

Architectural and Urban
Research, Education, and
Practice in the Era of

**‘Post-
Professionalism’**



CAUMME – 2014 International Symposium
Contemporary Architecture & Urbanism in the
Mediterranean & the Middle East

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GAU JOURNAL OF SOCIAL & APPLIED SCIENCES

ISSUE 10 – Supplement

Volume 6 / 2014

ISSN 1305-9130

Journal Editor: Sadık Ülker

Girne American University Publication 2014, Girne CYPRUS

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The correlation between major urban thoroughfares and diffusion of 'disturbing' land uses in urban neighborhoods of Athens

Efthimios Bakogiannis, Maria Siti, Georgia Christodouloupoulou

Abstract

Integrated research in urban and transport planning is considered to be a critical attribute in future urban studies as transport planning in cities should immediately serve planning aims and upgrade public spaces. Land uses and urban formulations are inextricably related to travels and transportation infrastructures. Travel flows create spatial conditions and shape particular urban morphologies (and vice versa), which are some of the key elements in urban development. These morphologies, let them be buildings, street networks or symbolic spatial formulations, constitute the city's record in the history of space structures, relationships and attitudes that contribute to the current urban configurations.

The current analysis concerns the spatial and social formation of urban entities around major urban thoroughfares in the metropolitan area of Athens in Greece. Research is focused on the significance of these major roads in the development of land uses and the attraction and repulsion of activities they generate. Pireos Street and Syngrou Avenue, two of the most stressed Athenian urban arteries, are the main case studies to be theoretically explored in this paper, regarding the above parameters. Main urban thoroughfares usually attract incompatible and/or 'disturbing' land uses which then are diffused in the adjacent residential or mixed use areas. Impacts of this diffusion are explored in regard to social and economic attributes developed in the neighboring urban entities.

Research demonstrates the evolution of land uses and their immediate correlation with transport networks, stressing further the need for interdisciplinary study among urban and mobility planning.

Introduction

Urban and transport planning are considered as two separate scientific fields, which overlap regarding the various functions of the street network, land uses and the public spaces. Urban features such as spatial distribution of planning features and planning regulations among others, interrelate with transport planning attributes (traffic flows, hierarchy etc.) developing the need for an inter-disciplinary approach in both research and education of the urban parameters.

Land uses and urban operations as located in the urban street network, and especially in major urban thoroughfares and/ or highways, can develop complementary relationships as well as serious conflicts.

Already since the linear cities of Arturo Soria Y Mata (La Ciudad Lineal), to the latter city concentric zone models and the modern metropolises, the above arteries act as dynamic development corridors in the urban environment, however generate multiple pathogeneses in their periphery. Modern trends of decentralization, the increase in the level and amount of services and the broader neoliberal shifts regarding the location of activities, alter widely the delineation of land uses, determine sprawl corridors, and shape new centralities.

This paper discusses shortly the role of linear development corridors in Athens Metropolitan Area and the complexities arising by the location of inter-regional/ supra-local activities in the close vicinity of urban neighborhoods. Incompatibilities between entrepreneurial and residential uses are explored in order to identify the abrupt changes in the adjacent places of major thoroughfares. Theoretical principles in road network and planning units hierarchy are reviewed, through the presentation of the cases, in respect to socio-economic impacts from the activities' diffusion.

Aims and objectives

The aim of this paper is to relate the future of interdisciplinary urban studies with the emerging academic discourse of integrated urban and transport planning. Refers to sprawl and land use diffusion phenomena in Athens Metropolitan Area and especially spatial units around two (2) major urban thoroughfares, namely Pireos Street and Syngrou Avenue.

The structure of the article is organized in four (4) sections. The first introduces the basics regarding the urban and transportation environment in Athens Metropolitan Area, while the second focuses on land use practices across linear developments demonstrating the examples of the two case studies. The third section explores the evolution of these formulations and how some of their special attributes generate issues of exclusion and inconsistencies in the neighboring areas. Lastly, the fourth section deals with ways of halting the existing urban disruptions through common practices, policies and strategies integrating urban and mobility research analysis, as seen in the international and European environment.

Conclusions are drawn in the basis of assessing the various impacts in the described linear centralities, defining the social expressions of such phenomena and formulating general approaches and guidelines for containment principles. Inter-disciplinary research in urban and transport planning calls for land use

control in regard to street infrastructure development and implementation of protective measures in the adjacent neighborhoods.

Setting the scene: A general overview of the Athenian urban and transportation environment

The urban development of Athens has progressed through a number of incidents and planning initiatives, however in scattered approaches, which has led to imbalances in socio-spatial characteristics, lacks in planning elements, neglected spaces, unwise management of natural resources and many more. The Athenian model of urban development, according to Aravantinos² (Aravantinos, 2007), has various negativities ranging from the lack of open and green spaces to increased densities, extended utilization and commercialization of spaces, downgrade in the peri-urban environment, traffic jams and air pollution.

In terms of transport characteristics, there is a number of significant implemented strategies and infrastructure, such as the metro and suburban train systems, highways and many more, that have altered its previous incoherent image.

Since 2004 (Olympic Games in Athens), a number of significant projects have transformed the transportation network, while also some fundamental objectives of strategic planning are being reconsidered, such as the cease of urban sprawl, the improvement of accessibility in the suburbs, the gradual decline in car mobility etc.

Figure 1 below shows the main current transportation links connecting focal nodes in Athens, such as rail and light rail networks as well as the main street linkages.

² Aravantinos, A., 2007, *Urban Planning: For a sustainable development of the urban space*, . Athens: Simmetria Publishing.

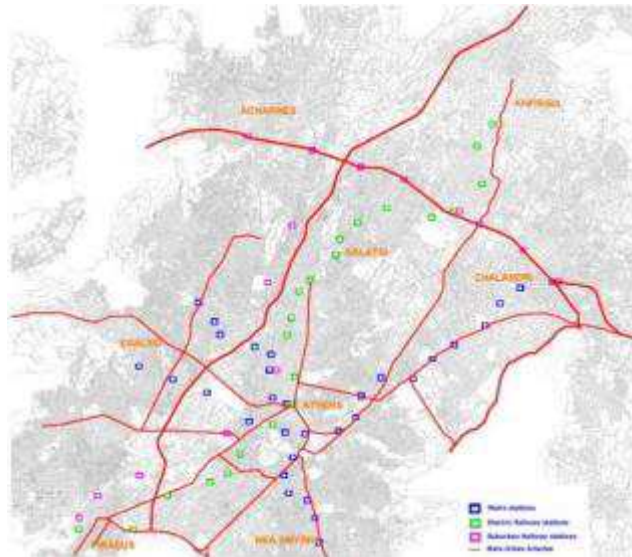


Figure 1: Transportation network in A.M.A.

Source: Own Construction

It is observed that due to the increase in living standards among others, suburbanization has driven multiple activities to move to new centralities and the previous city has been widely expanded (figure 2). Public transport has changed its service standards in an attempt to cover this exceed in demand, however the increase in car motorized transport has led to the development of large scale urban highways and motorways (figure 1).

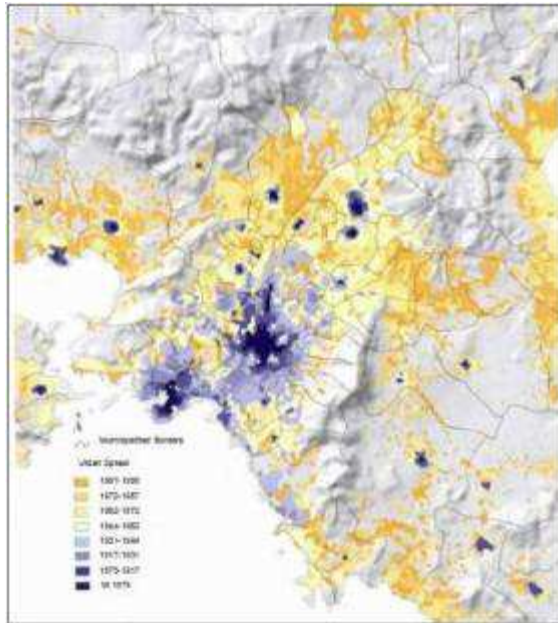


Figure 2: Urban sprawl in A.M.A. Source: Pagonis,2011³

The competitiveness between public transport and private cars, as well as the numerous taxis, have a serious negative effect on traffic congestion. The various authorities that are involved in the management and coordination of transportation planning in Athens have proven to be inefficient in a way, while the overlapping of responsibilities and decision making attributes troubles things further. Fragmentation in powers and polyarchy complicate the development of a unified strategic vision, the monitoring, and the potential for integrated urban and transport planning.

Major urban thoroughfares present a congested profile as they have attracted various incompatible activities in their adjacent urban blocks, which develop traffic jams with the expected low speeds and high pollution. The fact that land uses, in the above arteries, have been distributed according to the needs of car mobility, strains their capacity and service level, while it adds on the parking

³ Pagonis, Th., 2011, *The phenomenon of urban spreading and the consequent reduction of the natural environmental sections – The part of designing. The case of Eastern Attiki*, Lecture at Master's Architecture and Planning at NTUA

demand. Moreover, the presence of large scale traffic corridors- highways in the urban environment generates issues of social and spatial discontinuity among the neighboring urban centralities.

The above lingering issues in Athens have been discussed extensively, as part of the Strategic Transportation Network Plan, which aims at improving its transportation policies and upgrade the service levels by the target years 2016 and 2023. However, it is observed that the proposed transformations deal mainly with the increase of public transport share in mobility market and matters of cost- effectiveness, discarding the need for parallel alterations in land use plans and sustainable urban mobility principles. Regarding the key arteries of the Attica basin, an extended bus rapid transit system and traffic policies are planned to be implemented. The main encouraging strategy is related to the foundation of the Integrated Institution for the Planning and Operation of Urban Transportation Systems which is expected to operate in absolute accordance to the Urban and Spatial Planning Authorities of the Attica Prefecture and Municipality of Athens.

The latter, regarding the future of the main urban arteries, aims -in a theoretical perspective- at :

the harmonization of land use planning and building regulations to the strategic urban development visions of Athens

the strengthening of specialized uses in individual parts, by limiting the permitted uses to those compatible with the dominant development orientation, and some alterations in uses in order to achieve mix of uses in the desired places

the promotion of strategic interventions in places where specific upgrade is needed

the development of supra-local administrative, communal and cultural facilities in specific linear centralities

the development of specific zones for entrepreneurial hubs and reorganization of the existing business clusters et cetera.

Major urban thoroughfares, land uses and linear development: The case of Athens

The term linear or ribbon development of land uses is used in the current paper to describe the concentration of inter-regional or supra-local activities along the sides of a main arterial road. Linear development, as a city development model, is considered to be dysfunctional and aggravating regarding both the unimpeded vehicular movement and the operation of the accommodated activities. Strip

development of activities within the urban environment impacts and many times determines urban sprawl phenomena, creating new urban axes and growth poles - corridors of supra-local linear centralities. The common land uses found in such main arterials vary from typical entrepreneurial activities, industrial uses, company headquarters to cultural clusters, sports arenas and other large scale infrastructure. Such uses generate considerable traffic loads and downgrade the urban environment. These streets, called urban highways, major urban thoroughfares, urban freeways etc., share common characteristics with the typical segregated motorways and main urban arterial roads as they have two to three lanes in each direction, side streets and median traffic islands in some cases.

Proper transportation planning, in terms of the street network, is based on the concise hierarchy of streets (Frantzeskakis, 1997⁴) which allows access to the accommodated functions depending on the level of the street. The above requires substantial coordination among urban and transport planning. Major urban thoroughfares with the aforementioned intense land uses in their vicinity, which have aroused spontaneously and without indicative side streets or proper accessibility alignments, develop congestion, burden the neighboring areas with through traffic and increase accident possibilities.

The operations that are affected by the location of such uses in the adjacent blocks of major urban thoroughfares, which can be compatible or conflicting among each other are three (3); connectivity (between cities, settlements etc.), accessibility (to the studied uses), and pedestrian movement in the street environment. Traffic connectivity conflicts with accessibility as the first calls for higher speeds and the second demands frequent stops. The presence of side streets usually deals successfully with the above. Vehicular accessibility to the land uses is seen as incompatible with the unobstructed pedestrian movement, especially due to illegal parking on sidewalks, air and noise pollution and lack of determined parking lots. Lastly, the free traffic connectivity conflicts with pedestrian movement as the increased speed reduces pedestrian safety and also cuts off travels between opposite neighborhoods.

The common problems raised by the location of such activities can be categorized in four (4) groups;

transportation issues (traffic loads, safety etc.)

issues of urban downgrade

⁴ Frantzeskakis, J.M., Butt, N.A., 1997, *Planning urban networks: the Islamabad example*. Transportation Quarterly. Vol.51 No 1, pp. 101-110, Eno Transportation Foundation.

operational aspects of the adjacent blocks

transformations in the traditional commercial centers

Integrated approaches in street hierarchy planning aim to deal with the above issues and distribute proper land uses according to the level of each street, incorporating transportation and urban planning principles.

Two of the main arterial roads in Athens were examined in detail in order to identify the incompatibilities arising by the location of land uses, the nature of these uses, the presence of side streets and the diffusion of activities in the neighboring areas. Pireos street and Syngrou Avenue (figure 3) are located at focal points in the Athens Metropolitan area, connecting centers of inter-regional and supra- local appeal, while they concentrate numerous activities at their adjacent blocks. Moreover, their alignment passes through historical municipalities, many times separating them. The activities they accommodate had strong economic benefits and high land values, which now are declining mostly due to the general Greek economic hardship.

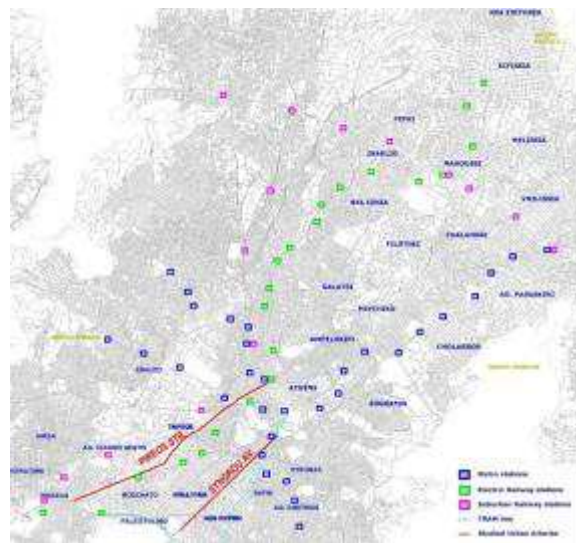


Figure 3: The two studied urban arteries; Pireos Street and Syngrou Avenue in Athens, Source: Own construction

Pireos street is one of the main Athenian urban thoroughfares laying at the centre of the A.M.A.. It links Athens to Pireaus area and port. It has a length of

8,5 km, its width expands from 20 to 35m, having two (2) to three (3) traffic lanes in each direction and crosses the municipalities of Athens, Tavros, Moshato, Renti and Pireas (figure 4).



Figure 4: Pireos Street, Source: Own construction

Pireos Street is one of the most historical routes in Athens (already since the 5th century B.C.), which played a key role in the city's urban fabric, previously accommodating a number of focal industrial activities. Pireos str. is located in the close vicinity of the subway's alignment, allowing for further connection to the whole Athenian conurbation. In the past, it was a purely industrial node, highly downgraded, which was attracting workers due to its low estate values and the presence of some social housing. The current land uses -in the blocks facing the street- range from trade markets, small enterprises, warehouses and logistics to supra-local large leisure centers, bars and restaurants, museums, and some limited residential blocks. Moreover, there is a number of underused buildings, former industries and crafts (figure 5).



Figure 5: Underused buildings in Pireos Street, Source:Kazos and Sotiropoulos, 2011⁵

During the last 20 years, there is a strong discussion related to its regeneration in traffic and urban planning terms which in the last five (5) to ten (10) years has led to vigorous attraction of activities. Regarding its traffic character, Pireos is highly congested, especially during the night hours, and serves through traffic for the neighboring municipalities. Issues of conflict are detected as these large scale facilities attract numerous visitors which interact with the neighboring areas, burdening them with parking needs, noise and of course air pollution. Other conflicts emerge in terms of densities and heights, where there are street sections with standard one storey former industrial buildings and their opposites with four (4) storey residential buildings. The few remaining industries have been recently expanded burdening further the surrounding neighborhoods with truck traffic. The street environment is hostile to pedestrians, cyclists and other vulnerable road users as sidewalks are either poorly conserved or occupied by cars.

Moreover, Pireos street is nowadays mostly known as a cultural hub with many of its functions being diffused in the adjacent areas, going under serious gentrification phenomena. The mix of activities- especially the recreational- has penetrated Metaxourgio, Petralona and other neighboring areas, which results to the transformation of their previous urban residential character.

Syngrou Avenue is also one of the key arteries in the Athenian conurbation with high influence in the commercial and business life of Athens. Located at the centre of Athens (figure 6) and linking it to Pireaus port, has a length of 5km and its width expands from 20 to 48 m, having two (2) to four (4) traffic lanes and

⁵ Kazos, Ks., Sotiropoulos, N, Benardos, A., 2011, *Underground Development of Pireos Str. and Iera Odos Intersection*, Postgraduate thesis, School of Mining and Metallurgical Engineering NTUA. Available at: <http://dspace.lib.ntua.gr/handle/123456789/5246>

side streets in some of its segments. Crosses the municipalities of Athens, Kallithea and Nea Smyrni. After 1980, it has undergone some serious transformations by becoming an urban highway in the heart of the city, with elevated intersections and side roads. This transformation was based on modernization scenarios and was implemented mostly to serve fast vehicular movement through the city.



Figure 6: Syngrou Avenue, Source: Own construction

It has some of the most recognizable large buildings (landmark spots) such as the FIX industry, Hotel Intercontinental, the Onassis Foundation, the Planetarium of the Eugenides Foundation, the Onassis Cardiac Surgery Center and other landmarks. Moreover it passes next to major athletic facilities (fields and Olympic Games facilities). Syngrou Avenue connects Athens city centre to a seaside esplanada, firstly attempted during the Olympic Games, an area currently undergoing some ambitious redevelopment plans.

The land uses in the blocks facing the street are mostly businesses and services (private companies, banks, insurance companies) of inter-regional and even national importance, as well as commercial and leisure facilities and residential in the upper floors. Although in this era of the economic crisis, many buildings

are left underused, rental prices continue to be at the levels of 2007 (figure 7), although declined slightly.

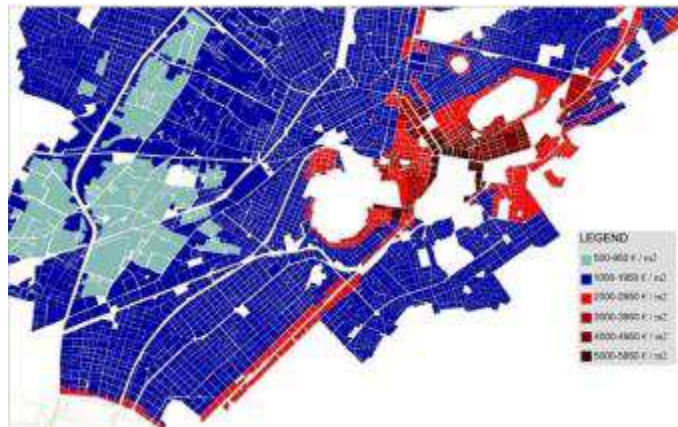


Figure 7: Syngrou Avenue price band values, Source: Tournikiotis et al., 2013⁶

In terms of its traffic characteristics, Syngrou is a highly congested avenue with two (2) to three (4) traffic lanes in each direction and a bus lane accordingly as well as side streets in several parts. For many years, Syngrou was attracting national companies, international chain stores and other private investors, continuously altering the spatial characteristics of the area. Many of the most famous modern architecture buildings are located in its side blocks while some of the most historical neighborhoods are lying tangentially.

Similarly to Pireos Street, it has highly affected its neighboring spatial units by attracting incompatible to housing land uses. Intense contrasts exist in building terms and permitted heights as well as in urban block sizes. Traffic load is penetrating the local network and during the peak hours traffic delays are severe.

During the last 5-10 years, the discussion on its transformation into an urban boulevard (figure 8a&b) are very vivid and after the initiative of the National Technical University of Athens and a private foundation, there are several plans developed. Tournikiotis (Tournikiotis, 2013_2⁷) argues that Syngrou Av. can

⁶ Tournikiotis, P., Vansechoven, M., Vasilopoulou Ch., Vasiliadis, V., Karidi, E., Kafantaris, F., Kitsos, V., Mouzakitis St., Patatouka, E., Syngrou from Highway to Urban Avenue, Research project, NTUA and Region of Attica, Available at: http://www.patt.gov.gr/main/big_files/03.pdf (Assessed at 27 June 2014)

⁷ Tournikiotis, 2013, Syngrou will be again Urban Avenue, 2013, Article at "I Kathimerini". Available at:

undergo a crucial transformation by decreasing its road width, slowing down car circulation, connecting across neighborhoods and increasing cultural activities in the blocks facing the street. The regeneration plan includes also premium landscaping and infrastructure for cyclists, pedestrians and public transport (buses and tram).

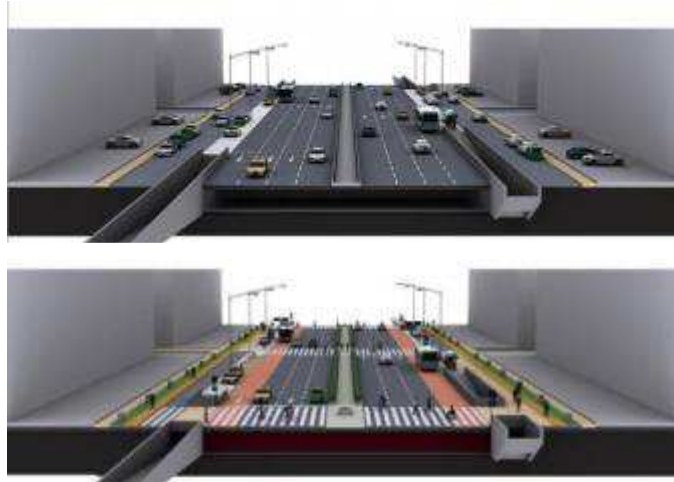


Figure 8 a&b: Syngrou Avenue before and after the regeneration plans, Source: Tournikiotis et al., 2013⁸

Both cases, Pireos Street and Syngrou Avenue, have been studied in depth by several research groups and individual scientists in order to address the described phenomena, however many studies address mostly the landscaping and beautification of the street zone disregarding the combined urban and transport assets to be considered. Indeed, in the case of Syngrou Avenue, the regeneration plans shown above have been incorporated in the Strategic Plan for Athens and the transformation is expected in the coming 5 years.

<http://www.kathimerini.gr/41311/article/epikairothta/ellada/h-syggroy-8a-ginei-3ana-astikh-lewforos>
(Assessed at 30 June 2014)

⁸ Tournikiotis, P., Vansechoven, M., Vasilopoulou Ch., Vasiliadis, V., Karidi, E., Kafantaris, F., Kitsos, V., Mouzakis St., Patatouka, E., Syggrou from Highway to Urban Avenue, Research project, NTUA and Region of Attica, Available at: http://www.patt.gov.gr/main/big_files/03.pdf

Impacts and issues of exclusion

The control of land uses constitutes a crucial issue in urban planning though it is considered to be highly influenced by political decisions as it can affect the social and economic viability of an area. Distributing land uses prerequisites the assessment of various parameters and the determination of the specific spatial zones includes four main variables, namely their size, their location, their shape and the kind of uses as well as their intensity. As in most cities in the world, they are defined through city plans and their implementation and monitoring relies on local and national authorities. In the Athenian environment, as in Greece, there is a significant inapplicability of urban standards, policies and measures in numerous cases which along with particular boost policies for economic profitability complicates things further.

Strip development in urban highways is a quite common practice, with landowners many times disregarding urban planning policies, leading to sprawl phenomena and the unification of previously separated municipalities. As in the cases we have explored above, the land uses accommodated in such congested urban arteries are mostly supra local impacting the city and its urban neighborhoods in three (3) major sectors; urban planning, transportation activities and environmental setting. These impacts can be summarized in the following;

Increase of traffic congestion in the adjusting neighborhoods' local network

Increase in parking demand, which penetrates the local centralities as not all businesses facing the highway have adequate parking facilities

Create a hostile street environment for vulnerable road users (i.e. pedestrians, cyclists, disabled and elderly people)

Development of a technical barrier, a "traffic wall" between the two sides of the artery, which tears the urban fabric, isolates relative neighborhoods and disrupts cohesion in social and economic terms

The moderate growth of residential or mixed-use areas is being restrained by the neighboring with incompatible supra-local mega activities, forcing them to incorporate supplementary uses

The discontinuity of urban form (very large vs. normal sized blocks) affects the formulation of the street network, the morphology of the cityscape and eventually public spaces

Real estate values increase disproportionately many times leading to gentrification phenomena

The competition among the various municipalities is increasing, according to the uses they accommodate in their boundaries

Increase in air and noise pollution

Increase the risk of accidents near home zones and/ or mixed use areas

Support and drive urban sprawl phenomena

The issues of social and spatial cohesion include among others the homogeneity, solidarity and equal chances to all different social groups residing or working in an area. The impacts of the discussed thoroughfares in crucial zones of the conurbation develop several issues of exclusion. The lack of integrated planning in neighborhood zones and metropolitan areas, leading to the lack of actual social infrastructures (i.e. education and health units), ends up in excluding social groups from residing or generally accessing an area. The extensive presence of private health clinics and private educational facilities downgrades the service level of public bodies. The location of supra-local or crucial activities in linear centralities downgrades further the city centre activities, as they are moved away, while also the city's environment is becoming more hostile.

Physical barriers between central areas strengthen further exclusion as through travels (by any means of transportation) are in a way prohibited or mostly discouraged, while linear mobility serves only mostly the ending points of the arteries.

In order to decongest the arteries from traffic load and the wider area from the intensification of uses, a different approach in hierarchy of multiple centralities must be followed (Giannakou & Kafkalas, 1999⁹). This could assist on the protection of the neighboring areas by disturbing uses while improve the distribution of real estate values and amplify gentrification phenomena. Further ways (policies and strategies) of halting urban disruption are presented in the following section.

Halting further urban disruption: Mitigation policies and strategies

There are several practices which can be adopted in order to mitigate the impacts of the described phenomenon both in transportation and urban planning terms. Traffic regulations and traffic calming techniques, such as the

⁹ Giannakou, A., Kafkalas, G., 1999, *Trends in positioning the tertiary section of production and regulation of urban development: lessons from the case of Thessaloniki*, at D. Economou and G. Petrakos *Development of Greek Cities: interdisciplinary approaches to urban analysis and policy*, Volos, Gutenberg Publications

decrease in traffic speed and traffic lane width, as well as the reorganization of the street hierarchy, can be part of that strategy at a first level.

In urban planning terms, the alteration in land uses regulations, building terms, landscape interventions and others can assist on the ceasing of the diffusion of disturbing land uses in the neighboring areas.

More specifically, actions which can be adopted are recommended below:

Analysis and planning assessment of the downgraded zones

Identification of the disturbing land uses and determination of the potential compatibility with upper planning regulations, regional and local plans, as many of them present illegalities in planning terms

Determination of alternative intervention planning measures and policies, , such as:

the shift of permitted land uses to more compatible and sustainable uses fitting in a congested urban environment

the control and alteration of permitted uses adjacent to the discussed urban highways, such the addition of cultural uses and services

the implementation of different building factors according to the various land uses, in order to cease the outspread of particular incompatible uses

the restriction of building coverage percentages to 40% for particular incompatible uses

the obligatory opening of rear building passages to link building communal spaces with public space

Other planning and urban design measures which can add on the deterioration of the phenomenon can be:

the rearrangement of irregularly shaped blocks and development of communal spaces (block redevelopment etc. in accordance to laws No 1337/83 and 2508/97)

the configuration of entrances and buildings set up in order to achieve the development of garden patches and semi-public spaces

the redevelopment of sidewalks both to the main street as well as to its intersecting sections

the removal of one or more traffic lanes and the development of wide greenzones for pedestrians, cyclists etc.

the advancement of uses with complementary facilities, where lacking (i.e. first aid station)

the installation of street furniture (lamp posts, benches, bins etc)

Specific transportation policies and measures can include small and large scale interventions always in accordance to the complementary actions in terms of planning characteristics, converting the congested streets into more viable and people- friendly environments. Case specific elements and the particular location of the various uses can drive the channeling of flows in parallel streets, avoiding the core residential areas while the construction of exclusive sidestream pathways for pedestrian, cyclists and public transport is recommended in cases when the redevelopment of the highway is not possible. The reorganization of sidestreets can also follow a unified approach with the network of the adjusting local streets and encourage developments perpendicular to the linear evolution of the areas. Converging and diverging streets methodology, if combined to the above, can ease the development of a strong pedestrian friendly environment and case specific traffic measures can prioritize particular vehicular movements.

Other more radical practices which can also be adopted, although considered rather ambitious for the Greek planning experience, include the tunneling of such urban highways and the development of enhanced public spaces on the area previously occupied by the street. Tramways, bicycle lanes, shared spaces and proper planting can be accommodated while vehicular movement is served below the ground. Moreover, the transformation of such highways into urban boulevards is a more rare practice but usual discussion in the European and international urban discourse. Though, only a few highway removals have been implemented so far with the most famous being in Portland (Oregon) (figure 9a&b) and Madrid (Spain) (figure 10a&b).



Figure 9a&b: Harbor Drive, Portland (before and after the highway removal)

Source: Walker, 2014¹⁰



Figure 10a&b: Rio Madrid, Madrid (before and after the highway removal)

Source: Walker, 2014¹¹

A quite similar proposal, as described earlier in this paper, is proposed in the case of Syngrou Avenue in Athens, which of course presupposes a completely different approach in combining urban and transportation elements and adding an extra city landmark.

In general, the removal of such freeways is considered to be a measure of public policy which alters considerably the image of an area and the city's environment as a whole. As a strategy it is designed to replace the described incompatible or as called 'disturbing' land uses with mixed use, residential and commercial activities, restoring and enhancing the neighborhoods it is adjacent to. Adding to this, removal projects propose through their masterplans increase in densities and shifts in building regulations, impacting greatly on the neighborhoods' character.

Although highway removals are seen to be an interesting alternative, there are several criticisms for gentrification phenomena as rental prices tend to increase and residents as well as owners of small and medium enterprises accommodated in the neighboring areas are forced to leave these urban entities

¹⁰ Walker, A., 2014, 6 Freeway removals that changed their cities forever, Article at Gizmodo, Available at: <http://gizmodo.com/6-freeway-demolitions-that-changed-their-cities-forever-1548314937>

¹¹ Walker, A., 2014, 6 Freeway removals that changed their cities forever, Article at Gizmodo, Available at: <http://gizmodo.com/6-freeway-demolitions-that-changed-their-cities-forever-1548314937>

as they cannot afford these raises. Moreover, the supra-local activities previously located in the close vicinity of these highways are forced to move to organized area receptors, thus when this is not possible they tend to either shut down or move to similar locations close to the city and mostly around national roads.

Initial conclusions and further research issues

Urban and consequently transportation evolution is shaped well beyond the idea of just covering the needs of citizens. The arising complexities in the urban phenomena and the constant expansion of networks require integrated approaches in planning, which would coordinate land use and transportation policies. Research in sustainable urban mobility focuses on the promotion of public transport, walking and cycling while it encourages alternative ways of travelling either for commuting or for recreation purposes. One of its key principles aims at the "safeguarding" of neighborhoods from car domination, through traffic, high speeds, disorganized parking and many more.

As seen in this paper, linear development of land uses in main urban thoroughfares leads to serious traffic jams and increased traffic loads, due to the slow speed developed for accessing the facilities as well as the relative high speed in the intersecting local networks. As reported, approaching such complex urban issues with a combination of urban and transportation planning parameters can impede further downgrade of such arteries, improve vehicle circulation, road safety and make streets friendlier to all road users including pedestrians, cyclists and public transport users. Moreover, this paper has explored ways of repurposing the public space and street network in the surrounding of these major street arteries in order to reconnect scattered city grid, such as freeway removal projects or development of urban boulevards.

Lastly, it should be noted that the studied streets are currently being reassessed through a number of regeneration projects, having developed clear urban identities. Pireos Street is attracting more cultural activities while the previous industries and crafts are removed. On the other hand, Syngrou Avenue serves mostly businesses and high value enterprises. The upcoming transformations are expected to alter further the image of these streets, hence attention should be drawn at their circulation character and the shift to a sustainable mobility approach as well as the removal of the incompatible land uses.

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