

# Architecture as a System: Urban Catalysts for Lynchburg, Virginia

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**This paper proposes a critical analysis of “ARCH 2010 Introduction to Urban Architecture” at the School of Architecture of the University of Virginia. The studio is part of an overall strategy that tries to subvert the traditional method of teaching in architectural design. In a conventional linear process, students start with the design of a small-scale architectural object and continue to design buildings in progressively larger scales. Provided with a strong urban context, the 2010 Studio follows a sinusoidal transition of scale, moving from small to large and back again. The ultimate goal of the studio is to put forward/produce an urban architectural project by linking the architectural object with the urban landscape as catalysts for the change within the city. The architectural proposals should be a strategic and thoughtful response to previous research on existing urban systems, and should support the revitalization of public life in their immediate environment and in the whole city.**

**The course was divided in four parts: Elements and infrastructures of the urban environment, developed at Charlottesville Down Town Mall, Urban systems and networks, strategic development plan for 9th street, and design of a mixed-use building and public space (The last 3 parts took place in Lynchburg, Virginia). To connect these four main “problems” there were “transitional exercises” inserted in between them. With the same critical attention, this paper will analyze the final results, the various stages of the course as well as the areas of overlap between different phases, specially designed to ensure the student’s awareness of the consistency of the complete process.**

## STUDIO METHODOLOGY.

“ARCH 2010 Introduction to Urban Architecture studio” has been carried out at the School of Architecture of the University of Virginia since 2013-14. This paper analyzes the methodology and results obtained during the first semester of 2015-2016. During this year, Alex Wall acted as the course coordinator responsible for drafting the syllabus. The instructors, each responsible for a group of 12 students were Charles Menefee, Manuel Bailo, Ryan Carbone and Luis Pancorbo.

The course takes place the first semester of the second year of the undergraduate curriculum, and represents the first stage in a sequence of core studios. It is the first Studio in which students engage architectural design problems in a sustained manner over a whole semester. For this reason, its proper functioning is vital to the success of the entire educational project. Special attention has been paid not only to the different exercises that the course comprises, but also to the transitions that links these main elements. It is intended that the student understands and is aware of the overall coherence of the process at every stage of its development. Thus, one of the priorities of the course has been producing areas of overlap between consecutive exercises to avoid the ambiguity of gaps and jumps that could obscure the constant view of the overarching framework. These overlapping areas are defined by phase-shift or suture micro-exercises. These are designed to repeatedly demonstrate the consistency of the whole process and to overcome the traditional inertia of studio teaching based on the axioms of pure objectivity, completeness and autonomy of the architectural object. Below is a chronological description of the different parts of the full course.

## PROBLEM # 1- ELEMENTS AND INFRASTRUCTURES OF THE URBAN ENVIRONMENT. CHARLOTTESVILLE DOWNTOWN MALL, VIRGINIA.

The first part of the semester is organized around a series of urban analysis exercises designed to develop the ability to recognize and understand complex systems, energies and synergies in the urban organism. These exercises include interpretive analysis of urban precedents, synthesis of objective information including the measurement of buildings and spaces and the design of concepts and strategies from which a final proposal may arise. This proposal should integrate

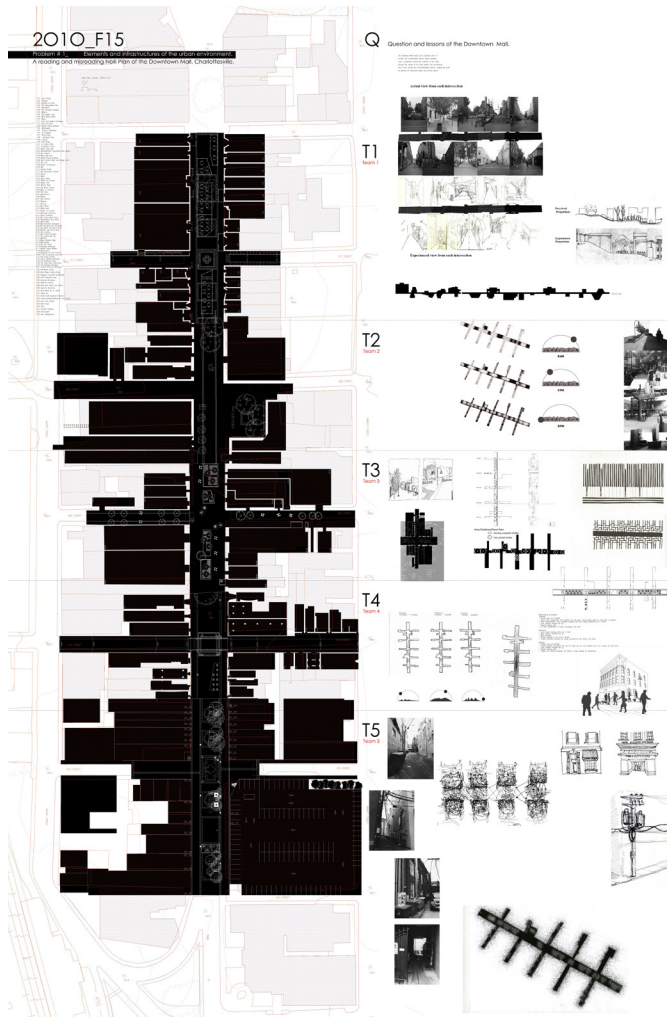


Figure 1: Nolli Plan of Charlottesville Down Town Mall. Studio Pancorbo. Students: Adams, Birle, Brown, Castro-Villacorta, Chavez, Cheng, Chow, Kapp, Preciado, Price, Schaefer, Schwartz, Shafik, Zilla-Ba

with existing urban systems and catalyse living conditions and the quality of the urban scene in which it is inserted. The goal is that students propose changes to improve the quality of public life for local inhabitants.

At UVA, first year undergraduates learn to understand the urban setting of the University of Virginia's Lawn, designed by Thomas Jefferson. Second year architecture students take on another local urban space to use as case study. Charlottesville's Downtown Mall is one of the longest pedestrian malls in the United States, it runs along 8 blocks in Main Street, and was designed in 1974 by landscape architect Lawrence Halprin<sup>1</sup>. It was selected as an example of a successful urban space.

After a comprehensive data collection, a graphic reconstruction of the place was demanded from the students, in order to make them aware of the integrated operation and interdependence of the various public and private urban programs. The graphic representations of the urban space were differently approached by each instructor. Following various research lines, different groups of students drew a "Down Town

Mall Nolli plan", a detailed axonometric view of each intersection, perspective drawings of the urban space and a series of drawings of the facades studying height, rhythm, and materiality that give quality to the urban space.

An analysis of urban morphology was also produced. Some of the typological features extracted through this analysis will appear again in subsequent exercises. Through this analysis, students would need to observe and record the following categories of urban features: Spatial elements, materiality, Infrastructural elements and signs and street furniture.

#### OVERLAP # 1-2. LIJNBAAN, ROTTERDAM.

After the introductory exercises set in Charlottesville's Downtown Mall, following project phases will be located in Lynchburg, Virginia, a city with exceptional orographic and hydrographic qualities and a rich cultural and industrial past that provides a framework that exemplifies the current urban tendency taking place in many cities of the USA. After a long period of decline, some reinvestment is taking place near the James River; the downtown awaits a redefinition. The studio will focus on the 9th Street axis that leads from the James River climbing to the former town hall now city museum.

As a preliminary step to the second project, a suture micro-exercise was inserted to function as a transition between the Charlottesville and Lynchburg analysis. This exercise started with a presentation of Van den Broek and Bakema's Lijnbaan mixed-use shopping and residential complex in Rotterdam, 1953. It is a similar precedent, but situated in a completely different cultural and geographical area. Scalar comparisons between the three urban areas (Lijnbaan, Charlottesville Mall and Lynchburg's 9th Street) were performed. In addition, the following urban parameters were compared: parcel size, focal points, disruptive elements and degree of urban permeability. Traffic, parking and the public transport network patterns of these three urban organisms were studied. The analysis zoomed in to the block scale to examine differences in the performance of service spaces and commercial uses, setting the stage to look at the materials, proportion and vertical distribution of the buildings that shape the public space.

Thus, the Lijnbaan analysis served as a transition, deepening the students' ability to correlate the experience of urban space and urban structure with blocks, buildings, materiality and program.

#### PROBLEM # 2- URBAN SYSTEMS AND NETWORKS. LYNCHBURG, VIRGINIA.

Lynchburg is an excellent model city for teaching. Its urban core has a clear block structure and the change from industrial to commercial and then representational buildings is legible. The sometimes steep topography mandates thinking in section. Lynchburg also demonstrates aspects of urban dysfunctionality<sup>2</sup>. Because of these characteristics, it becomes an ideal place for urban public life revitalization projects.

The City of Lynchburg, born in the 18th Century along the James River,



Figure 2: Comparative study. From left to right: Lijnbaan Rotterdam, Down Town Mall Charlottesville, Virginia, 9th Avenue Area, Lynchburg, Virginia. Drawings: Luis Pncorbo

around the point where John Lynch's opened his ferry crossing. It was replaced in the 19th Century by a bridge, which is no longer extant, which became the axis for the future 9th Street. Along the river, railways and the remnants of both river and canal transportation are located, as well as numerous industrial and storage facilities. The city is situated on a steep slope between the Blackwater and Fishing creeks, which limit its lateral expansion.

After the transition exercise, we set about analyzing Lynchburg as a city in its biogeophysical and programmatic context. This phase started with an analysis and graphic translation of data collected from Geographic Information Systems and other online sources. Students did a workshop on the use of GIS systems. They also learned how to extract information from different sources as: Google Earth, USGS, Historic Society, Tax Maps, Census Bureau, City Website, City Public Works/ Community development, City Parks and Recreation, Energy Plus, Weather Data and Climate Consultant (UCLA). Parallel to the planned stages and transitional exercises, there were visualization workshops to teach students the use of graphic tools.

The students worked in three scales: region, city and core. This translation of statistical data was made by abstract analytic drawings and models of systems and networks, useful to clarify physical and programmatic relationships. The students were able to communicate both the data gathered, and also the synthesis of this data into knowledge and conclusions. The aim of this exercise is to produce a synthetic diagram of each scale, a corresponding concluding statement relating to each diagram and a thesis statement about the design direction that results from this analysis. These graphic statements should address different issues classified in three main areas. The whole part can be summarized with the following diagram.

	Geography and Place	Systems and Structure	History and Culture
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	A	B	C
Region	Topography, Hydrology and Climate	Network: Transport, energy and water	Political/Town Organization, History Flows
City	Figure/Ground, Institutions and Open Space	Net node: Transport, energy and water	Institutions, Neighborhoods and Demographics
Core	Morphology, Density studio	Net spaces: Transport, energy and water	Monuments, Functions/Uses and Identity

### OVERLAP # 2-3. MORPHOLOGICAL ANALYSIS.

This collection, analysis and translation of statistical data was supplemented by an in situ study of the city based on its morphological characteristics and carried out during a field trip to Lynchburg. This study, jointly conducted by instructors and students, produced a number of inputs that will serve as project process starters and as an overlap between the parts 2 and 3. The inputs extracted can be summarized as follows:

#### Lynchburg: Tattooed city

There is a striking and constant presence of billboards and commercial signs arranged in the facades of the buildings in downtown Lynchburg. They are like "urban tattoos" that constantly remind one of the city's industrial past. This presence of inscriptions on the walls has its counterpoint in the ground, with numerous parking and traffic signs, signals and markings.

#### Lynchburg: the dual city.

There is a clear duality between successful, urban and narrow storefronts along the streets parallel to the river. These are in contrast with the large blind walls with clear industrial character of the steep streets of the north-south direction.

#### Lynchburg: the parking desert.

The blind facades of the city are almost always accompanied by the presence of numerous surface parking lots constantly breaking the continuity of the urban structure. There are also numerous multi-story parking buildings, which are clearly underused, and many of them remain in a state of semi-abandonment. The enormous scale of these buildings breaks the order and scale of the blocks and streets parallel to the river.

#### Lynchburg, city of roofs.

The many parking facilities and industrial buildings, along with the steep slope of the city, turn these buildings' roofs into vital urban scene elements.

#### Lynchburg and its invisible river.

The river is virtually invisible in the city and can only be seen from the deck of one of the parking garages.

#### Lynchburg's urban facade.

While the river is invisible from the city, the view from the opposite





Figure 3: Lynchburg’s brick walls associated with parking lots and parking garages. Photos: Luis Pancorbo..

shore is dramatic. The steep topography presents an urban façade, an “elevation,” in which the buildings of the downtown seem aligned in a staggered two-dimensional scene.

In summary, we found an urban organism that could be considered as an urban scale industrial ruin. We proposed that wherever possible, the reuse and transformation of the existing ruins should be the basis for any new architectural proposal. The reclamation of old buildings, the use of select and critical demolition, and other interventions that negotiate and contrast old and new were encouraged.

In the next phase, with the inputs and conclusions drawn from data analysis, students must propose in a strategic urban plan for Lynchburg’s 9th Street corridor area.

### **PROBLEM #3- THE LIVABLE CITY. A STRATEGIC DEVELOPMENT PLAN FOR 9TH STREET. LYNCHBURG, VA.**

After analysis of the region, city and 43-block core area, students understood Lynchburg as a place situated within its region, a terrain and hydrology system, and a rich historical context. In the next project stage, they were encouraged to find references to these larger topographical and hydrological contexts within the 9th Street Corridor. The question submitted to the students is: How can the redevelopment of 9th Street contribute to making the downtown a magnet for the next generation of residents, workers, and visitors?

Each group of 3-4 students created a draft masterplan, a massing model, and a mix of uses that should give form, function and character to this area. Each Master Plan should provide the city with a vision and a concept. The strategic plans were considered as tools and flexible templates specific to their urban context. The result of this part of the course was extremely fruitful.

The resulting urban plans could be grouped under general themes.

**Spatial Systems:** new public spaces in the city. Some strategic development plans offered a new system of pedestrian paths that connected new public spaces in the city. A gradation between urban

wild and a more artificial urban landscape was devised. New urban landmarks were inserted inside this network, allowing visitors to orient themselves in the city, while strengthening the urban elevation visible from the other shore. These new urban landmarks contain public spaces that serve as linking mechanism between different topographic levels of the city and that are also designed as energy generators.

#### **Stimdrross spaces.**

Another group of projects set out a strategy for the use of negative and positive space of the city based on the theories of Lars Lerup’s Stim and dross space<sup>3</sup>. They produced a spatial inversion that could be spread virally to the rest of the city. Students sought ways to navigate between the two types of space, trying to erode and blur the difference between both poles and seeking the creation of “Stimdrross spaces”. In these projects, the potential of dross spaces are joined with the ability of stim spaces to produce activity. The resulting synthesis created dynamic spaces supporting both public and private activity.

#### **Reconnection.**

Other teams advocated for the reconnection of both sides of the river and for the connection of different topographic levels of the city through new public spaces and urban catalysts. This line of research studied the different perception of the urban landscape from both inside and from outside the city itself and delved into the subject of the recovery of historical memory. The reconnection of the old industrial city, now emptied of technology threats, with the typical Middle landscape<sup>4</sup> across the river recalls the historical tension present in many cities of USA, between pastoral dreams and industrial development.

#### **Managing water and topography.**

Finally, there were Master Plans based on the management of water reserves that take advantage of the topographical conditions of the city. These moving water reserves become the main attraction of the new public spaces. Some proposals combined the themes of water and restructuring the city center as a new campus expansion to serve universities currently established in Lynchburg (Liberty University, Lynchburg College, Randolph College and Virginia University of Lynchburg).

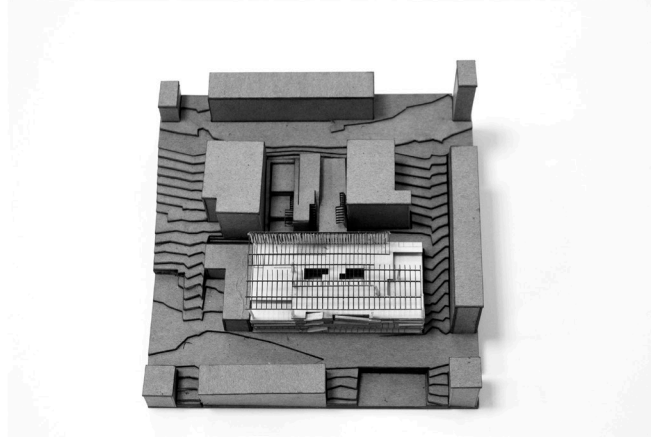
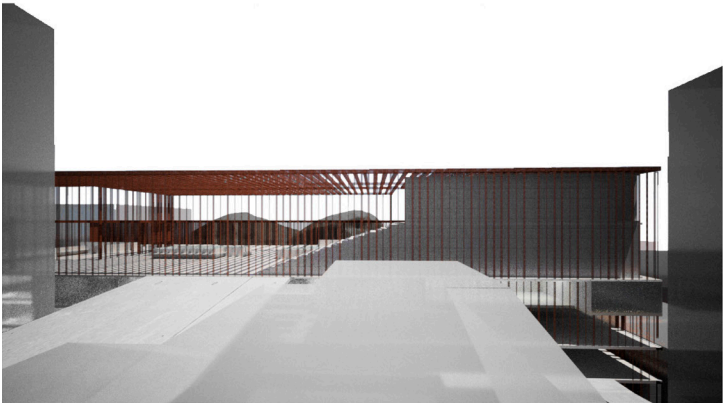
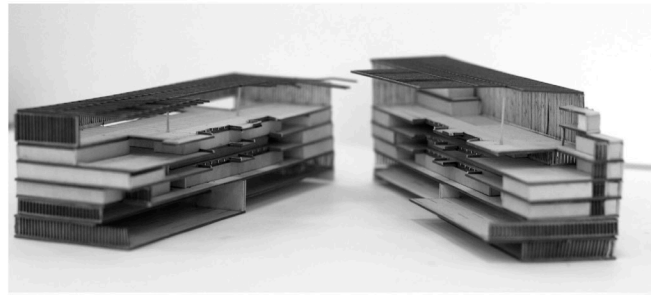
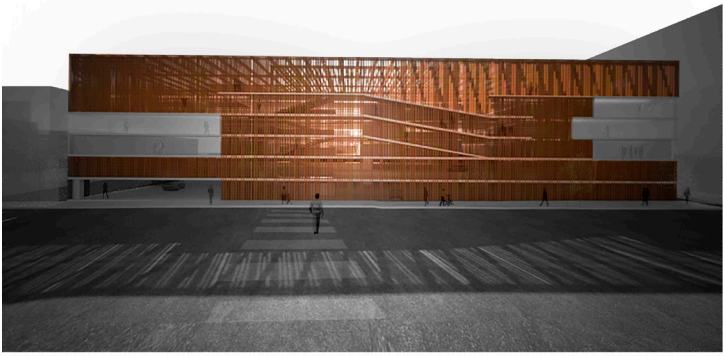


Figure 4: Urban catalyst proposal. Student: Kendra Chow

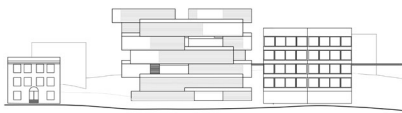
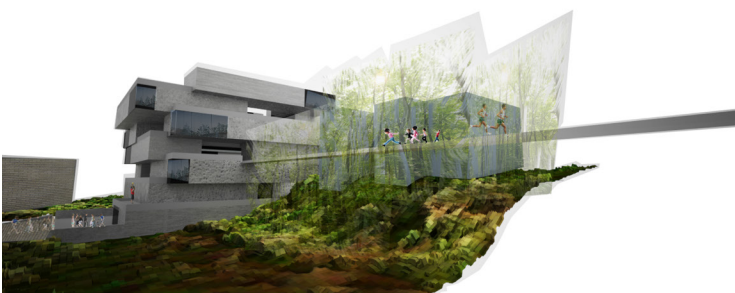


Figure 5: Urban catalyst proposal. Student: Danielle Price

At the end of this stage, and as part of their strategic development plan, each student selected a site to develop a building and public space that would embody the spirit of their plan. The rest of the semester (Stage 4) was devoted to the design of this building, which should be developed in detail. They chose a provisional program based site characteristics. They had to argue how the chosen options enhance the plan and contributes to the daily life and urbanity of 9th Street.

#### OVERLAP # 3-4. BUILDING PRECEDENTS.

As an overlap exercise between parts 3 and 4, a list of over 30 precedents was provided to the students. All of them are hybrid buildings that deal in different way with public space. The precedents were studied in depth by the students and were scaled and placed on each site. The goal of this exercise is to give a sense of scale while at the same time demonstrating the programmatic and spatial interrelationships between buildings and public space. For designers, precedent research illustrates a range of

approaches. It is a traditional research form, studying precedents jump-starts a student's design process and actions.

#### **PROBLEM #4- MIXED-USE BUILDING AND PUBLIC SPACE. LYNCHBURG, VA.**

The last stage leads to the production of architectural objects arising from all the previous work on the city. Design projects started with a program. The program establishes the goals for the project including the types and quantities of spaces, and the character of these spaces. A partial list of spaces types and sizes was provided. They included required spaces that were to be included in the urban catalyst design. Some 60% of the program was fixed by the instructors, while the remaining 40% was considered as "Wildcard Program." The Wildcard should be based on each urban design plan, and should be the critical component in setting the development direction for downtown Lynchburg. Each student was asked to add a description of each space outlining its use and general character.

The proposed quantitative program was as follows: Exterior Public Space 10%, Interior Public Space 10%, Education Space 15%, Dining Space 10%, Contemplation Space 1%, Circulation & Support Spaces 14%, and Wildcard Program 40%.

As students were released from teams to work individually, the variety of ideas increased in comparison with the previous phases. Often projects reused parking buildings and applied selective demolition but then creating modest yet specific additions to host new uses. The large number of flat roofs were used to create new urban spaces, enabling inhabitants to reconnect with the river James' views. Other projects proposed recycling buildings by means of a new external skin, requalifying former parking decks into new public spaces that reconnect the different levels of the city. Still others took advantage of the city's scenic setting by choosing to build on the opposite bank. These projects developed a new pole of urban attraction to strengthen the reconnection of both sides. Some students produced energy self-sufficient buildings posed as new urban landmarks. These buildings and public spaces contained vertical links connecting different green spaces in the city located on different levels.

By integrating two themes, many projects proposed the use of urban complexity as activator of the design process. Furthermore, these new buildings try to become possible vectors for the restructuring and revitalization of the city itself.

#### **CONCLUSIONS AND FUTURE DEVELOPMENT.**

The course methodology and variety of lines of research implemented, made the 2010 studio a laboratory of thought on the current American city. The pedagogical intention was to convince the student that the architectural design is more than the creation of autonomous objects, rather the creation of places. These were to be understood as always working within larger scale systems. The synthesis between this relationship and its possible feedback effects should be, from the point of view adopted in the course, precisely the engine of any design process. That architectural approach lines up with the Jeffersonian tradition of the University of Virginia.

The overlap exercises enabled students to maintain a full overview of the process. This helped to overcome the students' initial resistance; their eagerness to design directly an architectural object. Instead they designed an urban strategy and an urban place as a launching pad for architectural concepts.

The course was developed to provide students with the tools to operate in the industrial ruins in which have become many abandoned urban centers in North America.

This is not only an attempt to teach how to make a better architecture by the means of its better integration into the built or natural environment. It is an attempt to make young architects aware of an inevitable trend that is likely going to influence their future practice. This trend towards urban density and reuse of old downtowns, appears inevitable in the long term, from the point of view of environmental and social responsibility, even if at the moment it is rejected by most American society. It is therefore important to awaken students' awareness about the main lines and theories of the current urban debates and at the same time prepare them to be active participants in these debates. This studio method tries to avoid the indiscriminate use of old urban remediation recipes that have already proved ineffective, rather trying to implement solutions that pursue the creation of a new urban type: the American city of the XXI century.

In next year's iteration of this course, it is proposed to shift the scales of the urban analysis. Instructors detected that those people doing the regional analysis were less capable to reach a good final result in the urban catalyst part. In the second year of undergraduate architecture, the enormous difference in scale between region and building was too much. The revised spectrum of analytic scales will be: city, core, urban plot. The regional scale will be addressed in lecture format by the instructors.

This finer focus might allow time for a thorough survey and graphic reconstruction of the existing buildings in the 9th Street corridor area, in order to achieve a more complete grasp of our working place.

#### **ENDNOTES**

1. Lawrence Halprin (1916 – 2009) is well known because of his urban and natural landscape designs: Lovejoy Fountain Park, Portland, Oregon; Freeway Park, Seattle, Washington; and Master landscape plan for Sea Ranch, California.
2. 378 inhabitants are registered in Lynchburg Down Town, with a percentage of 56.2% of them living below the poverty line and an average income per family of \$ 14.118. There are 1,076 on-street parking spaces, 1,562 off-street parking spaces which are controlled by the City and 3,935 privately-owned or controlled parking spaces in the downtown area. That yield a total of 6,573 parking spaces for 378 inhabitants (More than 17 parking spaces per person). Data from [www.lynchburgva.gov](http://www.lynchburgva.gov).
3. Lerup, Lars. *After the City*. The MIT Press. Cambridge, 2001.
4. This Middle Landscape has been studied in publications such as: Bell, David. "Knowledge and the Middle Landscape: Thomas Jefferson's University of Virginia". *Journal of Architectural Education*. Winter, 1983, p. 18-26. Marx, Leo. *The Machine in the Garden: Technology and the Pastoral Ideal in America*. Oxford University Press. NYC. 1965. Rowe, Peter G. *Making a Middle Landscape*. MIT Press. Cambridge, 1992.