GEORGIA TECH:

THE EVOLUTION OF AN AMERICAN CAMPUS

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INTRODUCTION:

“For the first time in the 75-year history of Georgia Tech, we have the opportunity to acquire, at one time, a land area which at any other period in our history would have been impossible… The acquisition of the additional 91 acres will permit us to open up the highly congested area now existing on the old part of the campus, and will provide space for urgently needed research facilities, classrooms, future student housing, a student center, …and greatly relieve the danger of traffic congestion which is now prevalent.”

-Author Unknown

Through the first 75-plus years of its history the growth of Georgia Tech was deliberately incremental. Lots for new buildings were acquired one after another, within the larger urban street and block structure that existed in Atlanta at the time. However, in 1962, with the property acquisition benefits of the federal urban renewal program, Georgia Tech changed its format from incremental change within and urban framework to a campus organization that turned away from the city and attempted to create its own organizing strategy.

With the support of urban renewal Georgia Tech was suddenly blessed with an excess supply of land, prompting the adoption of a new campus master plan as a tabula rasa. This new master plan erased the majority of the existing network of streets and blocks, and cleared existing buildings. The plan also abandoned many of the physical qualities, which had helped define Georgia Tech as an ‘American Campus.’ Georgia Tech was no longer a part of the surrounding city, yet the tabula rasa approach provided so little direction for future campus development, it was also no longer recognizable as a typical American college campus.

It is clear that for Georgia Tech urban renewal operated as a means to an end; it was a simple way to acquire land for decades of future expansion. However, the resulting master plan permanently changed Georgia Tech, creating a hybrid campus that has continued to struggle with its dual history of being both part of the city and separate from it. This paper aims to understand the contemporary form of Georgia Tech by tracing the history of the campus and its campus plans and
understanding how these were shaped by the ideals of the American campus and the pragmatic urban framework of streets and blocks.

Campus planning is a significant, though often overlooked, area of the urban design field. While there is abundant literature on campus planning practice, there is relatively little which speaks to the definitive form of the campus; the American campus in particular. Indeed, most simply assume what a campus is, and should be, though often times without a clear understanding of campus form.

Many universities across the U.S. are easily understood as true American campuses, set apart and independent from the city. The most recognizable of this campus type is Thomas Jefferson's University of Virginia (Fig. 0.1). But some universities are urban, meaning they do not follow a campus model, and instead exist within the organizing form of their host city. This type of campus is more common in continental Europe. NYU in New York (Fig. 0.2), or Georgia State in Atlanta (Fig. 0.3), are good examples of the type of urban university. Other campuses are less straightforward.

Fig. 0.1- University of Virginia, Aerial, From North
There are instances when a campus grows into the surrounding city and others when an urban university campus aims to become independent from the host city. Then there are campuses which are some combination of the two. Georgia Tech is one example of such a hybrid – shifting from an early vision of a separate campus, pragmatically merging with the surrounding city, and then trying once again to become an American – meaning a separated – campus. A key component of this study then is to examine Georgia Tech’s struggle to synthesize the language of the American campus with the language of a traditional urban environment.

This paper is organized around three questions. First, if some urban universities are attempting to operate within or against a city which hosts it, like Georgia Tech, then what is the form of the traditional American city? This question is addressed by describing briefly the morphology of the American city and its design features. Second, what is the form of the American campus? This will be addressed through a brief history of the American Campus and setting out the particular design characteristics that make the American Campus visible. The final question addresses the
Fig. 0.3- Georgia State University, Aerial

Fig. 0.4- Georgia Institute of Technology, Aerial, From West
particular case of the Georgia Tech campus: how do these two forms – the American Campus and American City – combine to create the current form of the GT campus? This question is addressed by examining the history of Georgia Tech, with a specific focus on campus expansion and construction, combined with a diagrammatic representation of Georgia Tech’s change over time. The paper concludes with a reflection on the current state of Georgia Tech, and the challenges faced by current campus planners, suggesting that if campus/city dialectic had been recognized earlier, the Georgia Tech campus might be a more coherent, compelling and expressive today.
CHAPTER I -
CITY AND CAMPUS: OPPOSING TISSUES

PART I - WHAT IS THE AMERICAN CITY?

“In the pre-automobile era, the most common form of urban development was what I call the ‘speculator city.’ Its main feature was the gridded street system set in place in many cases by land speculators. Most U.S. cities and towns have a speculator city as their heart.”

-Brenda Case Scheer

From its inception, at the dawn of European colonization, the American city has always embodied a very simple idea, illustrated by Scheer’s concept of the speculator city- that all land, “developed from an ingenious capitalistic idea,” should be divided into a simple arrangement of lots and sold “to the highest bidder.” Landholders would subdivide large plats of land into blocks, which were subdivided further into small personal lots. Streets were constructed around blocks, to provide access to the front of each lot, while alleys often bisected blocks to give access to the rear. Growth occurred through the simple addition of new streets and blocks to the existing, typically along a predetermined grid. The resulting structural hierarchy of lots, blocks, streets, and a subdivision grid provided the frame around which traditional American cities were built. Collectively, urban morphologists (Scheer in particular) refer to these components as the ‘urban tissue.’

Specifically, urban tissue refers to “…distinct patterns of block, lot, and building aggregation”; as the form and ‘relative endurance’ of a place changes, so too does the tissue. In previous studies, several urban tissues have already been identified. Subdivisions, which have not been highly planned or developed, are erratic in size, and typically house a large single-use facility, such as a strip shopping center, as known as ‘elastic tissue.’ Large tracts of land which have been developed with several prominent buildings but which are not segregated by subdivisions (like Georgia Tech) are known as a ‘campus tissue.’ Lastly, large subdivisions of land which were planned and developed primarily, though not necessarily exclusively, for single-family houses are referred to as ‘static tissue.’ However, to best understand the traditional American City, it is
necessary to first identify another kind of tissue: the resilient tissue.

Similar to the static tissue, the resilient tissue is planned and highly developed. Due to high degree of subdivision these tissues, as their titles would imply, both are relatively stable in form.⁸ The most significant difference between the static and resilient tissue exists in terms of building type; while the static tissue was designed to accommodate a particular use, the resilient tissue was not.

When urban morphologists map the spatial and physical systems of the city (the tissue), they typically do so as a hierarchy defined by physical scale; “…that is, a building is smaller than a lot, which is smaller than a block, and so on.”⁹ This is made evident by the fact that in the tissues that Scheer defines- elastic, campus, and static- it’s the smaller units of the urban tissue which influence form. However, because of the lasting nature of the traditional city, and its predilection to change (functional not structural), in the resilient tissue the hierarchical importance of the morphological components of the city is completely reversed to the point at which the smallest units- buildings- are inconsequential. And so, in order to best understand the traditional American City, it is necessary to understand the implications of the resilient tissue on each the American
city’s four defining characteristics: lots, blocks, streets, and the subdivision grid.

**SUBDIVISION GRID**

“There was simple truth contained in the land survey: A shape that could be neatly reduced to smaller proportions was easy to sell.”

-Andro Linklater 10

The most recognizable, and perhaps essential, component of the American city- the resilient tissue- is the subdivision gridiron. The gridiron style of land subdivision is evident all throughout the United States, and while markedly similar in form, the origins of the grid are quite varied. William Penn’s plan for Philadelphia (Fig. 1.1), and James Oglethorpe’s plat for Savannah (Fig. 1.2), the most referenced examples of the gridiron being utilized in the formation of new American

Fig. 1.2- Plan for Savannah, Georgia, ca. 1740
cities, were idyllic forms influenced largely by the two men’s experiences in London. Other applications, such as the Land Ordinance of 1785 (Fig. 1.3)- which laid a foundation for the subdivision grids of cities (like Chicago and Salt Lake City) all throughout the Midwest- and the 1811 Commissioner’s Plan for Manhattan (Fig. 1.4) were strategies which truly exemplified the spirit of the ‘speculator city’: to provide a quick and simple means by which land could be divided, recorded and distributed.

Of all the early English colonies, the subdivisions of Penn’s Philadelphia and Oglethorpe’s Savannah are formally the most recognizable. Interestingly, while their subdivisions are very different there are numerous similarities both in origin and form. First, in both instances the corresponding benefactor sought to establish a point of refuge. For William Penn, Philadelphia was established as a place of sanctuary for the Quaker community and others who had been subject to religious persecution across Europe. Similarly, in establishing Savannah, Oglethorpe envisioned a colony that would ‘provide a new beginning’ for those who were in debtor’s prison. Secondly, as both Penn and
Oglethorpe had both previously resided in London, both were undoubtedly influenced by the Great Fire of 1666 when developing their subdivision schemes. Specifically, there is evidence which suggests that the designs of both Philadelphia and Savannah were particularly influenced by Richard Newcourt’s proposal for the new London which sought to subdivide the city into smaller neighborhoods units central to which would be a public square.

Another similarity between the two schemes perhaps lies in the relatively lack of influence that both development schemes had in the development of later cities; while both are often referenced as prominent examples of urban subdivision, each remains particularly unique. However, considering the assumed beginnings of both cities- Philadelphia as a English rural town, and Savannah as an aspiring Silk and Wine Colony- each is testament to the resilient nature of the American city, even in the face of change.

One model which did have a significant influence on the development of future American cities was the Northwest Land Ordinance, more specifically the Land Ordinance of 1785. Through an extensive land survey (based off of meridians rather the traditional metes-and-bounds) the process by which the huge land resources made available through the Louisiana

Fig. 1.4- Commissioner’s Plan for Manhattan, 1811
Purchase and other land acquisitions could be organized, divided, and ultimately made available to homesteaders and other future inhabitants, was greatly simplified. “The beauty…” of this subdivision methodology, refined initially by Jared Mansfeild, “…was that it made buying simple, whether by a squatter, settler, [and of course, the] speculator.”¹⁵ As devised by President Thomas Jefferson and the Continental Congress, land extending west from the Pennsylvania border was divided into a uniform grid of six-mile-square parcels. Intermittently, many of these townships were then further subdivided into smaller square-mile parcels (for a total of thirty-six units), five of which were to be preserved for public uses. “The grid, designed by Thomas Jefferson, to create republican farmers, also turned out to be ideal for buying, trading, and speculating.”¹⁶

The 1811 Commissioner’s Plan for Manhattan (Fig. 1.4), as well as the numerous railroad towns of the mid-1800s are additional examples of basic subdivision strategies being implemented as a means for facilitating the development of land, often speculatively. In the case of the Commissioners Plan, a subdivision plan for all of the island of Manhattan north of Houston Street was created uniformly. Rather than being implemented instantly, the plan was incrementally extended on a basis of demand. In the case of the railroad towns, as early as 1850 the US government began deeding portions of undeveloped land to railroad companies in square-mile sections in the hopes that railroad activity would spur additional investment. The resulting subdivisions were of small towns of square blocks oriented towards corresponding rail lines. Western cities like Reno, Nevada and Albuquerque, New Mexico developed in this manner. As was the case in both Philadelphia and Savannah, the resulting subdivision grids developed in these two manners facilitated the transformation of rural or undeveloped land into single-family residential communities, and into today’s iconic sky-scraper downtowns.

The importance of the subdivision grid cannot be overstated; it is, however, relative. Its importance, and by extension its role in resilient tissue, is not necessarily in the gridiron shape itself, but in its influence in the formation of the next two morphological elements: streets and blocks.

STREETS

“Two broad groups of spatial ordering components- paths and plots- can be thought of as the
checkerboard upon which the physical elements of the city are composed and built. The path of the street is the most persistent of human spatial demarcations, and its ability to endure for millennia places it in a different temporal order for the physical structures of the city.”

-Brenda Case Scheer

In the resilient tissue, as in most tissues, the street is the physical manifestation of a defined subdivision grid, and its various manifestations. As such, streets are the public rights-of-ways (R.O.W) which both divide and connect the city, providing access and distinction to the blocks that are created. Yet, it is important to remember that streets serve much more than a serviceable function. “Streets are more than public utilities, more than the equivalent of water lines and sewers and electrical cables, which, interestingly enough, most often find the homes in streets; more than linear physical spaces that permit people to get from here to there.”

On the contrary, streets are the core of the traditional American city, providing a structural foundation both formally and socially. This is the point of differentiation between a street, and a road.

More than simple cart ways, streets are environments meant to stimulate social interaction. This fact remains true regardless of the use or function of a particular street. Whether in creating a close knit residential neighborhood, or a thriving commercial center, the role of the street as “…places of social and commercial encounter and exchange” doesn’t change. This inherent flexibility is precisely what allows a street like New Orleans’ Magazine Street (Fig. 1.5) to grow, gradually converting a residential street into a thriving commercial street without significantly altering the street’s building typology- let alone the street network.

The mere presence of a street R.O.W., however, does not in itself ensure a successful public environment; streets must planned and designed accordingly. This of course means that sufficient space must be made available for additional functions beyond driving. All too often, R.O.W.s across the United States are designed and sized only for the efficient movement of vehicles. These are the sorts of roads, not streets, that might be found in Scheer’s other three tissues (elastic, campus, and static). However, streets which incorporate the element of social interaction most successfully are then able to become focal points for a city; these streets might be called ‘Great Streets.’ “The streets that lead from the Piazza del Popolo in Rome, Via del Corso in the center,
give focus to that city as does nothing else. So do Market Street in San Francisco, a hundred Main Streets in small cities across the United States, and Nevsky Prospekt in St. Petersburg.”

The gridded street network is perhaps the very embodiment of the resilient tissue of the American city, as it is a city’s most persistent component. “Cities with other types of plans always constituted a distinct minority… Although new patterns [have begun] to emerge in our burgeoning suburbs, the great grids of the central cities remain virtually unaltered even under the impact of our growing modern redevelopment projects.”

**BLOCKS**

“...frequent streets and short blocks are valuable because of the fabric of intricate cross-use that they permit among the users of a city neighborhood.”

-Jane Jacobs
Blocks might best be described as the space that exists within a given street network. They are the spaces within which private development occurs. Equally, blocks serve as the separation between the public (R.O.W.) and private realms, allowing what occurs within a block to remain independent from the street network itself. Such a structure systematically provides private development the freedom to change, while the street remains unaltered. This is, in fact, the very root of the resilient tissue. Yet, the block is also inherently tied to the street network, and its role to foster social interaction. That is, for blocks, and therefore streets, dimension and scale play a very significant role.

While, historically, there is no standard dimension for the actual size of a block, there is a sort of built-in consensus as to the appropriate range of sizes. On one extreme seems to be the block size of the Commissioners Plan for Manhattan at approximately 200’x 600’. At the opposite end of the spectrum is the block size for Portland, or downtown Atlanta at 200’x 200’. While there was no set block size in Penn’s plan (Fig. 1.1) for Philadelphia each was on average 400’x 500’. For those cities derived from the 1785 Land Ordinance (Fig. 1.3), much like Chicago (Fig. 1.6), blocks of 270’x 660’ are quite common. Despite the wide range of standard block dimension, there is one

![Fig. 1.6- Plan for Chicago, IL, 1834](image-url)
common denominator among each: walkability.

Walkability is perhaps the single most determining factor in creating social interaction within a city. At a time in which rapid modes of transportation, such as the automobile, did not exist it was common knowledge that blocks would be dimensioned in a manner conducive to walking. Yet, even as those technological advancements have been made the gridded block structure has persisted. This provides another point of differentiation between resilient tissue and other more suburban-oriented tissues, which have failed to make these make such considerations.

At the heart of the walkability issue, is the notion of 'options.' To best understand this point, consider what Jane Jacobs wrote in 1961 in response to what might already be deemed a successful block structure- the Manhattan block:

“Let us consider, instead, the situation if these long east-west blocks had an extra street cut across them- not sterile ‘promenades’ of the kind in which super-block projects abound, but a street containing buildings where things could start up and grow at spots economically viable: places for buying, eating, seeing things, getting a drink. With the extra street, the Eighty-eighth Street man would no longer need to walk monotonous, always-the-same path to a given point. He would have various alternative routes to choose. The neighborhood would literally have opened up to him.”

LOTS

“Merchants bought lots in the center of town…Small builders purchased lots and built houses…Churches bought one or more lots for a small sanctuary… [and] cities also acquired land, sometimes entire blocks, for city halls, and other public buildings.”

-Richard Dagenhart

Specifically, lot refers to the division of the land (or subdivision of a block) into distinct parcels of ownership within which the diversity of uses, indicative of the traditional city, exists. Furthermore, is the last order of the structural hierarchy of resilient tissue. However, due to American city's
aptness to change, the significance of the lot is somewhat limited. Yet, the lot is not without place. “In any given plot of land, buildings may be adapted or rebuilt over and over, while the outlines of the plot endure.”

Lots, like buildings, tend to change with ownership, though with less frequency, and so have little built in resiliency. However, a consideration of lot size has always been a significant factor in determining specific block sizes. That is, block sizes which might be comfortably divided into lot sizes which might comfortably hold any number of uses. Oglethorpe’s Savannah (Fig. 1.7) is one example in which lot size was specifically used in the determination of block size, and by extension, the size of each of the wards.

Within each ward Oglethorpe created forty residential, or ‘tything’, lots each measuring 60’x 90’. These were separated into tiers of five forming a tything block measuring 300’ x 202’- 6”. Interspersed within the tything blocks were publicly held, or ‘trust’, lots also conveying a sixty-foot lot frontage. The 60’ lot dimension has been one which has been readily implemented throughout, including within those cities derived from the Land Ordinance. Another common lot-face dimension, present in other cities, such as Portland and Manhattan, has been 50’. Depending on corresponding block dimensions, the depth of blocks is somewhat more variable, though they typically fall within a range of 90’ to 130’, with 100’ feet commonly appearing.

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For centuries, cities developed by way of a very simple process of subdividing and distributing land in a manner conducive to growth. Often ingrained within this process were preconceived notions about how towns and cities were built, lending to a system of streets, blocks, and lots- the resilient tissue- which has become instantly recognizable, even today, within most all American cities. Yet despite the persistence of this tissue- alternative, more sub-urban, tissues have continued to emerge in the form of culd-a-sac neighborhood, strip plaza, and office parks. “We seldom recognize that it was this simple framework of streets, blocks and lots that allowed such an abundant variety of towns and cities in America.”

Now, with the tissue of the traditional American city now defined, this study looks to another tissue, devised in opposition to the resilient tissue: the campus.
PART II - WHAT IS THE AMERICAN CAMPUS?

I consider the common plan, followed in this country but not in others, of making one large and expensive building, as unfortunately erroneous. It is indefinitely better to erect a small and separate lodge for each separate professorship, with only a hall below for his class, and two chambers above for himself; joining these lodges by barracks for a certain portion of the students, opening into a covered way to give a dry communication between all the schools. The whole of the arranged around an open square of grass and trees, would make it, what it should be in fact, an academical village.

-Thomas Jefferson

Jefferson’s design of the University of Virginia (1819) represents a pivotal moment in the evolution of campus design, and ultimately the emergence of the ‘American campus’ model. Similarly, Jefferson’s remark, perhaps better than any other, signifies the culmination of changing social and philosophical ideals about the most proper execution of higher educational learning, dating back to the founding of Harvard at Cambridge in 1636. What began at Harvard, manifesting itself most completely at Virginia (UVA- Fig. 1.7), was the notion that the form of the university is very much rooted in ideals about the proper form of education.

Jefferson’s own design at Virginia, as his statement would indicate, was intended as an alternative to America’s earliest institutions, Harvard (1636), Yale (1701), and the College of William and Mary (1693), which Jefferson himself had attended. This, however, was primarily from an architectural standpoint. For instance, Jefferson was likely reacting specifically to William and Mary who’s intimate, cramped conditions Jefferson viewed as insufficient for proper education. In fact, though created with different architectural ideologies, Jefferson’s UVA shares an essential characteristic with those early institutions which has become fundamental to American campus design- their push to abandon the traditional city, in favor of rural spaciousness. The hostility towards cities was so strong, in fact, that a new morphological tissue emerges in response: the American campus.

Like cities, which have a clear organizational logic (as discussed previously) of streets and blocks, within which diversity is contained and fostered the American campus is based on a
simple dialectic of structure and use. However, the structural elements around which the campus is organized are fundamentally different from those of the traditional city. In making the transition from the traditional city to the American campus there are three distinct components that emerge: the central lawn, pathways, and a diversity of uses. A fourth component, the campus master plan, is the element used to bind each of these together.

It should be reiterated that the characteristics of the American campus not only emerged as a result of leaving behind the city, but actually arose in direct opposition to the city. This strong resistance to the city thus becomes the origination for the first defining characteristic of the American campus- the central lawn.

**THE CENTRAL LAWN**

“I Get Money’ blasts from the front porch of College Hall as the smell of barbecue wafts over North Main street and across the green of Dartmouth College, a colossal lawn dotted with Frisbee plays
and crisscrossed by diagonal walkways that unmistakably designate the core of the American College campus.”

-Stephen Zacks

The campus lawn is perhaps the most iconic components of the American university campus. The lawn represents the heart of the campus and as such is the principle organizing feature of the campus. The significance of the lawn can be seen in many campuses throughout the United States, including Jefferson’s University of Virginia (Fig. 0.1 and Fig. 1.7) where the lawn, surrounded on three sides, provides an organizational focal point and the point of origination. This is in direct contrast to the traditional city where streets, which serve as both dividers and boundaries of programmed space, are the primary organizer; within the American campus, streets take on a more subservient role.

Fig. 1.8- Nassau Hall, Princeton
The origins, and by extension the importance, of the lawn is actually derived from the very conception of the term ‘campus.’ The word campus in Latin simply means field and is thought to have been first used to describe the lawn in front of Nassau Hall (Fig. 1.8), at Princeton. Over time, the term has become ubiquitous with the whole of university property (including universities which are strictly urban) and more significantly, uniquely American. “The word campus, more than any other term … [not only] sums up the distinctive physical qualities of the American college, but also its integrity as a self-contained community and its architectural expression of educational and social ideals.”

Traditionally in Europe, particularly on the continental mainland, universities tend to simply be a component of urbanity, integrated into the city’s fabric. By contrast, the early American model, much more akin the traditional English collegiate model, provided residence to both faculty and students. However, these early English schools, such as Cambridge, were largely based on, or derived from, the cloistered monastery. The idea of the American campus, and by extension the emergence of the central lawn, is a byproduct of the early colonists’ rejection of such cloistering (or quadrangles) in favor of openness. The effect of this was so strong that it has emanated throughout history to the point “…that even those schools located in cities, where land is scarce, have often gone to considerable expense or inconvenience to simulate a rural spaciousness.”

Rather than simply eliminating the cloister/quadrangle altogether, many of the earliest schools, like Harvard, William and Mary, or Yale, simply employed an inverted model, in which they “…turned to the world around them.” Harvard, specifically, followed an even different model based on an open, or three-sided, quadrangle in order to maximize light and ventilation, reducing the risk for disease. “Five such buildings were erected at Harvard before1805. Their isolation from each other gained some protection against the spread of fire and noise, afforded good lighting and ventilation, and made an attractive, landscaped site.” However, the desire of open spaciousness by early American colleges is more than a simple rejection of European cloistering.

Many early colonial colleges, founded with religious influence, were often geared to the education of ‘infidel children’ (or Native Americans) and were therefore likely to be positioned in the wilderness of the American frontier. Harvard provides one such example, where the puritan beliefs of many of the Massachusetts Bay colonists had a strong influence on both its placement
Furthermore, by the mid-eighteenth century there was a general distrust of cities and a growing attraction to the idealized purity exhibited in nature. “The romantic ideal of the college in nature, removed from the distractions of civilizations, has persisted up to the present time and has determined the locations of countless institutions.” The rejection of European tradition, of placing the university or college within the city, was, of course, also aided by the fact that land was more easily obtained and assembled outside of the city, enabling the institutions to spread over a wider area.

In today campuses, rural spaciousness has been memorialized through the campus lawn, where it has become a point of orientation, an organizing force, around which many of the most important programs are placed; the central lawn is regarded as the heart of the American campus. This is as true today as it was for Jefferson at the University of Virginia, where it has been remarked that “…pictures, photographs and beautifully worded descriptions cannot convey the power, the drama, and yet the calmness imparted by the Lawn.”

Fig. 1.9- J. Trumbell, Yale Master Plan, 1792
PATHS AND SPACES

“Nowhere in the world is the idea of higher education as strongly associated with a distinctive form or urban design as in the United States: the quads and diags and ovals, with their tree-lined lawns, fountains, and rambles that stitch together dormitories, dining halls, and academic buildings into a unified campus environment.”

-Stephen Zacks 16

While pathways are not as historically significant as the campus lawn, they have nonetheless become part of the iconic American campus image. Whether they are crisscrossing across the lawn, emulating the garden of a 17th century French chateau, or acting in a much more serviceable manner, pathways are extremely vital to the overall success of the American campus- functionally speaking. Like the central lawn, paths, and the additional residual spaces that they inhabit, have assumed the role of a traditional city’s public street. But, while the lawn has replaced streets as the primary organizing force, paths have replaced streets as the connective tissue which binds all the elements of the American campus into a cohesive whole.

While it might be assumed that paths have always existed at institutions such as Harvard providing connections between buildings and spaces, they do not prominently appear as a planned element of the campus until John Trumbell’s master plan for Yale (Fig. 1.9), in 1792. In his plan Trumbell showed a strong interest in landscaping, and so here the paths are largely aesthetic devices, designed as meandering paths around irregularly shaped planting beds- “an early example in America of the romantic ‘English Garden.’”17 In the coming years, however, culminating with Jefferson’s covered walkways (Fig. 1.10) for the University of Virginia, paths have a much more prominent, if primarily serviceable, role. Pathways linking the campus together reach their pinnacle around the early 1900s at the height of the Beaux-Arts era where they are used as landscape and architectural devices to provide beauty and symmetry to campuses.

Today, pathways are a significant component of the American campus, with many institutions, and their designers, are taking the approach of amassing a “…hodgepodge of buildings and introducing inter-connective pathways and open spaces to sew them together into a total
educational environment- and in some cases planning entirely new academic communities. “It’s saying that certain things are important- the landscape and paths.”

DIVERSITY OF USES

“Beginning in the colonial period, American colleges followed [the] English model as closely as possible, and even when large universities developed in the United States in the late nineteenth century, they took on many collegiate characteristics, in contrast to the typical pattern of continental European universities, which more often concentrated on academic matters and paid little attention to their students’ extracurricular lives. Therefore, American colleges and universities, like those in England, have required not only classrooms and other academic spaces, but dormitories, dining halls, and recreational facilities as well…”

- Paul Venable Turner 19
Functional diversity is perhaps the hallmark of the traditional city. The first condition for creating such diversity, according to Jacobs is ‘the need for primary mixed uses’ in which she writes that “…the district, and indeed as many of its internal parts as possible, must serve more than one primary function; preferably two. These must insure the presence of people who go outdoors on different schedules and are in the place for different purposes, but who are able to use many facilities in common.” In order for the American campus to assume the role of ‘city,’ or ‘village,’ it must also have a diversity of uses. However, the types of uses which define the American campus differ from those of a traditional urban setting, and are present for very different reasons.

The exact origin of cities is of much debate, but where there seems to be consensus is within the realm of economics; commerce, in some form, is the primary ingredient. Commerce, then, is supported by a residential element to act as both workforce and cliental- the drivers of economic activity. In the American campus version of this dialectic, commerce is replaced with education. Furthermore, the presence of multiple uses in cities, as Jacobs describes, is to create urban vitality; the multitude of uses exists on the American campus to make it self-sufficient.

For the American campus, a diversity of uses starts, of course, with the residential component—teachers and students living together- harkening back to the monastic beginning of the English collegiate model, transplanted into early colonial America. This is in addition to the implied use of academics. But, as these institutions were also religiously founded, the church was also a significant use. By 1805 five buildings were constructed at Harvard whose most significant contribution to the future American campus was in their being separated into three sorts of unrelated activity: academic, religious, and residential.22 The dividing up of the college into separate structures may be viewed in contrast to the linked structures which were the norm in England, and “…set a pattern for American colleges.”21 There are several potential reasons for this separation: first, the vastness of space allowed for such distribution; second, the puritan desire to disassociate, in any way, with the catholic influenced monasteries of Europe; last, and perhaps most significantly, the risk of fire, as most buildings at the time were constructed of wood. It is possible that this is where the use of the word ‘college’ to denote separate buildings, and specialties, derives its meaning.22 Upon being separated, these activities were re-integrated into a community in which the arrangement of the buildings would create open quadrangles.23
As both the colleges and their curriculums expanded, so too did the diversity of uses. By the early 1900s libraries laboratories, lecture halls, gymnasium, administration buildings, dining halls, and club houses were all staples of the American campus.

THE MASTER PLAN

While the campus green and pathways form the organizational structure of the American campus, and the diversity of uses inhabits it, there is also the master plan combining all of these components into a unified whole. In a way, the master plan also highlights a particularly American element of the American campus, as it relates to the traditional city- Where European cities were often developed over a long periods of time, many American cities, which are much younger, are known for their early master plans. The 1811 Commissioner’s Plan for New York, William Penn’s plan for Philadelphia, and James Oglethorpe’s plan for Savannah, Georgia are just a few examples of the master planning efforts of early American cities (Discussed in more depth in Part II). The master plan, or the master planning process, is perhaps the least obvious component of the American campus, but it is also likely the most important.

From early on master planning has been a key factor in the development of the American campus. From early on, master planning has been a key factor in the development of the American campus. This remains true for the earliest of American colleges, or universities, where “…it is clear that even in its early years, Harvard’s physical layout was the result of conscious and long-range planning, rather than simply haphazard responses to needs as they arose.” Gradually, the master plan gained significance. One of the key contributions of John Trumbull’s master plan for Yale, produced around 1792, was the importance of alignment, or at the very least and overall organizational strategy, to dictate building placement. He stated “…if the building be placed at an angel with the existing one, it will preclude the possibility of reconciling the whole university to any degree of elegance or uniformity…”24 This principle is evidenced by the “Old Brick Row” which comprised a series of five aligned buildings, separated from the street by the campus lawn.

By the early 1900s, with the Beaux-Arts tradition now strongly influencing campus planning, the significance of the master plan really becomes evident. Beginning with the World’s Columbian
Exposition, in 1983, and the subsequent arrival of the City Beautiful movement, planners, architects, and designers were starting to place more emphasis on plan symmetry, picturesque views, and axial plans, and doing so at a much larger scale. Such trends permeated throughout the planning profession, were likewise incorporated into the American campus as well. Furthermore, “a good master plan was especially important now...because of the complexity of the modern university, which, in contrast to the two or three simple buildings adequate for an earlier college, now required libraries laboratories, lecture halls, gymnasium, administration buildings, dining halls, and club houses. The main task to the planner was to create a “general unity of effect” out of all the disparate elements, and to produce visual harmony and order.”

The increased program complexity of the American campus represents a merging of ideals and a transition from the American college to the American university. New thoughts about the importance of science and technology imported via the German university model, typified by institutions such as Johns Hopkins, were merged with American collegiate tradition of space planning. “If the traditional college had been a ‘village,’ the new university would be a ‘city.’”

Following the conclusion of the Second World War, college planners began to abandon the tradition of comprehensive master plans, instead seeking an approach that emphasized principles for future growth, favored process over form. This changing approach to campus planning also represents a shift in ideological approaches to urban planning, resulting in movements on campuses such as urban renewal.

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There are many factors which led to the development of the American campus- the rejection of European cloistering, the emergence of new educational philosophy, religious preferences, a general distrust of cities- yet all contributed significantly to the preference of collegiate institutions to abandon the city, in favor of rural spaciousness. This act of turning away from the city is what ultimately what led to the emergence of the four elements which define the American campus model: the central lawn; pathways; functional diversity; and the campus master plan to merge each of the elements. However, as campuses have developed, and the towns around the early colonial schools have transformed into cities in their own right (as happed to Yale in Hartford)
these elements have had to be adapted in different ways, creating new variations of the American campus. It is under this premise that we may evaluate the evolution of one particular American campus: the Georgia Institute of Technology (Georgia Tech). However, it is necessary to recall that Georgia Tech is not a pure application of the American campus set apart from a city, but rather a condition of two tissues- campus and urban- superimposed. And so, before approaching the particular instance of Georgia Tech, this paper will seek to understand this second tissue- the American City- more in depth.
PART I - A HISTORY OF GEORGIA TECH

During the mid 1800’s, in the wake of the Industrial Revolution sweeping across England and the northern United States, there was a significant push towards modern institutions, which emphasized the importance of science and technology in collegiate education. Additionally, as colleges were increasingly strapped for money there was a drive for the elimination of excessive uses such as churches, libraries, dining halls, and dormitories on campus in favor of a more utilitarian approach to education. Institutions such as the Lawrence Scientific School (later to become the Harvard School of Engineering and Applied Sciences), in Cambridge, were founded in order to provide education focused in the areas of engineering, chemistry, physics, etc. but without the addition of worship halls, dormitories, or dining halls.¹

As the move away from the classical curriculum occurred, so too was there a move away from classically designed campuses and buildings, with many in the education field pushing for more integration into the surrounding community. For this reason, it was argued that schools should be placed in cities- like those typically found in Scotland or Germany. “[Francis] Wayland (president of Brown University from 1827-1855) encouraged students to find residence with private families, attend public churches and use public libraries and museums. In this he abandoned English and Early American practices.”² However, following the conclusion of the Civil War, there was another pendulum shift back towards classicism, in a sense, but with great importance put into medieval/gothic forms. This move was not about educational philosophy as much as about regaining some of the aestheticism and beauty that had been cast aside in the industrial era.

By the late 19th, early 20th, centuries these two philosophies- one emphasizing scientific thought, the other, traditional notion of campus planning- began to merge, representing a transition from the American college to the American university. While the “…college offered instruction in liberal culture, taught intellectual discipline, and instilled habits of moral conduct… Universities… founded in America about 1875 were radically different. They presupposed a collegiate education
and offered instruction leading toward proficiency within a profession or technical specialty.” It was during this period of alteration that Georgia Tech was founded, and in many ways the tension created by the merging of these two philosophies is highlighted by its early campus development.

THE BEGINNING YEARS:

The concept of Georgia Tech first was created in part due to emerging attitudes regarding the 'New South Creed' seeking industrial independence from the economic North. Initially, the founding the university faced significant opposition primarily because the concept of a technical school like those found in Europe, along with the field of engineering in general, was a relatively new concept in the South, while others feared the creation of a new school would weaken support for the state school in Athens. However, after several failed attempts to push the proposal for the school through the state legislature, the measure was finally passed, approved by the governor, and became law on October 13, 1885.

Debate surrounding the placement of the new school also created contention. Macon, Penfield, Athens, Atlanta, and Milledgeville were all locations initially cast for placement, but after several rounds of balloting, it was decided that Atlanta would be the location. The success of Atlanta’s bid for Georgia Tech coincided with an allotment from the city and the citizens’ committee of $70,000, an additional guarantee of $2,500 annually to aid in support, and the donation of four acres by Edward Peters (of the Peters Park Company) at the corner of Cherry Street and North Ave. Peter’s donation of the land is significant because it caused the founding commission to choose the Peters Park site over another site in Grant Park. In addition, the founding committee also purchased an additional tract of land, establishing a total of approximately nine acres.

In its early years, Georgia Tech followed an approach similar to the utilitarian style which had been advocated by Francis Weyland (of Brown) and others a few years earlier. For the first decade, or so, under the school’s first president, Isaac Harris, students were encouraged to find room and board in the neighboring city with the exception that “Each student was required to attend at least one church service on Sunday and chapel exercises in the main building each morning...” For the time, the school consisted of only two buildings (Fig.2.1) with a very restricted curriculum confined
to mechanical engineering. Designed by the firm Bruce and Morgan, the primary building was used for administration, while the second was used as a workshop. Though relatively simple in design, the buildings did display some architectural character, designed with a mix of Victorian and Romanesque styles. When the first workshop building was destroyed by fire in April, 1892, it was quickly replaced by a much more modest facility built upon the same foundations and plan, but with a more basic design character.

During these first years, Georgia Tech had little resemblance to the model American campus, though the foundation had been set. Most significantly, the buildings had been designed and constructed with a setback off North Avenue, much like a simplified version of Yale’s ‘Old Brick Row,’ setting the stage for what would become Georgia Tech’s ‘campus lawn’. When in 1896 Lyman Hall became the second president of the school, he expounded upon this foundation and “…began transforming the trade school into a college, and the muddy hill on North Avenue into a campus.” Only a few years into his tenure as president Lyman had already began adding many
of the uses we now associate with the American campus, expanded the campus to include two dormitories, a dining hall (inside one of the dormitories), and a gymnasium; there was also an expansion of the curriculum with the introduction of the textile and electrical engineering programs.

A NEW CENTURY:

In the early 1900s the organization of college campuses still very much revolved around rural location and quadrangular site plans. This organization was viewed as necessary so that “American colleges should have a positively religious character [and remain]… a distinct community [with] a separate and distinctive intellectual and social life.” For those colleges and universities not located in rural settings, quadrangles were, similarly, a way of ‘carving’ out a piece of the city to further isolate the college. At Georgia Tech, this practice was manifested through the Swann
Dormitories and Electrical Engineering Buildings built along the western edge of the early campus (Fig. 2.2). The buildings along with the administration and shop buildings formed a pseudo-open quadrangle; oriented toward the interior of the block, emphasis was placed on the central lawn and away from the street and Peter’s Park neighborhood. By the end of Lyman Hall’s tenure there were nine buildings, including, among others, the Aaron French Textile Building, defining the campus’ core.

Though Hall did not remain president for very long, due to a sudden death in 1905, his legacy of campus and academic expansion continued well after his death. By 1918, under the presidency of Kenneth Matheson, the school saw the construction of a new library (initially planned under Hall), a new YMCA, a power station, the Mechanical engineering (John Saylor Coon) building, the military building, the automobile building and Grant Field. Furthermore, the school was not only constructing new buildings, but also purchasing land “in all directions.” “Several lots acquired in 1906 to the west and four acres to the east were just the beginning.”

Fig. 2.3 Existing Conditions, 1906
In 1917, seven additional acres were purchased along with an additional lot donation by the Peters Land Company. The Newton Hall dormitories, along North Avenue, were also purchased from the Washington Seminary in 1917. Beyond the tremendous growth that the campus was experiencing, there was one other significant realization under Matheson’s presidency—the completion of the school’s first master plan— the General Campus Plan by C. W. Leavitt, in 1912. (Fig. 2.4). Though few of the buildings or spatial ordering proposed in the master plan were ever fully realized, it provided a precedent which would influence development patterns for approximately the next thirty years.

Previously, campus development under Hall had followed the example of earlier American campuses, giving precedents to the lawn and pathways when orienting campus facilities, and subsequently ignoring the street. The 1912 Master Plan organizes structures in a manner more conducive to urban-infill, with buildings facing the street. Though these buildings practices did not fall in line with established precedent, the reasoning behind them seem was quite simple— that given the existing street infrastructure and dwindling public funding, it was easier. Furthermore, it provided Georgia Tech with a unique and relatively distinctive style in American campus design, merging aspects of rural campus planning with an urban context.

Georgia Tech’s unique blend of styles, however, was not always appreciated. In fact, on numerous occasions in the 1920s, master planning attempts were made to resolve the apparent lack of order in the overall campus design, including the proposed removal of most all of the existing facilities. One such plan by Warren Laird, Paul Cret, and Francis P. Smith, in 1921 (Fig. 2.5), sought a complete redesign of the whole campus into Gothic Collegiate forms not unlike those found at Oxford or Cambridge, as well as a spatial re-ordering of the campus:

“The overall Laird and Cret master plan establishes a spatial arrangement around three formal quadrangles situated on a north-south axis. This central axis is strengthened by the repetition of prominent vertical forms: the tower of the proposed Administration Building, the Smokestack of the power plant, and the barrel vault of the armory.” Due to financial limitations these plans were never realized.

In 1922, M.L. Brittain became the third president of Georgia Tech, and just as his predecessors had done, Brittain pushed hard to continue campus expansion. “Though state funding remained small,
private contributions increased, new buildings were constructed and the campus began to assume an English collegiate appearance, due mainly to the influence of two Professors of Architecture whom Brittain brought to Tech from Harvard- J.L Skinner and Harold Bush-Brown. Though the impact wouldn’t be seen for several years, Brittain’s hiring of these professors, particularly Bush-Brown (and later Paul Heffernan), had a significant impact on the Georgia Tech campus in terms of both built and planned work. Prominent additions to the campus during his tenure include: the Physics Building; the Emerson addition to the Lyman Hall Laboratory of Chemistry; the Harris and Brown dormitories (as well as others); the Brittain Dining Hall; the baseball stands; and the Department of Aeronautics.

THE SECOND WORLD WAR:

Upon first seeing Georgia Tech campus in 1938, Heffernan noted that while the school had made
significant strides in terms of constructing buildings, very little had been done with regard to overall campus development. Due to financial constraints, and the ad hoc manner in which the school was able to obtain new land, campus expansion was largely self-contained. “With the exception of the courtyard in front of the dining hall and the Academic Building (the tower), every other piece of property the school owned had been constructed on... The result was that the buildings were built tightly facing the sidewalks, streets and each other, and were not used to enclose and develop space.”22

Not long after his arrival to Atlanta, Heffernan became involved with the firm of Bush-Brown and Gailey, where he was commissioned to design his first building on the Georgia Tech campus—the (Hinman) Research Building (Fig. 2.8). Bush-Brown, having already been employed for several years, and having worked on the design of a number of campus buildings, had first begun looking at the future of campus development in 1934 with the creation of the M-1 map (which
documenting existing campus conditions). However, within a few years the school was faced with a student growth problem as a result to the United States involvement in the Second World War, and so, when Heffernan joined the firm in the late 30s the trio began focusing more specifically on creating a campus master plan. By 1944 the firm had progressed though several plan iterations (M-2 through M-5) which culminated in a report that the group commissioned in 1942 detailing a physical development program for the school.23 In the report, the proposed boundaries of the campus were laid out and eight defining principles were established:

1. The Campus was to develop in a northerly and north westerly direction.
2. The Campus would continue to separate institutional buildings from living areas.
3. The Departments dependent on the Power House would remain in the Power House vicinity.
4. The New part of the campus was to contain the academic, administration, and library.
5. The main approach to campus would be located on Hemphill Avenue.
6. All public streets within the areas selected would be eliminated and the entrances to the campus controlled so that the future grounds may take on an institutional character with well defined limits. There would still have to be service drives and automobile roads within the campus grounds, but through public traffic would be largely eliminated.
7. There would be provision for more adequate parking space.
8. There would be a development of a free area, extending from the little public park (Peters Park) at one end, carrying past the Rose Bowl and around to Hemphill Avenue thereby making, an arc of green at low level following natural contours.

“The report, without a doubt, struck deftly at several of [Georgia] Tech’s major campus development problems. The most important problem was the school’s inability to control land for planning and future development. Secondly, it presented the fact that the student population had vastly outgrown the rate of campus growth.”24 The report, along with earlier renditions of the plan, ultimately resulted in the M-6 plan (Fig. 2.6) that was approved by the Board of Regents on October 21, 1944. “According to the long range plan (M-6), housing would be on the eastern side of campus, athletic and physical training facilities would extend through campus from North Avenue to 10th Street, academic instructional units would be concentrated in the southwest corner so students could easily walk from one building to another between classes, and auxiliary buildings would be north of Eighth Street.”25
Fig. 2.7- Research Building, 1939

Fig. 2.8- Harrison Hightower Textile Building, 1949
In addition to a basic zoning proposal, the M-6 plan also proposed several alterations to the campus, the most prominent being the inclusion of a new ‘center.’ Not surprisingly, this new center was designed in correlation to a number of Heffernan’s own planned buildings, including the new Architecture Building (1952). “This building, along with the Price Gilbert Memorial Library (1951-53) and the Harrison Hightower Textile Engineering Building (1948-49) (Fig. 2.8), formed a triangle around which the central campus was evolving,” creating a Bauhaus-inspired Early Modern–styled ‘academic village’ “…a campus ensemble of functionally designed structures,[and] one of the most significant Early Modern complexes in the Southeast.” Most importantly, however, what the M-6 plan did was to reestablish early American campus precedent by focusing new buildings toward the inner spaces, thereby “…preserving the unity and the integrity of the campus as distinct from the surrounding city.”

Though the M-6 Plan had been accepted by the Board of Regents in 1944, work on the campus plan continued through the early 1950s at the behest of new school president, Van Leer (See Fig. 2.11 and Fig. 2.12). However, in 1955, the Board of Regents Building Authority, due to concerns regarding a conflict of interest, stopped the practice of Georgia Tech employing members of the faculty of its School of Architecture to prepare plans for buildings on the Georgia Tech Campus.

The M-series plans that Bush-Brown, Gailey and Heffernan had created proposed a number of structural changes to the Georgia Tech campus. Beyond the aesthetic changes being proposed, the primary goal of the proposed changes was to accommodate the enormous growth generated by the conclusion of WWII. Generous projections for growth had set the expected total to around 5000 students. However, by the late 1940s, Georgia Tech’s student enrolment had exceeded these expectations, and grown to well over 6000, thanks to legislation such as the G.I Bill. By the early 1960s, the campus population had continued to grow at an exceedingly rapid pace, yet the availability of affordable land adjacent to the campus was limited. And so, in June 1962 Georgia Tech began the process of land acquisition through the urban renewal program.

**URBAN RENEWAL**

The precedent for the urban renewal at Georgia Tech actually began with the demolition of the ‘shanty region’ to the south of the campus, in favor of the Techwood Homes federal housing
Fig. 2.9- Georgia Tech, 1946, Existing Conditions
Fig. 2.10- Bush-Brown, Gailey, Heffernan, M-9 Master Plan, 1946

Fig. 2.11- Bush-Brown, Gailey, Heffernan, M-6 Master Plan, 1952
program, as part of F.D. Roosevelt’s New Deal Program in the early 1930s. In 1933, when president of Georgia Tech M.L. Brittain became the chairman of the Techwood Advisory Committee, many members were concerned about the poor housing conditions in the area just south of the campus, calling it “a retched district, crowded with run-down, unsanitary frame shanties and an eye sore.”\textsuperscript{30} Within a short time the Committee had successfully lobbied to the Housing Division of the Public Works Administration to sponsor an extensive urban renewal and housing program for the area. “The architects selected to design this project were the Tech Architectural Alumni firm of Flippen Burge (’16) and P. D. Stevens (’19). In addition to the forty three units in the housing project, the Government built a dormitory which Tech rented from 1935 until 1956 when it was purchased by Georgia Tech.”\textsuperscript{31} The Techwood Homes Project was dedicated on November 19, 1935.

For the next thirty years, or so, municipalities and institutions began identifying ‘slums’ all across their districts, and employing the Urban Renewal Program as a quick means to clear large tracts

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\caption{Fig. 2.12- Perkins and Will Master Plan, 1965}
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Fig. 2.13- Urban Renewal Land Acquisitions, 1967
of land. This opportunity was not lost on the administration of Georgia Tech, and so in 1963 they too seized the opportunity to make an unprecedented land acquisition. The following are a few of the key factors in the process:

- 1962 - Completion, and presentation, by Wylly Keck engineering associates of the report on Georgia Tech campus plan recommending urban renewal program.
- 1964 - The firm Perkins and Will is selected to prepare the master plan.
- 1965, the Perkins and Will campus plan (Fig. 2.12) for the Georgia Tech is adopted by the City of Atlanta, the State Board of Regents and Institute officials.
- The new plan constitutes approximately 91 acres at an estimated cost of 7.5 million (for Georgia Tech)
- Land purchase is completed in two applications: R-85 (1963) and R-111 (1965) (Fig. 2.12).
- Tech Parkway is designed and constructed with a 50 mph design speed and 120’ R.O.W. (Fig. 2.14)

Though each of the elements played a significant role in the final urban renewal process, two would have the most significant, perhaps harmful, impact on future campus development: the design of the Tech Parkway, and the adoption of the 1965 Perkins and Will master plan (Fig. 2.13).

When stating their case for Urban Renewal action, there were three primary development goals
Fig. 2.15- Georgia Tech, Existing Conditions, 1962
cited by the university: space to separate buildings far enough apart to prevent serious spread of fire; space for urgently needed facilities; and to ‘greatly relieve the danger of traffic congestion.’ Though at the time these goals must have seemed just, the only significant guiding principle provided by the university is the desire for space; consequently, this solitary focus provides the only basis for which the 1965 plan was developed. As such, the plan ultimately failed to serve as an effective campus master plan. Analyzing the plan with regard to the three additional elements which define a model American campus— the central lawn; a network of pedestrian pathways; and a diversity of uses— the plan’s generalness, which allowed Georgia Tech to mislay its role as a unique model of an American campus, becomes eminently clear. For historic examples of the American campus, such as UVA, Princeton, Yale, etc., the lawn is used as the campuses central organizing feature. This was also true of earlier iterations of Georgia Tech’s master plan. It is around these lawns that many of the most prominent buildings are placed, and therefor provide the buildings their point of orientation. Prior to the adoption of the 1965 plan, Georgia Tech had two such lawns: the historic lawn, in front of the Administration Building; and the lawn at the center of Heffernan’s modern academic complex. Visually, the distinction of each of these lawns is lost in the 1965 plan do to the simple nature of the plans graphics— green earth, and white structures. While the expansive green might suggest the presence of a ‘lawn,’ organizationally/structurally, it does not exist. This omission is further reinforces by of the generic nature of the ‘proposed’ buildings, where neither orientation or direction is established. The 1965 Perkins and Will plan also fails to satisfy the test of the American campus from the vantage point of ‘functional diversity.’ Again do to the generic nature of the proposed buildings, the plan fails to provide any sense of use or typology, with the exception that smaller buildings represent living quarters and larger buildings represent other academic uses. Graphically this can only be assumed, however, it was determined, during the application process, that the western most portion of the urban renewal land acquisition (Site 2 of Fig. 2.13) would be used primarily for housing. Beyond this basic differentiation, no other uses— libraries, laboratories, lecture halls, gymnasium, administration buildings, dining halls, and club houses— common to the American campus, are made evident. Of the three elements, only connective pathways feature prominently in the 1965 plan graphic.
However, even here there is a significant flaw—there is no distinction made between pathways and streets; in many instances they appear to be one in the same. Traditionally in cities, streets are the primary organizing force and connective tissue which binds the city. But, on the American campus these roles are replaced by the lawn and pathways, respectively, while the street is reduced to a more subservient role. Yet in the 1965 plan, streets are clearly the dominating feature.

One of the most striking aspects of the plan, both inside and out of the campus bounds, is perhaps the scale of the roads, made evident by their sweeping curves— a byproduct of their design-speeds. The most pertinent example is the newly planned ‘Tech Parkway’ (Fig. 2.14 ) along the southwestern edge of the campus, which administrators saw as a necessary feature given the extensive campus expansion. It was believed that “With the construction of more than 15 million dollars worth of campus facilities currently planned west of Hemphill, the congestion of students and motorists on and along Hemphill will become a greater public hazard and traffic bottleneck which will make it increasingly imperative to route traffic off Hemphill and on to Tech Parkway.” Such a stance is undoubtedly attributable to the rise in prominence of large highways with the implementation of the interstate highway program in the late 1950s.

A NEW DIRECTION: THE OLYMPICS AND BEYOND

“When completed… the Master Plan will provide a detailed guideline for physical development of the campus over the next 15 years. The plan will encompass development of campus facilities, land and building use, vehicular and pedestrian circulation, parking, open space, utilities, relationships to the surrounding community, and criteria for campus landscape and building design.”

-1997 Campus Master Plan

In September 1990, Atlanta was selected as the recipient of the 1996 Summer Olympic Games. Consequently, the city experienced significant investment. More than $2 billion dollars were spent on a variety of new construction projects including new and renovated sports facilities, hotels, homes, sidewalks – the end result “…in many ways, a new city.” As a site chosen to host several of the Games activities, Georgia Tech too was a substantial beneficiary, of the
cities surprise awarding. Having spent roughly the last 25 years developing under the premise of a largely ineffective master plan, Georgia Tech chose to use the Olympics as an opportunity to redefine their developmental objectives. Therefore, in early 1991 Georgia Tech hired the planning firm Sasaki Associates to prepare an updated master plan (Fig. 2.16) for the university.

The strategic goals outlined in the Sasaki plan were relatively simple, citing the need “to develop: a long range facilities master plan; a framework for future growth, identifying special circulation and land use relationships that will guide the siting of capital projects; and a strategic initiative for the Institute for a constructive and catalytic role in its surrounding neighborhoods.” While these goals come across as typically generic (as strategic goals often are) they nonetheless mark a dramatic shift from the ‘space’-centric goals “expressed during the period of urban renewal, and already begin to reference the kind siting and use criteria that were noticeably absent from the 1965 campus master plan.

Expanding upon the strategic goals of the university, several needs for the campus, other than those specifically required for the Olympics, were expressed prior to the completion of the new
master plan:

- A long range density strategy
- And active full-time campus
- Locations for proposed new facilities
- Additional free play/intramural spaces
- A campus bicycle system
- And improved handicap access
- "Environmental design needs involve improved ‘sense of arrival and way-finding,’ separation of pedestrians from vehicles, expansion and restoration of the ‘green campus’"

Again, many of these perceived needs seem relatively straight-forward, yet it was precisely these sorts of needs that the 1965 urban renewal plan failed to address. What’s more, most of these needs correspond in some way to the three primary elements of the American campus model, and therefor provide the basis for which we can evaluate the Sasaki master plan.
First, the Sasaki plan provides a clear representation of ‘lawn’ spaces. These are differentiated from the remainder of the green spaces, as well athletic fields through various in the shade of green used. Several of these lawns are implemented throughout the campus plan, and take on a variety of shapes and sizes. What is also made clear through the plan is that, while the historic lawn is still retained, the designation of “central lawn” has now been fully shifted to what is seemingly the lawn originally planned by Bush-Brown and Heffernan, in the late forties. While this lawn is positioned, more appropriately, toward the true center of the campus, it is also seems somewhat appropriate, if not ironic, that the lawn has grown (and been slightly shifted) to consume one of Heffernan’s own designs- the Harrison Hightower Textile Engineering Building. This building would ultimately be razed in 2001, and the Sasaki central lawn would subsequently become Georgia Tech’s Yellow Jacket Park (Fig. 2.17).

Another facet in which the Sasaki master plan, highlights the elements of and American campus, is in the emphasis placed on pathways. As stated in the goals of the master plan, or more accurately, the needs, pathways were a key point of the emphasis; in terms of a separation from vehicular traffic, but also in the desire for bicycle infrastructure. These desires are reinforced in the graphic plan in which there is a clear differentiation between pathways and streets. The extensive nature of the pathway network also begins to emerge as development is planned to increase with the arrival of the Games. Though streets are, graphically, treated with street trees and the like, it is clear that stronger emphasis has been placed on paths (and lawns), as evidenced by the orientation of existing and proposed buildings.

Finally, the plan also incorporates the designation of multiple use typologies- residential; recreational; academic/research; and ‘support.’ Though the designations of these uses are still somewhat non-descriptive, they nevertheless help define the spatial organization and/or zoning of the campus. This step in critical in helping determine the placement of future development. Of particular concern to (then) President John P. Crecine, was that in his view the campus had become commuter oriented as a result of a student housing shortage, noting that the Olympic village housing would become residence hall space at the conclusion of the games.

While the Sasaki plan was initiated primarily due to the arrival of the 1996 Olympic Games, there
was also a strong desire to use the opportunity to create a new model for urban campuses. In attempting to do so, the Sasaki plan goes a long way toward reversing many of the residual effects left by the 1965 urban renewal plan. Yet, while the plan goes a long way to towards re-implementing the three components which define and American campus, the plan fails to re-establish the one aspect that made the early Georgia Tech campus so unique- the mix of American campus fundamentals with the urban contextual framework.

Following the conclusion of the Olympic Games, there was a general belief that the previous plan (by Sasaki) had put too much emphasis specifically on needs of the Games. And, while the Sasaki master plan had served sufficiently to fulfill that purpose, a new master plan specifically tailored to the wants of the university would be more desirable. Therefore, in 1997, Georgia Tech adopted it most recent master plan, the CMP (Fig. 2.18) updated as of 2004.

A few of the more unique aspects of the CMP are in the approach to future planning. Rather
than designating paths of future growth, beyond the current campus borders, the CMP simply
designates a “1/4 mile area of interest” around the campus periphery “…where Georgia Tech would
consider property acquisitions and/or campus expansions.” Also of note, in the CMP is the stated
desire to reduce parking ratios on campus noting that “Institute objectives for reducing on-campus
parking ratios should be retained and transportation use further encouraged so that Georgia Tech
can contribute to better air quality and less asphalt devoted to impervious surface.” This position
re-inforces another strong goal of the CMP- the dedication to sustainable development.

In terms of its stated goals, such as the desire to develop a pedestrian oriented with less emphasis
on automobiles, the CMP doesn’t differ all that much from the Sasaki master plan. And so, its
performance with regard to the three components of an American campus –the lawn, pathways,
and diverse uses- are largely the same. There is one aspect however, in which the newest master
plan differs widely- the incorporation of urban ‘edges.’ One of the primary goals of the CMP master
plan has been to allow “…the Institute … to become increasingly involved with the surrounding
Atlanta and MidTown communities – both to protect the future interests of Georgia Tech, and to
further contribute to the enhancement of the areas around campus.” The physical manifestation
of that goal, in plan, has been to incorporate more urban design guidelines along the periphery of
the campus. One example would be the Technology Square campus redevelopment (Fig. 2.19).
Fig. 2.19- Technology Square, 2012
“During the same time period, however, the spatial matrix of the paths and plots, especially the superstructure, usually remains constant. This layer is resistant to change because it requires tremendous social, economic and political power to change it- and when that change occurs. It often signals an important historic event.”

-Brenda Case Scheer

When analyzing the growth and change of an environment, urban morphologists break the setting down into a series of basic components. Typically, these components are land subdivision (plots or lots), buildings and other structures, and streets. “These are combined in various ways to form larger components such as blocks, districts or tissues.”

The following set of diagrams are an alternative to the Georgia Tech campus history described in the previous part of this chapter, graphically mapping the growth of the campus over time. Evident in these diagrams is the slow growing nature of the campus to the point of urban renewal implementation (the ‘important historical event’), at which point the campus boundary is dramatically changed.

Similar to the process used by morphologists, these diagrams break the campus and the surrounding area into a series of basic components for analysis. This particular series of diagrams uses the primary elements from both the resilient(urban) and campus tissues: streets (resilient); campus buildings (campus); and lawns (campus).

Also of note, the diagrams are broken into two categories: existing conditions (left), and master plans (right). Existing conditions show the actual growth over time, while the master plan series shows the proposed growth over time.
Mapping Campus Development (Existing & Projected)
1911 CAMPUS MAP

STREETS

BUILDINGS

PATHS AND SPACES

COMPOSITE
1928 CAMPUS MAP

STREETS

BUILDINGS

PATHS AND SPACES

COMPOSITE
1912 MASTER PLAN

STREETS

BUILDINGS

PATHS AND SPACES

COMPOSITE
1951 CAMPUS MAP

STREETS

BUILDINGS

PATHS AND SPACES

COMPOSITE
1962 CAMPUS MAP

STREETS

BUILDINGS

PATHS AND SPACES

COMPOSITE
2011 CAMPUS MAP

STREETS

BUILDINGS

PATHS AND SPACES

COMPOSITE
CONCLUSION:

The American campus was born of many independent factors— the rejection of European cloistering, the emergence of new educational philosophy, religious preferences, and a general distrust of cities— yet each of these qualities all share a common thread: each contributed significantly to the collegiate push to abandon the city, in favor of rural spaciousness. This act of turning away from the city then ultimately led to the emergence of a new morphological tissue, the campus, comprised of four primary elements: the central lawn; pathways; functional diversity; and the campus master plan to compose each of the elements.

These elements of the American campus, particularly the lawn and pathways, exist in direct opposition to those of the traditional city, with its resilient tissue of lots, blocks, streets organized within a subdivision grid. While one tissue— the campus— focuses inward toward the central lawn, the other looks outward toward the public street. While one is fundamentally about the composition of buildings (campus) the other is about the organization of property, public and private (resilient).

Fig. 3.01- Front of Architecture West facing back of Clough Undergraduate Commons
It is because of the ‘anti-urban’ characteristics of the American campus that there is an inherent disconnect with the American city; the campus and the city are two different things comprised essentially of opposing physical ingredients.

Early on, Georgia Tech managed to maintain a relatively distinctive blend of the two tissues due to the need to balance its desire to fit within the American campus tradition among the constraints of land accessibility and a limited budget. The result was a blend of campus planning ideals—the rurally derived American campus model operating within a larger urban framework. Early master plans attempted to clearly fit the mold of the American campus, but as the campus was woven into the pre-existing framework of streets and blocks, allowing only for incremental campus expansion, most were only partly realized.

A major changed occurred when Georgia Tech began its major period of expansion during the post-war period; incremental growth had ended. The Federal Urban Renewal Program assisted this expansion, enabling Georgia Tech to assemble enough land to more than double its size and erase the pre-existing lots, blocks and streets. The new expansion area was seen as a tabula
rasa – enabling a new campus form to emerge. It was at this point that the organizational logic of the campus was lost – Georgia Tech was neither campus, nor city. Nor was it a blend of the two, as it had successfully been since the beginning.

More recently, Georgia Tech has sought to reverse the effects of the urban renewal plan. When the 1996 Summer Olympics were brought to the Atlanta in 1991, Georgia Tech seized the opportunity to eliminate many of the enduring effects left by urban renewal in the creation of a new master plan. The resulting plan, the 1991 Sasaki Plan, went a long way toward reestablishing many of the lost elements which typically define an American campus, such as the central lawn, as well as instilling some notion of the street as an organizing force. However, the plan fell short of reestablishing the uniqueness that Georgia Tech had had so early on.

In 1997, Georgia Tech, again attempted a reformation of a pre-urban renewal campus, by creating its most recent master plan, the CMP. While the both the Sasaki and CMP plans are very similar, as the CMP expands upon many of the principle established by the Sasaki Plan, there is a significant difference is in the treatment of the periphery. Where the Sasaki Plan took the approach of a more traditional American campus, the CMP allows the campus to merge into the surrounding city by

Fig. 3.04- Front of J.E. Love Manufacturing facing rear of the Manufacturing Research Facility
reintroducing urban design elements of a traditional city. While this strategy has helped immensely in the transition from the campus tissue to urban tissue along the campus boundary, the confusing nature of merging the two the structural logics- the campus tissue and resilient tissue- within the campus is still very evident. The most obvious of these effects are in the front-back relationships seen across the campus (Fig. 3.01-Fig. 3.04).

Within traditional urban development, the fronts of buildings face the public street. In the campus tissue, the orientation of buildings is reversed, to face the lawn, with the back to the street. In cases such as Georgia Tech, were both tissues have been seemingly superimposed atop one another, the result is one building facing the street, adjacent to others which do not.

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The year 1962 represents a pivotal moment in the history of campus planning at Georgia Tech. It was in that year that Georgia Tech initiated the process of Urban Renewal to aid in the process of much sought after campus expansion, but which ultimately proved to be rather damaging, as it resulted in a generic master plan which failed to defined a framework for campus growth. The goal of this study then has been to determine, or clarify, the reasons behind the school’s keenness on adopting such legislation; the answer it seems rests within the difficulty of synthesizing the language of the American campus with the language of a traditional urban environment - two fundamentally different tissues. The case of Georgia Tech in its attempt to remedy this same struggle faced by many other institutions in the U.S. signifies the importance of careful planning and design.
NOTES: WHAT IS THE AMERICAN CITY?

5. Ibid, p. 34.
8. Ibid, p. 33.
12. Reps, p. 163
15. Linklater, 164.
21. Reps, p.314
NOTES: WHAT IS THE AMERICAN CAMPUS?


5. Ibid., p. 4.


8. Ibid., p. 4.


11. Ibid., p. 37.


13. Ibid., p. 18.


17. Turner, p. 41.
22. Ibid., p. 27.
25. Ibid., p. 186.
27. Ibid., p. 260.

NOTES: GEORGIA TECH

2. Ibid., pp. 95-103.
3. Ibid., p. 139.
7. Ibid., 19.
8. Ibid., p. 27.


14. Ibid., pp. 32-34.

15. Brittain, pp. 165-166.


17. Ibid., p. 64.

18. Ibid., p. 64.

19. Drury, pp. xii-xiii.

20. Ibid., pp. 116-117.


22. Drury, p. 188.


24. Ibid., p. 195.


26. Ibid., pp. 177-178.


29. Chancellor Caldwell. (Correspondence to President Van Leer, April 15, 1955).


33. “Georgia Tech Urban Redevelopment Project No. II” Urban Renewal Projects Records, ID: MS090. Box 1, Folder 1. Archives and Records Management, Georgia Institute of Technology, GA.


37. Ibid., pp. 1-2.


42. Ibid., p. 08.


44. Campus Master Plan Update, p. 08.

**NOTES: CAMPUS MORPHOLOGY**


2. Ibid, p. 29.
SOURCES:


Bush-Brown, James. (Correspondence to Bush-Brown and Gailey Architects, March 26, 1945).

Chancellor Caldwell. (Correspondence to President Van Leer, April 15, 1955).


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