceptional accessibility from the surrounding urban centers. At the same time this region is closed with other public extents: the archaeological site of castle and the old dock of ferries, while, in western part, are public schools, athletic installations and municipal property, which raise the total available area in 450 acres.

This area has essential possibilities to perform and implement an organized urban development plan for the sustainable development of a new dynamic settlement with catalytic role in the unification of urban complex (up and down of strait). The University of Patras has already worked out a relative proposal supporting this perspective¹¹, while the Region of Western Greece studies and processes also other alternative proposals.

5. Summary Proposals

As a synthetic conclusion of the previous summary analysis of urban formation and structure of the wider urban complex Patras – Rion – Antirrion – Navpactos, are mentioned the following proposals, in the form of structural components of a Master plan, something that is absolutely essential and it has to be formulated immediately.

[1] To aim at the development of three *new urban centers*, in combination of the existing one (Patras), and with their cooperation to achieve better structure and operation of wider urban complex. If we suppose that Patras constitutes an urban center of first level, is proposed the development of two centers of second degree, in Rio and Navpactos, and a center of third degree, in Antirrion. The precise composition and planning of potential main activities of these centers is objective of proposed Master Plan.

[2] The proposed Master Plan has to define exactly the character of each pixel in the urban mosaic. It is proposed to intensify the existing residential character across the coasts, northern and southern the bridge. Respectively, the industrial uses and activities should be allocated in specific and well defined areas.

[3] It is obligatory to constitute and organize a traffic model for the whole urban complex. It is necessary to define and organize decisively three levels of traffic flows: supra-local network (new national road to Athens, Bridge, bypass road of Patras), main road network (old national road to Athens, main urban axes, connecting roads, coastal roads) and the local network.

[4] In combination with the previous proposal, the substantial improvement of the urban public transport network is more than crucial. That would cover, with unified logic and operation, the entire urban complex from Navpactos to the southern suburbs of Patras.

¹¹ Polydorides N., Pappas V., Aesopos Y., Patronos Y. (2003), “Definition of urban and regional consequences from Rion-Antirrion junction. Special report on utilization and re-accession of bridge worksite”, Research project, Department of Architecture, University of Patras, Patras

The development of a transport network based on public transport means, can improve not only the daily function of urban complex, but also to contribute to the improvement of the whole urban structure and to discourage the use of private car. It is proposed to examine, as a long-term policy, the construction of tram-line for the wider region. The construction of the proposed tram-line can be based to the existing railway infrastructure.

Summarizing, the whole region in the last years, is under the catalytic influence of big technical interventions (constructed and programmed) as well as from the structural and functional evolution of city of Patras and its suburban areas and adjacent Municipalities. These rapid changes take place - mainly - without the existence of a concrete coordinative or planning framework (at least in local level) and only fragmentary studies exist with the visible danger to become total or partial obsolete.

More specifically, in our case is not feasible for any planning process to be limited in the administrative boundaries of each Municipality, even if this is in consistent with the existing institutional/legislative framework. The urban influence and function and the suburban areas are extended much more by any administrative boundaries and need an integrated planning process. However this type of planning process requires mainly political will and consent in all levels (central and local). Actually, the lack of a unified Master plan, for the entire region, limits the effectiveness of any planning process, via individual studies, and raises a lot of questions for the compatibility of these studies.

In conclusion, if the spatial planning, not simply presupposes, but substantially constitutes political process of conflicts, choices and changes, it is obvious that this process must be a socially controlled and politically determined process. And in addition, because this process constitutes a continuous dialectic relation cannot be exhausted in a temporally determined and fragmented one-track study, but is required a modern frame of planning and the proper infrastructure to secure a continuous planning and monitoring process.

6. Bibliography *(all references are written in Greek)*

- 1) Polydorides N., Pappas V., Aesopos Y., Patrones Y. (2003), "Definition of urban and regional consequences from Rion-Antirion junction. Special report on utilization and re-accession of bridge worksite", Research project, Department of Architecture, University of Patras, Patras
- 2) Aggelidis I., Milionis N., Pappas V., (1997), "Local Developmental Program of 7th Territorial Region of Achaia Prefecture", Volumes A, B and C, Patras
- 3) Developmental Municipal Enterprise Patras, (1996), "Developmental study of Achaia Prefecture", volumes A, B and C, Ministry of Industry, Research and Technology, Athens
- 4) Doxiadis Office, (1980), "National development Plan and Program of Greece", report No 19, Volume 6, Networks of Transports, Ministry of Co-ordination and Planning, Athens
- 5) Dragona T., Milionis N., Pappas V., Sardelianos D., Triantafilou X., Tsekouras K. (1990), "Preliminary Study of Rearrangement of ferry boat line Rion – Antirion", Summary, Patras
- 6) Patras Scientific Park, (1994), "Large infrastructure projects and Regional Development", Proceedings, International Congress, Patras
- 7) Evpalinos Consulting Engineers, (1988), "Study of Environmental consequences of Junction Rion – Antirion", Ministry of Environment, Planning and Public Works, Athens
- 8) Lagoudaki A., Panzaris C., Manolopoylos N., Urban Management Ltd and Planet Ltd, (2001), "Intergraded interventions of land policy and spatial development concerning the big construction projects", Ministry of Environment, Planning and Public Works, Athens
- 9) Research Team of Documentation and Planning, Professor Polydorides N., (1987), "Urban and Regional effects from the Junction Rion -Antirion", Civil Engineering Department, University of Patras, Patras
- 10) University of Patras, editor Prof. Goudas K. (1978), "Junction Rion – Antirion", Proceedings, International Congress, Patras

- 11) *University of Patras, Study group of Mechanics, (1991), "Study of road transports Rion – Antirrion", Final report, Patras*
- 12) *University of Patras, Study group of Mechanics, (1992), "Study of Environmental consequences of Junction Rion – Antirrion", Final report, Patras*
- 13) *Pappas V., Aggelidis G. Milionis N., e.a., (1995), "Study of Strategic Development of Western Achaia", Centre of Local Development of Western Achaia, Kato Achaia*
- 14) *Ministry of Environment, Planning and Public Works, Eypalinos Ltd, Rendel Palmer and Triton, (1992), "Junction Rion – Antirrion, Feasibility Study", Final report, Athens*
- 15) *Ministry of Housing, Development and Environment, (1984), "Prefecture of Achaia, Proposals of Regional planning structure", Athens*
- 16) *"Filon" Ltd, (1996), "Study of territorial consequences of Community Programs and policies in the Regional level of Western Greece", Athens*
- 17) *"Filon" Ltd, (2000), "Regional planning program of Region of Western Greece", volumes B and C, Ministry of Environment, Planning and Public Works, Athens.*
- 18) *"Filon" Ltd., (2002), "Regional Framework of Spatial Planning and Sustainable Development of Region of Western Greece", Recommendatory report, Ministry of Environment, Planning and Public Works, Athens*