

Urban Design-based Zoning to Guide Fast Growth

Martina Juvara, SKM Colin Buchanan, UK

1 Defining the problem

1.1 Securing Good Environments in Fast Growth Situations

Fast growth is normally when the identity and structure of a city become blurred and progressively more confused. New commercial areas often appear and compete with the centre and with each other. Growth in the suburbs and fringes is faster, and central areas are by comparison declining, so that the process of suburbanization seems uncontrollable. The human side of growth is also inescapable: fast growth means high immigration – and quick change in society: new communities, different habits and lifestyles emerge. In a few decades the structure and identity of the city is no longer recognizable.

Traditional forms of planning are totally inadequate to strengthen urban identity and secure high quality urban development in times of high speed growth. Especially when based on a zoning system, planning prioritizes land release over land management, supply over integration. As strategic plans focus on the identification and release of land for development and on the matching of land use and infrastructure, improving the urban environment for the city as a whole is often lost in detailed, sometimes secondary, policies and regulations.

Zoning systems regulate development by the plot, one building at the time, in isolation. It is no surprise therefore that fast expansion is normally associated with extensive subdivisions and sameness: a development monoculture of similar buildings all growing, ageing and declining at the same time. Informal housing appear, partly to shortcut the lengthy formal processes and partly as it offers the alternative of houses that maybe meets the needs of people better.

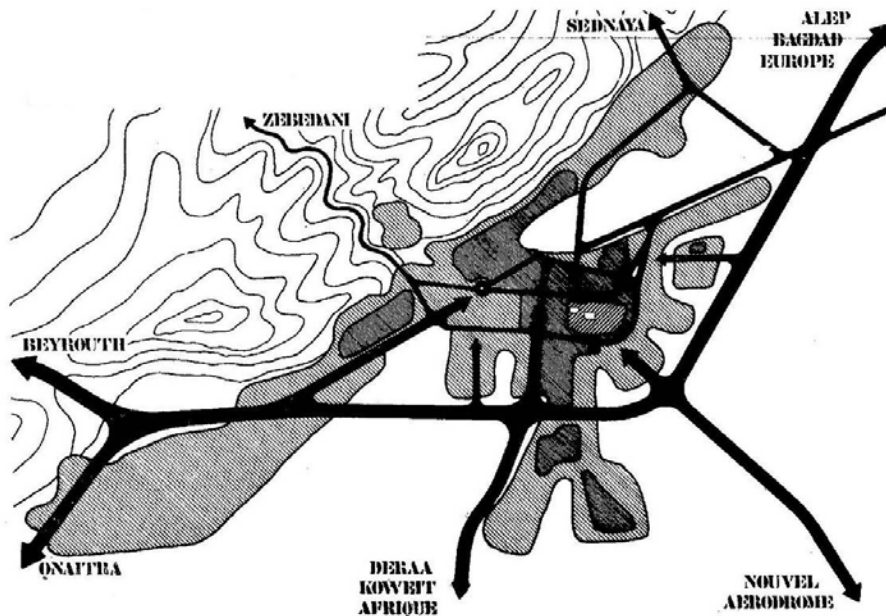


Figure 1 - Concept Master Plan of Damascus of 1968 showing expansion areas and highway network but ignoring the identity of the city (Source Ecochard, Michel (1968), Plan D'Amenagement de la Ville De Damas)

1.2 *Damascus*

Damascus is not really spreading in fast-forward. Nevertheless, it has experienced a population growth from roughly half a million in the early 70s, to two and a half million today. It is expected to reach approximately six millions in twenty years time. Typically urbanization has progressed at the pace of 240 hectares per year over the past 30 years¹. This level of growth has found the city authorities completely unprepared.

The last comprehensive urban plan had been drawn up by Michel Ecochard in 1968, when the city was just coming out of the French Mandate and was a fifth of its size today. Ecochard planned for growth, but he could hardly have the tools to imagine the transportation or environmental issues that the city is facing today. Ever since the 1980s, growth was welcome in the city, and the authorities tended to respond to immediate issues rather than paving the way for the future. Refugee influx from Palestine and Iraq, resulted in camps at the fringes of the city, which eventually turned into dense neighborhoods, hugged around UN schools and social centers. The housing crisis for local people prompted the start in the early 2000 of government sponsored mass-housing programs for students, military, government workers and other groups, meant the creation of large dormitory satellites (Qudsaya, Assad Suburbs, Doummar) of cookie-cutter tower blocks based on national construction standards. The desire to alleviate traffic congestion resulted in a crop of expressways cutting through the historic centre of the city, without any comprehensive transport plan. More than anything else, population influx meant informal housing, growing faster than any government program and representing in 2011 around 40% of all dwellings.

At the same time, in the period before the current crisis, the city and the Government were inviting foreign investment, through special laws which bypassed any planning and trying to equip the city with new landmarks: new ministry buildings scattered all over the city; a new museum for children; the stock exchange, built 20 minutes drive out in the suburbs; twin towers as tall as the local mountain and huge shopping malls on the road to Beirut.

Growth has changed the city beyond recognition, and most of what was cherished is lost in expanding lifeless communities and crowded informal settlements. No solid ground existed to decide how to build or what to build where. Damascus, thought to be the oldest capital on earth and the location of the Garden of Eden, has lost its identity of 'port in the desert', a city-oasis nestled in between the mountain and the desert, rich in water, orchards and magnificent monuments, sign of the past caravan trade and pilgrimage routes.

The new Master Plan for the city, for which I had the privilege to work as lead urban designer for a number of years under the direction of lead consultants Khatib & Alami, is still confidential, and perhaps will never even be published. Its main purpose was to provide grounding for growth, saving the essential identity of the city, and redefining its structure, so that existing neighborhoods could be improved and new development accommodated. It articulated a strategy for the future in Seven Objectives (the Damascus Charter) and a conceptual diagram, which described the future spatial structure of the city. The diagram then translated into 'roles' and priorities for each part of the city, and eventually into an innovative urban design led zoning system. Even without the detail of confidential material, the thinking and methods we developed to use urban design principles to plan the city are pioneering enough to hopefully attract attention and debate, and potentially future pilot applications.



Figure 2 - Damascus architecture of the 1930s: the most successful properties and neighborhoods of the city (Copyright: Caron, Michel 2011)

2 Weakness of Existing Planning Tools

The Damascene planning system is not uncommon: plans identify the zones to be built and provide regulation for construction, largely in the form of plot and building guidance. This type of planning is not a tool capable of integrated management of the city and lacks the strategic dimension that helps define how the city should work and be articulated in successful component parts. In Damascus, the system is even weaker, as the last comprehensive plan dates of 1968, and planning relies on national standards, combined with local subdivision plans, or 'renewal plans', without the overview of any general strategy.

The city has a puzzle of localized plans, which broadly take the form of concept subdivision plans, adopting national standards for buildings and community services and a generic arrangement to compensate for perceived desirable land uses; in the best detailed plans the concept of mixed use results in employment designations along the main roads, and apartment blocks behind. Should these plans be built as planned, ribbons of poorly served low quality offices will be scattered across the city and no business district will ever appear.

This planning approach simply identifies areas that are suitable for development, without giving any real direction or vocation of what each area should grow to become in the context of the city. Each area, then, ends up being very similar to everywhere else, as buildings adopt the same inflexible plot standards and broad land use mixes. Even if plot guidance is primarily based on the morphological regulation of development: where new buildings can go, the street grid, the regulation of heights, set-backs and coverage, etc, yet, it is totally unsuitable to achieve good urban design qualityⁱⁱ as it ignores the interrelationship between buildings, spaces and activities. Moreover, as the plans look at growth and land use regulation, there is hardly any attention on the improvement of existing neighborhoods: only

weak conservation policies of listed buildings and occasional compliance with the original regulations.



Figure 3 - Decay in the centre of the city, fuelled by expectation of redevelopment and replacement with tall buildings (Copyright: Caron, Michel 2011)

Another source of poor urban design is the crop of international large scale developments, approved at ministerial level without any regards to planning, and delivered as self contained compounds marketed to foreign speculative real estate investors, perhaps never to be actually occupied. These broadly adopt commonplace 'Arab country' designs and abstract concepts, which make a mockery of local distinctiveness.

3 Damascus Urban Design 'Experiment'

3.1 What Does it Aim to Achieve

What we wanted to achieve, as part of the preparation of a new plan for Damascus, was some sort of system which would not require urban design training or specialist new skills but at the same time would be capable of achieving radical change in how development was managed in the city and its immediate suburbs. The Planning Department of Damascus is not strong, and does not have the capacity to negotiate complex development deals or cope with a huge volume of development applications. Its work can only verify and enforce compliance with regulation. It was therefore essential that urban design became embedded in regulation – maybe complex in their preparation, but very easy to use once in place.

New regulations then had to be invented to deliver the urban design aspiration to strengthen the image of the city and create locally distinctive neighborhoods: some with city-wide or national functions, and others simple residential areas –all with good qualities for what they are, good living environments and unmistakably Damascene. The new regulations had to be structured to apply equally to the improvement of existing areas as to the release of new areas for construction. This was considered essential to achieve a balanced city, and 'save the centre'.

The new system – which we called Neighborhood Plan - is intended to work in practice in a similar way as normal Zoning, but with a stronger emphasis on the fabric as a system of buildings, spaces and activities, rather than the plot.

3.2 Methodology

The system is based on the realization that spatial urban systems can be described by a combination of three main layers: urban fabrics, activities and streets. The Neighborhood Plan therefore identifies the policies and regulations necessary to influence all three components at the same time:

- 1) Fabric Layer – derived from observation and analysis of local patterns of development that have stood the test of time, and can be repaired or used as models for the future. Detailed analysis of the city revealed xx family groups of fabrics for a total of xxx different examples. Fabrics are then typified and described in terms of density, building typology, pattern of subdivision, architecture style, relationship with open space and relationship between the parts. Analysis is then translated in regulatory criteria intended to enhance existing built up areas and guide the creation of new ones. New fabrics (for high rise commercial areas) were designed as high level master plan concepts before deriving regulation. During this work, we focused on the way these fabrics evolved and were used and became distinctive. This process of analysis therefore must be repeated in each city to capture difference and specificity.
- 2) Activity areas are the primary locations that offer services and destinations in the city: the local centers as well as the large visitor destinations. Often in Damascus activities are embedded in intensely mixed urban development, have no distinctive fabric or building typology of their own and have developed quite independently from the zoning system. The purpose of the activity layer is to ensure that each district or neighborhood has a 'centre', where a concentration of commercial activities, offices and community destinations create a focal point which may influence the social life of the neighborhood. The plan reflects a total area of activity which corresponds with the demand of land for non-residential uses. The size and location of each activity zone has been derived by observation of scale, range of uses and positioning in existing parts of the city where local centers are a real focus for the community. The classification of the zones by role and significance (Capital City, Town Centre / District and the neighborhood) reflects the strategic objectives to reinforce the role of the city centre by reducing competition from outer commercial areas. The Neighborhood Plan broad classification is then reflected and detailed in land use plans and policies.
- 3) Streets and Places Layer – in which the main network of streets is classified and regulated according to urban design definitions. The Plan identifies for example Arrival Routes and Scenic Routes in which the open views on the landscape and the city needs to be reinstated or safeguarded. Other streets are described as Avenues, Boulevards or Commercial Streets. An urban design approach is defined for each type, and a corresponding transport performance (through an iterative process with transport modeling) identified. This way the Neighborhood Plan describes the 'place qualities' of streets, while the transport plan defines the 'link' performance requirements; this process ensures that urban quality and traffic engineers are considered at the same time and are consistent. Avenues, for example, have a grand setting and linear formality, with representative buildings and are less constrained in terms of maximum traffic volumes. Urban Streets however are all about small scale and people, and cannot possibly accommodate high flowing traffic.

The combination of the three layers describes the complex character and life of each part of the city both locally and in relation to each other (Capital City, Town Centre / District and the neighborhood). By doing this, a single plan captures strategic planning and provides a zoning system that can reflect the desired urban design qualities of the future city.

A further, detailed tool is then required to translate the Plan into practical tools and appropriate regulation. This has taken the form of 'Design Guidelines', in which each fabric, activity and street is described in terms of policy objectives, essential quantitative regulation and key qualitative criteria.

Investors or developers of individual sites have only to identify their land on the plan and cross-reference to the guidance to have all necessary information for appropriate development. Development control officers must only verify that guidance is followed, in a process very similar to current zoning.

The three sections below provide an exemplification of what the Neighborhood Plan aims to achieve in three sample parts of the city, just to show how a single tool can support urban design improvement in very different context.

3.3 City Centre Application

The centre of Damascus is virtually all built up, but with notable pockets of decay and incoherent fabric, especially at the fringes of infrastructure programs, where gaps and irregular plots have been left behind. In addition, there is the desire to protect the heritage in its entirety of listed buildings, monuments and humbler old neighborhoods by preventing out of place tall building construction and unacceptable speculation which leads to heritage destruction.

The priorities of the Neighborhood Plan in the centre are the clarification of appropriate development at each particular location, guidance for urban maintenance and infill development, and the coordinated improvement of streets and open spaces, by reversing speed and car domination, which make walking increasingly unattractive.

Slow and incremental improvement is promoted in most of the historic city centre, where five different fabrics are identified and regulated in detail so that the urban qualities (the DNA) of these areas is clarified and guidance is offered, to ensure that all new development can correctly interpret its context, respect local morphology and the interrelation of public domain and activities. For example, in a fabric identified as 'Commercial Perimeter Blocks', any new development will need to follow the building line, respect the dominance of corner plots, have a central entrance atrium and a height and roof profile compatible with the block. Or a 'Garden City Mansion' development will require a set-back, broad balcony features and decorative railing.

Streets and open spaces are classified according to the desired urban design outcome, matched with transport functions. So for example, Nasser Street is designated as 'Urban Boulevard', with strong linear formality of wide planted sidewalks of a minimum width, bus lanes and crossings, while the current expressway-style Bab Sharqui link is redefined as a 'Urban Street', with local transport functions and minimalist design, so that the historic walls and the link to the orchard gardens just outside can be better appreciated, because of the small scale of the street.

At the same time, high density and fast growth is redirected to a new zone (CBD extension), immediately adjacent to the current centre, where fabric guidance encourages crops of tall buildings. Density is set as 'minimum targets' only and urban design focuses on vistas and the formal green setting of key buildings. The purpose is dual: relieving pressure on the heritage fabrics by accommodating large format buildings elsewhere, and creating a new 'downtown area', well served by public transport and complementary to the main Damascus University campus, to encourage the clustering of high value businesses and introduce an attractive modern capital skyline.

3.4 Informal Areas Application

Forty percent of the residential areas of Damascus are informal. They have been built without building permit and without compliance to the zoning system. In most cases, informal areas are the result of illegal subdivision of rural land, with land titles specifying agricultural use. The construction system is simple and incremental: a standard reinforced concrete outer frame and concrete block infill. Normally construction starts with one or two habitable

rooms, progressively expanded as and when the family can put more money together. Development is very compact and fast: the first rooms are built in few days, while a new house starts to the side. The street network is made of lanes, just sufficient for a single vehicle to go through at walking speed. Water and electricity are supplied through illegal wells and flying connections to the grid. Basic community infrastructure generally follows, either through government programs or aid agencies.

These are not slums or undignified places in which to live. But they are overcrowded and messy: there are no gardens, house courtyards get filled to make room for growing families. The main streets, originally country lanes, are packed with cars and activity. Ugliness, mess and non compliance with the zoning regulations have always been the official reasons to propose clearance and wholesale re-housing in faceless apartment blocks in the outer suburbs.



*Figure 4 - Typical informal development in central Damascus
(Copyright: Caron, Michel 2011)*

The Neighborhood Plan classifies informal areas as 'Spontaneous Lane Fabric', where special parameters apply. This has the effect of legitimizing the areas, subject to small scale corrective interventions to ensure a minimum standard of acceptability, which includes safety and urban 'decency'. For example the Plan allows construction with no set-backs along narrow lanes, but also prevents vertical additions above a set number of floors and requires open courtyards for ventilation. A minimum of external decoration on the public street is also required. The Plan also defines the areas for commercial activities and community facilities within spontaneous development, thus establishing a neighborhood centre where community and transport services can be located, and connected to the rest of the city. The Plan also provides examples of how to create a hub of essential services and neighborhood gardens, with small scale selective building removal.

In this way, the Neighborhood Plan zoning supports the strategy for the regeneration and legitimization of informal areas, while offering practical solutions to improve their livability and performance.

In addition, new areas are allocated for new development which adopts informal methods. The objective is to take advantage of the fast and affordable construction process, while limiting the main drawbacks: excessive density, unsuitable location, lack of neighborhood facilities. The adoption of the Plan will introduce a totally new planning context for informal areas: a bespoke planning zone, which allows and legitimize spontaneous development conditional on fabric-specific and suitable criteria. As the fabric zoning applies to existing and future spontaneous areas, the Plan ultimately makes no distinction of the development origin, removing the stigma of informality.

3.5 New Growth



Figure 5 – Lifeless middle class neighborhoods of recent construction in Kafr Souse, central Damascus (Copyright: Caron, Michel 2011)

The Neighborhood Plan zoning system is also an innovative way to zone expansion areas. It simultaneously separates the limits of urbanization from green and unbuilt areas, sets target densities and describes the backbone of the future urban form: building typologies, street patterns, arrival points, communal centers and gardens.

All new zones are allocated a fabric type, or a combination of fabric types, with an associated description of systems of buildings and interaction of buildings and spaces. The fabric zoning is then layered with identification of the location and size of the neighborhood centre and activity zone and the urban design-led classification of the main streets. The combination of the three layers produces a high level master plan intention of the urban design of future growth. This has great advantages:

- 1) It allows the main plan to coordinate and guide all growth areas relative to each other, for example by zoning 'Perimeter Block' fabrics in areas where ground floor commercial activity and mixed use is desirable and zoning 'Garden City Mansions' mid density green residential areas, where mixed use is discouraged.

- 2) It prevents the sameness of standard subdivisions, as fabrics are regulated as systems of different buildings and spaces, and more than one fabric is normally zoned for each single expansion area.
- 3) It guides the preparation and coordination of more detailed master plans, whenever desired by private developers or public agencies, preventing the construction of poorly integrated schemes.

In a situation of fast development, this approach provides a lot more information than a common zoning system, without the need for lengthy detailed plans, providing an effective middle level between city strategy and local subdivision plans.

4 Can it be Transferred?

The approach of the Neighborhood Plan has its origin in the study of local settlement and neighborhood development patterns, which are necessarily different from city to city and country to country. This is an essential process, which ensures that future urbanization in Damascus is distinctive and suited to the population, and different from other places, where habitation has different connotations and values.

The analysis of settlement habits, their classification, and the synthesis of essential criteria in guidance and regulation for the future, requires urban design experience and local knowledge. However, once the groundwork is covered, the process of developing the Plan is actually fairly fast as only three layers (fabric, activities and streets) are used in summative version. A good GIS system can then translate the fabric data in population, land use and other traditional planning parameters. The network of streets and activities also makes the link between land use and transport planning.

The initial investment in local knowledge can be rapidly transferred into plan information, translating strategic planning objectives into localized parameters and site design in an efficient single step, so that all areas of the city – new and already built, central or peripheral, rich or poor – can have a good standard of urban design, including distinctiveness, clear identity and integral neighborhood functions. In a situation of high-speed growth, traditional planning is slow and does not easily correlate strategic needs and local guidance. It ends up relying on crude land use allocations and plot parameters: the origin of endless subdivisions of very little urban quality. Without a doubt, the slowness and failures of traditional planning in situations of fast growth also encourage informal development: faster and maybe even better suited to create communities, especially where people build their own homes.

Another advantage is that this approach, once in place, works in a similar way as any zoning, where the zone (fabric) provides all essential development parameters, priorities and design criteria. Development control, therefore, does not require specialist urban design skills or a different institutional framework, as consents essentially only involve confirmation of compliance with plan zoning and policies, like with a traditional plan. The acceptance or formal adoption procedures of a city plan can include Neighborhood Plan and Design Guidelines: a process sufficient to the formalization of the system.

The plan for Damascus was well received by the technical committee of the local planning department. It is not possible, at this stage, to verify effective application 'on the ground'. Mock trials, using the system to critique actual applications for consent, have been positive, giving hope that fast growth can be regulated to create better communities and places to live. Urban planners at SKM hope to have soon opportunities to trial the system, perhaps on a smaller scale, and have been in contact with authorities in parts of the world where rampant suburbanization is clearly becoming an obstacle to quality urban living.

Endnote

ⁱ Population and growth data have been elaborated by Khatib & Alami, lead consultants of the planning study of which the author was part. Land and population numbers were calculated on the basis of the Syrian Census (after verification) and historic maps for the baseline study (unpublished).

ⁱⁱ Urban design is a relatively recent discipline at the cross of planning and architecture, with no internationally recognized remit. For the purpose of the Damascus Master Plan, urban design was intended as the process of shaping the physical setting for life in cities, towns and villages. It is about creating and guiding successful development and regeneration in order to make places in which people can thrive. As such, urban design tools are concerned with enhancing the physical environment, in the expectation of improved aesthetic pleasure, community pride, balanced demography and economic wellbeing.

References

When referring to a book publication:

Bianca, Stefano (2000) *Urban Form in the Arab World – Past and Present*, Zurich, ORL-Schriften

Debes, Aynan (2009) *Damascus for You*, Damascus, Trans-Orient Publications

Ecochard, Michel (1968) *Plan d'Amenagement de la Ville de Damas*, Damascus

Keusseoglou, Anghelos (1990), *The Disappearing Old Damascus*, Damascus, Dar Thass

Khatib & Alami (2009-2012), *New Master Plan for Damascus and Vital Surrounding* – unpublished

Kleineisel, Janos (1971), *Standens Form: The Importance of Societal Patterns and Technology for Urban Development*, Stockholm, International Book Production

Thubron, Colin (1967, republished 2008), *Mirror to Damascus*, London, Vintage Books

Wakely, Patrick and Wahab, Razan Abdul (2010), *Informal Land and Property Market in Aleppo*, Aleppo, GIZ

Wihiton De Wenden, Catherine (2009), *Atlas Mondial de Migrations*, Paris, Editions Autrement