

Beyond Regulations: Comparison of the Urban Forms of the Old and New Urban Centers in Atlanta Metropolitan Area

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PROBLEM STATEMENT AND SUMMARY: THE DIVERGENT URBAN FORMS OF THE NEW AND OLD URBAN CENTERS IN ATLANTA METROPOLITAN AREA

The urban form is affected by many factors. Bill Hillier has mentioned that two categories of forces – political and economic – eventually make decisive effects (Hillier, Bill, 1999). Many authors have emphasized the key influence of the regulation in the generation of urban form. Here, the scope of “regulation” can cover all the policies about city planning, such as zoning, codes, planning documents and related regulatory overlays, e.g. zoning and subdivision ordinances, street standards, building codes, site design codes, and parking requirements, etc. (Moudon, Anne, Vernez, 1986, 1987; Calthorpe, Peter, 1993). Peter Calthorpe has said that every piece of land in the USA is controlled by regulation that decides the street pattern and binds the area to a future development and the form of growth (Calthorpe, Peter, 1993). Andres Duany has stressed that the form and character of our current cities and suburbs were imposed upon us by federal policy and local zoning laws (Duany, Adres, et al., 2000). Seungkoo Jo has referred that the urban form is critically affected by both boundaries and streets and land subdivision (Jo, Seungkoo, 1998), both of which could be attributed to regulatory force. Based on their opinions, we can conclude that regulatory force has a key influence in resulting in and controlling the urban form.

In order to testify the opinion of regulations critically affecting the urban form, we can define two kinds of urban centers in Atlanta Metropolitan Area regarding different activities and growths, and think about their interactions between regulations and urban forms. First are the old historic centers which

used to be independent towns and local centers to concentrate business, social activities and significant public buildings. There are usually several, not just one, historic centers in the metropolitan area, and with urban development and expansion, they became more and more absorbed into the global metropolitan area's fabric. If we look into Atlanta Metropolitan Area (figs. 1), we can define the cities of Atlanta, Decatur and Marietta as historic centers (figs. 2-5). All of them are the initial independent jurisdiction cities and local centers of the first three counties (Fulton, DeKalb and Cobb Counties) consisting of the current metropolis, and still having important effects on the life of today's metropolitan region. They have unique urban form such as dense street networks and small blocks which may host some important historic public buildings inside as focal points, such as the railway station in Atlanta or the courthouses in Decatur and Marietta. Second are the new economic centers which are located to take advantage of the primary urban infrastructure of freeways and highways, and focused upon large shopping malls. The new centers are usually placed in the previous suburban areas or the edge areas which were beyond the frontier of traditional concept of the city. The key generator of the new centers is the large shopping malls, which can attract businesses, investments, and activities surround, and make the new areas the economic concentrations. Several new centers can also be defined in Atlanta: the Lenox Square/Phipps Plaza area, the Perimeter Mall area and the Cumberland Mall area (figs. 6-9) (Garreau, Joel, 1992; Rutheiser, Charles, 1996; Keating, Larry, 2001). These new centers are still in growth to make their urban forms changed continuously.

In order to make urban form clearer and easier for analyzing and comparing, in this paper, we use lines

Fig. 1: Atlanta Metropolitan Area. From: *Atlanta*, photography by Jordi Bernadó, Ramón Prat ; texts by Rem Koolhaas et al., Barcelona, Spain : Actar, 1995

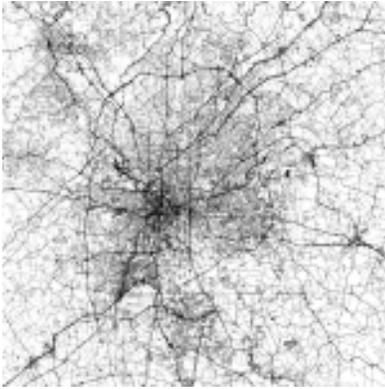


Fig. 2: Atlanta Metropolitan Area and Some Cities: Atlanta, Decatur & Marietta etc. From: Charles Rutheiser, *Imagineering Atlanta: the politics of place in the city of dreams*, London ; New York: Verso, 1996



Fig. 3 The aerial photo of the city of Atlanta. From: <http://www.teraserver.com>



Fig. 4 The aerial photo of the city of Decatur. From: <http://www.teraserver.com>



Fig. 5 The aerial photo of the city of Marietta. From: <http://www.teraserver.com>



Fig. 6: Atlanta Metropolitan Area and Some New Urban Centers: Lenox, Perimeter & Cumberland etc.. From: Charles Rutheiser, *Imagineering Atlanta: the politics of place in the city of dreams*, London; New York: Verso, 1996



Fig. 7 The aerial photo of the Lenox Square/Phipps Plaza area. From: <http://www.terraserver.com>;



Fig. 8 The aerial photo of the Perimeter Mall area. From: <http://www.terraserver.com>



Fig. 9 The aerial photo of the Cumberland Mall area. From: <http://www.terraserver.com>



to stand for streets to create these centers' line maps (fig. 10-15). The application of this method can be referred to Bill Hillier's Space Syntax (Hillier, Bill; Hanson, Julienne, 1984; Hillier, Bill, 1996). After observing those six samples of urban centers – three old and three new ones – in Atlanta Metropolitan Region, we find that the new centers have different urban forms than the old ones – they are linked to freeway nodes but not closely related to local urban fabrics; they have more irregular and sparsely intersected street network; their streets are more inclined to be linearly fragmented; they comprise larger urban blocks and larger properties; and their grounds are less densely occupied by building footprints. Based on these preliminary observations, we can conclude that there are different patterns of urban forms between the new and old centers.

Among our observational findings, one phenomenon about the urban form occurring in the new urban centers is especially noticeable. Since the new centers only appeared in the metropolitan area for several decades after the establishment of large shopping malls, we may expect that some changes in their urban forms should happen during the process of evolution. By looking carefully at the growth process of the new centers (fig. 16-21), we find that beyond the primary circulation network which extends from the existing urban fabric by freeway and artery system, there occurs an evolutionary process of a secondary functional circulation system which effectively divides the initial large blocks into smaller ones and generates a new pattern of urban forms. For example, in the large lots where the mall buildings are positioned, some paths would be created to break down the whole lots into smaller parts to supply accesses for pedestrian and vehicle and separate the parking spaces from the buildings; or in the large properties where some buildings or developments happened inside the large parcel, some functional accesses would be developed to the inner block, fragmentize into smaller blocks and connect with the exterior primary street system. This process of evolution in the new urban centers is in a manner consistent with previous findings by Arnis Siksna, who has thought that smaller blocks work better than larger blocks in city centers, and the block intensification and the physical evolution will always happen when the initial spatial layout is not dense enough to make more efficient system for movement in city

centers (Siksna, Arnis, 1997, 1998). Anne Vernez Moudon has also noticed that the secondary circulation network within the current framework of the city will emerge and access to the inner block if any development happens in the middle of the block (Moudon, Anne Vernez, 1986). Bill Hillier has named the process the “Siksna process” and related it to the theory of “movement economy”: as centers grow, they will create pressure for greater local integration, which expresses the grid intensification and smaller block size to allow greater ease of movement, either for pedestrian or for vehicle (Hillier, Bill, 1999).

During the growth of urban form in the new centers, we find most of secondary functional street system would happen in the private domain. Usually, “street” is defined as the public /private boundary, and intended to serve for the public rather than only one, even owned privately but still being publicly accessible (Caliandro, Victor, 1986; Gutman, Robert, 1986; IAUS project team, 1986; Moudon, Anne Vernez, 1987). Here, although most of secondary functional paths do emerge in private realm during the process, they are still for public use; and either automobile or pedestrian has right-of-way. So we can still define the secondary functional circulation paths in the process as “streets”. But in order to specify the ownership of street system, in this paper, we define the streets in the public property as “public streets”, while the streets in the private land as “private streets. The reason we emphasize the ownership of the secondary functional street system in the growth process of urban form, is we may expect that as streets occurs in the private realm these streets are less likely to be affected by regulatory factors and more to obey private aims. We then can propose that the growth of urban form and the generation of secondary circulation street system in the new urban centers can be critically influenced by some other factors beyond the regulation forces.

In addition, after comparing the urban forms of the new and old urban centers, there seems to be a process of evolutionary dynamic which make them convergent formal pattern. For example, the emergence of the secondary circulation system in the new centers effectively breaks large blocks into smaller ones to potentially generate denser syntax more and more similar to that in the old centers. However, important differences persist

Fig. 10 The line map of the city of Atlanta.



Fig. 11 The line map of the city of Decatur.



Fig. 12 The line map of the city of Marietta.



Fig. 13 The line map of the Lenox Square/Phipps Plaza area.



Fig. 14 The line map of the Perimeter Mall area.



Fig. 15 The line map of the Cumberland Mall area.



regarding the process of growth, such as the different urban structures between them”— the new centers apparently consist of primary and secondary circulation systems, which result in hierarchical urban structure: the integrated major external structure around the previous periphery of large lots, and the segregated secondary internal structure inside lots; while in the old centers, one kind of circulation system is constituting the uniformity of the urban structure.

Based on our observational findings, we then can think about which initiators could make the new and old centers have divergent patterns of urban form; whether the regulatory force is the only explanation or there exist other factors which may have key influences in the formation of urban patterns; whether there is any architectural thinking can make an effort on the generation of the urban form beyond the influence of regulatory framework. Here, we use—“regulatory framework” to refer to the major part of spatial layout which is resulted in and controlled by regulations. In our study, we mainly study two kinds of regulatory frameworks regarding urban form – the primary circulation system, which is attributed to the public property, and controlled by regulations; land subdivision, which is used to distribute pieces of urban land and provide a legal framework for ownership of land. Our observation shows that in the new centers the irregular and sparsely intersected primary circulation system extends from the existing urban fabric, and generates large lands to give more options and less predictability of generation of interior buildings and secondary circulation system, which is different from those in the old centers — most of the primary circulation system and land subdivision are already framed and resulting small pieces of lands for less potentiality of urban evolution. So there should be some important lessons regarding the interaction between regulatory framework, site and building design and urban form. These lessons could not only indicate whether there exist other factors such as architectural thinking to influence the generation of the urban form, but also potentially inform future design practice and the design of future regulatory frameworks.

BEYOND REGULATIONS: THE GROWTH OF URBAN FORM IN THE NEW CENTERS

By looking carefully at the growth of urban form in the new centers (fig. 16-21), we find that the sec-

Fig. 16: The line map of the Lenox Square/Phipps Plaza Area before the urban growth.

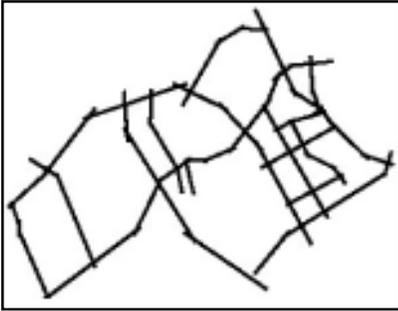


Fig. 19: The line map of the Perimeter Mall Area after the urban growth.

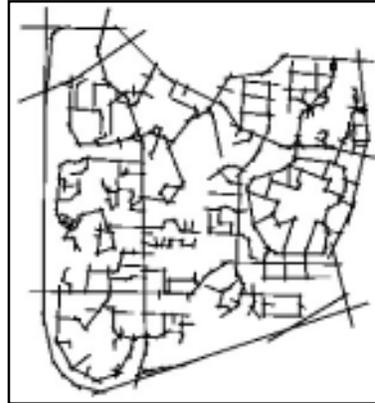


Fig. 17: The line map of the Lenox Square/Phipps Plaza Area after the urban growth.

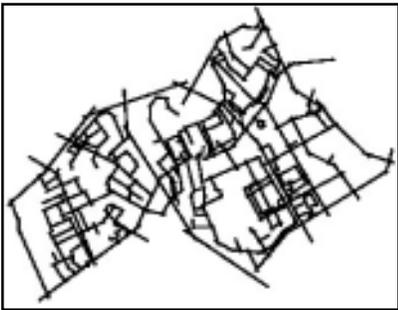


Fig. 20: The line map of the Cumberland Mall Area before the urban growth.

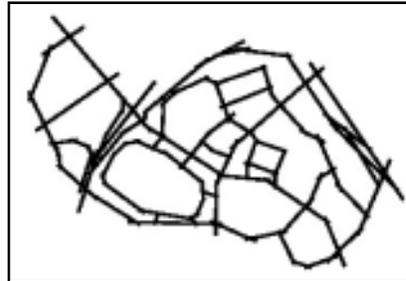


Fig. 18: The line map of the Perimeter Mall Area before the urban growth.

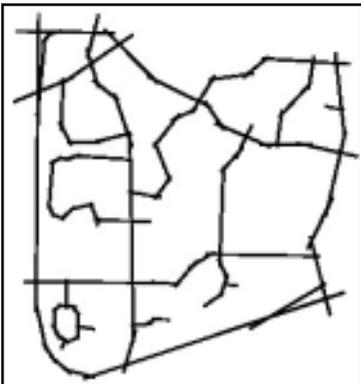
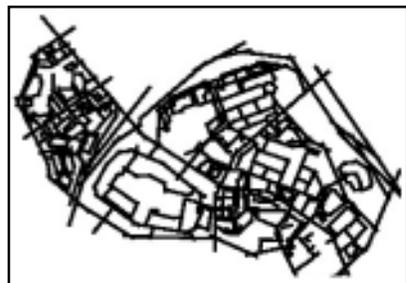


Fig. 21: The line map of the Cumberland Mall Area after the urban growth.



ondary street system mainly takes two forms. Sometimes, the secondary circulation creates “shortcuts” which can be found around the previous primary spine streets. In this way, they make large original blocks fragmented and create smaller effective blocks, which make greater ease of movement, either for pedestrian or for vehicle system. At other times, the secondary circulation “ripples off” the perimeter of large buildings, remains fragmented and provides access. These streets are added to circumnavigate large buildings, make greater ease of movement internally, and can only incidentally be used as alternative routes for larger scale connections because of their segregation. They function to accentuate rather than moderate the separation between circulation inside the block and circulation through the block.

Consequently, two kinds of structures are followed by two kinds of added streets. The “shortcut” secondary system creates the conditions for an extrovert, distributed fabric, which can potentially be linked with the larger settlement and be one part of the major circulation system. The “ripple off” system maintains a focal point upon an introvert building mass, and continues to create a sense of fragmentation of the surrounding fabric. In the case of our defined mall areas, the pattern is evident: on the one hand they remain quite separated from the surrounding fabric; on the other hand they keep showing efforts to have shop fronts, restaurants and bars face outwards, as if to link back into the surrounding fabric. The “ripple off” system seems to resist the idea of extending centrality into the surrounding area, while the “shortcut” system tries to do so.

During the process of the formation of new urban pattern and structure, there should be the interaction between regulatory framework, site and building design and urban form to initiate the urban growth. Examining the sample areas, we can find two different growing patterns. The traditional pattern is based on the principle that the street layout and land subdivision come first, followed by building. This traditional model of urban evolution can apply to the old centers in our case. While the new centers illustrate a different pattern of process where the secondary circulation system occurs after the main buildings are built. From the maps (figs. 16-21), we can expect the basic process of the growth — the primary circulation sys-

tem is framed first to make large parcels in the new areas; and then the buildings, such as the large shopping malls or the stores, are built, either in the middle of the initial large blocks or align with the primary streets. The secondary circulation street systems are thus created inside the land, either around the periphery of the building footprints or between integrated primary streets to make functional accesses to the buildings and create denser syntax for greater ease of movement. In this new pattern of urban growth, the urban form of the effective circulation system is more constrained by built form. Moreover, the difference between new and traditional growing patterns can also explain why we see two critically divergent form structures — in the new centers the primary and secondary circulation systems are interwoven to result in the major external structure around the periphery of large lots and the secondary internal structure to break large blocks into small ones; while in the old centers the circulation system and urban structure have a sense of uniformity, and they are constituting dense syntax of urban fabric.

If we study further the topic, we find other significant factors besides regulations to critically affect urban form in the evolutionary process. First, as to the interaction between regulatory framework and urban form, as we defined “regulatory framework” above, in this paper, we focus on two kinds of frameworks controlled by regulations — the primary circulation system and land subdivision. Both of them can be shown in our parcel maps (fig. 22-24). Comparing the ‘before’ and ‘after’ conditions in the new centers (fig. 16-21), we can see that the initial spatial layouts only have primary circulation systems extended from the existing urban fabric by freeway and artery system, and result in large parcels to generate secondary circulation system for the ease of movement. As we observed above, most of secondary circulation system happens in the private realm, which can be defined as “private street” compared with “public street” (fig. 25-27, red line mean public street, blue line means private street).

Because owned privately, we may expect that these private streets are less likely to be effected by regulatory factors and more to realize private purposes. As we may know, street can also be considered as the interface between a building and the passer

Fig. 22: The parcel map of the Lenox Square/Phipps Plaza Area.



Fig. 25: The line map of the Lenox Square/Phipps Plaza Area after urban growth: Public and Private Streets.

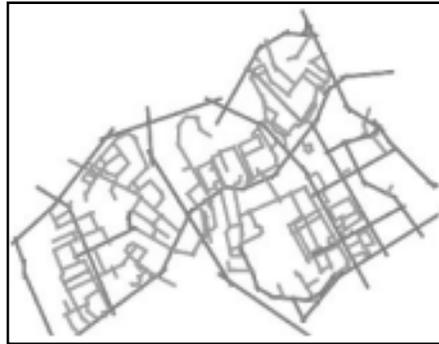


Fig. 23: The parcel map of the Perimeter Mall Area.



Fig. 26: The line map of the Perimeter Mall Area after urban growth: Public and Private Streets.

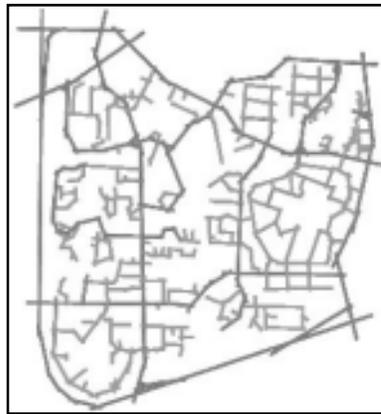
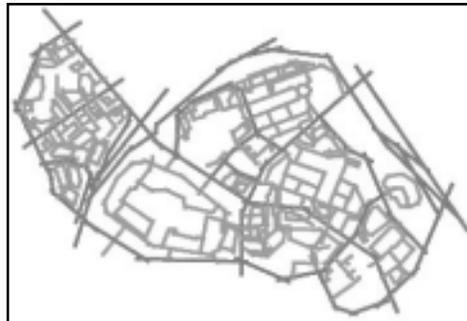


Fig. 24: The parcel map of the Cumberland Mall Area.



Fig. 27: The line map of the Cumberland Mall Area after urban growth: Public and Private Streets.



by, even between a retail function and the potential customer. So in the process of block intensification and generation of secondary street system – most of which can be attributed to private streets – results in smaller blocks and more perimeter for a given area of block interior, which indicates more extensive interface, scope for more players, and more property owners trying to attract the passing trade. That is, the process of growth creates denser syntax for more movement density to make profit maximization. So there should be a latent spatial law to generate the process of urban evolution to allow greater ease of movement and thus attract more movement densities in the new system, which is quite applicable to the process of urban growth and generation of secondary private circulation system occurring in our new urban centers. In addition, we can clearly see land subdivision in the new centers: large blocks irregularly subdivide into pieces of lands, which is still large enough to supply options for future buildings and functional accesses (fig. 28-29). We also notice the fact that the shopping malls are even built beyond the land subdivision. So this kind of regulatory framework in the new centers indicates the weaker regulatory force and suggests that there should be more powerful spatial laws to be revealed in the growth, whether to do with economics, with circulation, or with building form as we discussed above. This is quite different from that in the old centers – where most of the primary circulation system and land subdivision are already framed and resulting small pieces of lands, which shows the stronger regulatory force to control the syntactic pattern in these areas and gives less potentiality for the further urban evolution, although it

Fig. 28: The building footprint map of the Lenox Square/Phipps Plaza Area.



might happen in some individual blocks (fig. 30-31). So we can conclude that different patterns of regulatory frameworks can bring about different urban form patterns and indicate whether there would be the potentiality of future urban evolution. There are certainly more space for architect to consider the spatial laws and the design of spatial layout in the new centers rather than the old ones.

Second, the interaction between site, building design and urban form (fig. 28-31), which can be critically affected by architectural decisions – which kind of original building would be put in and where it would be positioned in the site. If it is sited in the center, the interior street seems to follow, as roads are essentially laid out concentric to the original, and sometimes expanding, building, such as the construction of the large shopping malls in our new areas; if it is sited along the street or closer to the edge of the block, shortcut potentially exists, such as many restaurants and shops emerging there. In both situations the secondary circulation system is not only generated for the purpose of functional access and efficient movement, but also constrained by the building forms and positions, which architect can take more significant effects on. Here, central sitting of buildings within large properties seems more constraining subsequent intensification processes than edge sitting. We may expect that in the former the spatial layout will include secondary circulation system around the building profile, while in

Fig. 29: The building footprint map of the Perimeter Mall Area.



the latter there is less predictability to anticipate how secondary circulation system will emerge in the lot, although functional connection will always happen to make sure the building be integrated internally and externally. Moreover, from the maps, we also see different densities within one area—some part is sparser than others. For example, in the previous large superblocks where shopping malls are located, after the growth process, the block size is still larger than other districts. This kind of “hierarchy of block sizes” is mainly caused by building form. In the new centers, two kinds of buildings can be basically found regarding mass — shopping malls with large size of coverage and huge capacity or small buildings such as restaurants, shops, banks, etc. As to shopping malls, most

Fig. 30: The building footprint map of the city of Atlanta.



Fig. 31: The building footprint map of the city of Decatur.



movement and interface between physical properties and passers will happen inside the buildings. This is completely divergent from the traditional movement and interface pattern which would happen exteriorly, such as in the old centers or to the small buildings in the new centers. So we find that in mall districts, secondary circulation system is only created around the perimeter of the buildings to divide the buildings and large parking lots and provide functional accesses to the buildings; while in other districts with small buildings, we find the stronger dynamic of growth, where secondary circulation system generates a more effect and convenient system for the movement and more interface between buildings and passers to attract more business and make profit maximization. Based on the discussion above, we can know that different thoughts of site and building design will result in different patterns of urban form.

CONCLUSION

In this paper, we define two kinds of urban centers regarding activities and growths in the Metropolitan Area of Atlanta – the old historic centers and the new economic centers. We observe a process of urban evolution occurring in the new centers, which generates secondary functional circulation system beyond the primary circulation system, effectively divides down large blocks into small ones, makes the greater ease of movement within the system, and finally creates a new pattern of urban form, which is divergent from that of the old centers. Regarding the interaction between regulatory framework, site and building design, and urban form, we find there are two growing patterns. The traditional pattern is based on the principle that street layout and land subdivision come first, followed by building. This pattern can be applicable to the old centers. The new centers illustrate a different process where the secondary circulation systems emerge after the main buildings are built. Thus, the form of the effective circulation system is more constrained by built form. Our analysis shows that the secondary process takes two forms, depending on the size and location of built form within properties. Sometimes, the secondary circulation creates “shortcuts” when the building is edgily located. At other times, the secondary circulation “ripples off” the perimeter of large buildings centrally positioned, remains fragmented, and provides access. Consequently, two

forms are forming two kinds of structure — the “shortcut” creates the conditions for an extrovert, distributed fabric to be potentially linked with the larger settlement; the “ripple off” maintains a focal point upon an introvert building mass, continues to create a sense of fragmentation of the surrounding fabric, and seems to resist the idea of extending centrality into the surrounding area, while the “shortcut” system tries to do so. We also notice that most of newly added circulation paths would happen in the private domain in the process. Because owned privately, we may expect that the secondary circulation system is less likely affected by regulatory force and more to obey private aims, that is, in this case, creates denser syntax for more movement density to make profit maximization. So in the process of urban growth in the new centers, we then can conclude there are not only weaker regulatory force and more flexible framework, but also more options and less predictability in building forms and positions, which means architect can take more responsibility to think the latent spatial laws and the design of site and building, and make more effort on the evolution of urban form.

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