FORM IN THE [MIDDLE]-GROUND: URBAN/SUBURBAN SPRAWL IN GEORGIA & TENNESSEE

by

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FORM IN THE [MIDDLE]-GROUND

URBAN/SUBURBAN SPRAWL IN GEORGIA & TENNESSEE
ABSTRACT
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ABSTRACT

Over the next quarter century the U.S. population will expand by 25 percent, an unprecedented steep and rapid increase that has already begun. The urban and suburban land area has been expanding to create a sprawling landscape of housing developments, shopping centers, and industrial parks. Sprawl has created a sense of disorientation as the spatial growth has blurred the boundaries between the rural landscape and urban/suburban cities and towns, leading to the creation of amorphous regions.

This disorientation and the rapid increase in population are generating undesirable environmental consequences. This thesis proposes a new way of approaching the development of cities and towns so as to create clearly defined communities within the amorphous sprawl of development that is consuming the landscape and resources. I proposed the middle-ground, a term I use to suggest a place found between the rural and suburban/urban boundaries as a new landscape for development.

Using U.S. Census data, GIS information, site visit and interviews I assess the impact of growth and sprawl in the Interstate 75 corridor region between Atlanta Georgia and Chattanooga Tennessee. I offer a new direction in smart growth in the design of a new town located between the sprawl of Chattanooga, Tennessee and Dalton, Georgia, to house 100,000 residents. In addition, I propose a new train station as a central transportation link between the Chattanooga and Atlanta airports as a means of creating a well-defined, well-populated node that is a counterpoint to those regions with blurred boundaries.

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“Towns must now cease to spread like expanding ink stains and grease spots.”
In 2025, the U.S. population will exceed 349 million citizens – 67 million more inhabitants then in 2000. Over a 25-year period, there has never before been such a steep and rapid population increase. Along with this upsurge, there has been a corresponding change in the American landscape, resulting in a shift that has pushed in the boundaries between wilderness and populated areas. Historically, there was a city center with an industrial ring functioning as a buffer between the farmland and city. This urbanization was once a concentric form with rural or suburban developments arranged as a belt around the city core, creating visual clues or boundaries that distinguished the built environment. Now we are facing a different situation.

As the built footprint has expanded and conquered the landscape, cities and suburbs have joined to become one undefined, amorphous landmass. To keep up with the growth and fluctuation of the population, the urban footprint has been expanding exponentially. This transformation is apparent anytime you fly into any major airport. When the captain announces, “Flight attendants please
DUE TO A PROJECTED 25% INCREASE IN POPULATION WHERE DO WE HOUSE SUCH AN EXPANSION?

ONE THAT HAS A MINIMAL IMPACT ON THE ENVIRONMENT AND AVAILABLE RESOURCES?

2000 = 280 MILLION

2025 = 350 MILLION

= POPULATION INCREASE OF 70 MILLION (+25%)

Figure: 0.1 Growth Projection
Population Growth projections over the next 25 years based on U.S. Census figures.
prepare the cabin for landing,” one might be inclined to gaze out the window. What do you see?
An endless landscape of housing developments, shopping centers and industrial parks stretched
between grids of streets and freeways snaking across the country. Beyond noticing high-rise
buildings that depict a center to the mass, there are very few clues that allow for orientation within
the urban/suburban realms. Without a point of reference, it is easy to feel as if one is standing still,
but in reality are constantly in motion. Everything appears as one mash-up of development while
moving across space at great speed.

In other words, sprawl has created a sense of disorientation, with urban/suburban boundaries blurred
without definition. Now, there is less of a transition between rural farmlands and the suburbs. As you
fly across the country, a Jeffersonian grid is still present, but these grids no longer offer containment
and definition. Rather the edges of these grids are often undefined and blurred.

Over the course of the last half-century America, which has been growing at a drastic horizontal
rate, the “ranch burger” has been multiplying. This in turn has created the land consumption
rate that has forced this “conquering” of wilderness and farmlands. This growth has pushed the
urban/suburban footprint in an undirected fashion. Centrality has been replaced by amorphous and
eccentric configurations. Thus, the definition of city, suburb and farmland has been morphed into
polycentric regions.

As a result, these new undefined regions have, together with the alarming increase in population,

1 The urban and suburban city forms have become indistinguishable from one another. I
   present them as one continuous mass of development.

2 Ranch Burger, commonly known as the ranch-style home, it was first introduced in the
   1920s but became popularized by the American middle class during the post-war boom of the
   1940s to 1970s. A style associated with tract home developments, the house epitomized single
   story buildings that further influenced the migration in the suburbs.
URBAN LAND DEVELOPMENT IN THE UNITED STATES: 2007

Figure: 0.2 Developed Land Surfaces
Urban/Suburban footprint of developed land.
created a depletion of energy sources at a rate that we can no longer keep up. As this happens, we are not only depleting energy resources but also the land itself.

It is therefore time, as we enter the second decade of the 21st century, to develop alternative practices towards urban and suburban development. This thesis proposes a new way of approaching the development of cities and towns so as to create clearly defined communities within the amorphous sprawl of development consuming the landscape and resources. My work focuses on the articulation of a solution that reverses the current condition of these regions of sprawl in favor of creating a denser, ecologically sound and contained solution, giving definition to the landscape while creating coherent communities. Through an examination of the current state of development as a starting point, I will systematically develop a new town to explore the potential that the border zones -- or what I will call middle-space -- have between one city and the next.

More specifically, this thesis will examine the Interstate 75 corridor between Atlanta, Georgia and Chattanooga, Tennessee. Currently, these two states are in phase one of a study looking at the creation of a high-speed rail line that will strengthen regional commerce, in addition to alleviating the impending vehicle congestion to the interstate. I will analyze the current plan being pursued by these two states, which does not deal with the projected population growth of two million people over the next ten years in the corridor. Therefore, I will propose an expanded approach to the study that links the high-speed transportation system with urban/suburban development.

The proposed town will act as a release valve, to house the impending growth by focusing largely on the social, cultural and political framework in a local, state and regional landscape. If we don’t begin to find a new way to stop the consumption of the environment we are on a fast tract towards an irreconcilable future.
The structure of this thesis is arranged into four sections:

Part I looks at the effect of population growth and migration on the urban/suburban landscape. This will be represented through a geo-spatial, U.S. Census and World Almanac data analysis, creating a reading and spatial understanding of the directed effects of expansion. Additionally, I will review literature and terminology pertaining to current trends in urban development. This review will introduce the topic of regionalism and the scale issues of connecting the city, state and region in order to shed light on the way development should equally address each scale.

Chapter 1 examines the problem that growth and migration have upon the built environment. By using Lewis Mumford’s 1925 article, “The Fourth Migration,” outlining the cause and effects that growth have upon the development and creation of urban/suburban population centers I will address the steps that produced the disintegration of definition between the developed and undeveloped landscape of the United States.

Chapter 2 further develops the argument presented in Chapter 1 through the development and understanding of the urban disintegration between the urban/suburban and rural relationship. This chapter traces the impact growth has had on the creation of a disintegrated developed landscape through the development of two schools of discourse: “centrist” and “de-centrist,” that contain the numerous definitions of the current urban/suburban forms.

Chapter 3 presents the manifestation of sprawl and its effects on the consumption of the landscape related to the continued expansion of the urban and suburban footprint.

Part II looks at the development of a proposal that puts theory into practice. Through the exploration of the conditions found in the high-speed rail proposal between Atlanta Georgia and Chattanooga.
Tennessee, a speculative territorial design for a new city of 100,000 will be examined. This study will present an epistemological shift in the development of cities and towns. Housing and defining communities within the amorphous sprawl this section will challenge the basis for reconceiving urban/suburban growth by offering a new direction in smart growth and containment through the creation of identity around density.

Chapter 4 examines existing and projected growth and development in Georgia and Tennessee. Currently, the two states are in the initial phase (Tier 1) of planning a high-speed rail (HSR) line between Atlanta and Chattanooga. The initial rationale for this proposal is to connect the respective cities airports. I, therefore, push back on this objective by studying the potential for using the proposed stations within the rail line as a catalyst for economic and social growth. Presenting the issues of pattern, network and identity as a result of building a high-speed rail line, setting the stage for the introduction of a new town that will mitigate the expected growth.

Chapter 5 introduces the *Middle-Ground* manifesto as a new design paradigm that builds upon the introduction of high-speed rail as the catalytic element for the creation of a city for 100,000 citizens. The methodology that structures the design of the *middle-ground* uses the analysis in Part I and Part II as a directive for urban design. Suggesting that new development in the Southern landscape will be a collective process that proposes incremental growth versus the consumer culture previously contributing to the existing urban forms. This will be the challenge for practitioners and policy makers to regulate the development of compact cities as attached to the regional nature that high-speed rail champions.

Part III analyzes the future development strategies as proposed in this thesis by presenting the advantages to creating a new town development within the southern region of Georgia and Tennessee. Learning from this proposal I will make suggestions on how new towns can be re-tooled and evolve
to address the specific needs of different locations. The population increase is not something that is going to stop and will always be a factor that we have to deal with. Therefore, this section considers the question: growth is inevitable, yet how do we propose and explore plans for efficient and sustainable urban and suburban development?

Methodology:

Design theory is explicitly or implicitly normative. This thesis relies on a range of primary and secondary materials to present and test its’ arguments: geo-spatial data, U.S. Census numbers, maps, diagrams, photographs and existing architectural and urban conditions. The most important data this project is formulated upon, is the collection of evidence found in the built environment itself and the impact we as a population have had and will continue to have on growth and development.
PART I: CAUSE & MANIFESTATION
“Undifferentiated urban tissue without any relation either to an internally coherent nucleus or an external boundary.”
Urban and suburban growth has been shaped and shifted over the course of history by many different factors. Once there was a clearly defined separation between the urban/suburban and rural landscapes but is no longer the characteristic in the U.S. landscape. This chapter explores the cause and effects that population changes have had on the outcome of city and town development. Specifically I am looking at the way migration and growths have led to the disassociation of the traditional function borders and edges between the urban/suburban and rural landscapes.

1.1: Migration

Past, present and future urbanism is defined by patterns of migration. The moving of people from one region to another, whether across the sea, plains or mountains, both embraces and defeats the contours of the land. Lewis Mumford’s 1925 article, “The Fourth Migration,” clearly outlines urban growth as a direct product of migration trends. This fourth migration has pushed us into a regionally

based population where we are on the verge of exhausting the limits of the landscape.

Migration has dominated the ebb and flow between city and landscape through the course of America’s expansion. We have historically been in a series of migration flows. Mumford’s article depicts the four phases of migration that have been evident in the creation of the rural and urban environments. More specifically, Mumford announces that the First Migration was that of European pioneers who settled the continent; the Second Migration is that of the farmer or laborer moving into factory towns; a Third Migration depicts man’s move into metropolitan centers. The article then predicts a Fourth Migration, which will destroy the city centers of the metropolis, spreading the population into a regionally based society, by stating that urban concentration is going to be obsolete. In this sense, Mumford predicts the assimilation of the suburb, which will develop the path towards a fragmentation of the city into a regional mass.

As one can see, the Fourth Migration would take place in the post-World War II landscape, largely driven by the population boom and the government’s response to further push prosperity and growth. Due to the build up of the war machine to supply and support the Allied war efforts an industrial base was ready to evolve into its new ‘domestic’ role. Mumford’s fourth migration never predicted the level of impact the federal and state governments would inject in the stimulation of growth into the landscape. Benton Mackaye would point to the development of rapid automobile movement or a ‘town-less highway’ as the result of government legislations and finance. Instead Mumford believed that the changes due to migration where to be felt in waves instead of sequential events, and each new wave would combine with the previous growth. Ultimately, Mumford foretold the peril

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3 Lewis Mumford’s colleague Benton MacKaye coined this term around the belief that permitting the rapid automobile and truck movements would push the dispersal of the urban form. Fishman, Robert. (2005). ‘Longer view: The fifth migration,’ *Journal of the American Planning Association*, 71: 4, 357-366
the migrational growth would have, that the failure to create “stable all-round communities” is high resulting from a frenzied rush to create maximum growth and profit. Later in the reprinted edition of the “Fourth Migration,” Mumford projected an anguished cry, dwelling in disappointment that the Fourth Migration instead created a “disorganized mass of formless, low-grade urban tissue, now nicknamed the Megalopolis.”

It is believed that the fourth migration in the suburban landscape is waning, leading in a new migration. Robert Fishman has coined the Fifth Migration as the re-urbanization of the Inner City. This new migration is explained as the re-creation and rediscovery of traditional urbanism, a density around the city center. Currently, it is too early to determine if a new regional pattern is taking place, resulting in the decentralization in the region. Yet, Fishman asserts that re-urbanization of the core will ease the pressures of expansion on the edge. Through the decrease of growth in the suburban city, or as Fishman describes, migration to the inner city, successful strategies for growth management in the rural landscape can be realized. Theorizing that this strategy will insure an even migration, the threat of a ‘land rush’ into the city core will be mitigated. The fifth migration assumes that a balance will be achieved between the rural and urban city forms. Yet, the focus of this migration is directed at the inner city. This migration is revealed as the movement of global migration and not the process of affluent newcomers moving around the suburbs.

Beyond Mumford’s predictions of specific migration patterns, urban growth forecasts predict an

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4 Ibid
Figure 1.6 - “Fifth Migration”
The fifth migration is the movement further past the suburbs, additionally there is growth in the inner city, or within the rings around the central city.

alarming change to the U.S. built environment. In 2025 the population will exceed 349 million citizens -- 67 million more inhabitants then in 2000.\(^7\) Over the course of the nation’s history there has never been such a steep population increase during a 25-year period. The U.S. Census Bureau projections assert that the built environment will double over the course of the current quarter century to accommodate the growth in population.\(^8\) These predictions continue the trend of urban land development that has been expanding since the 1960s.

Over the last 50 years, population density has dissipated from urbanized areas. The footprint of urbanized land development during 1960 was roughly 25,000 square miles and has grown 110 percent to 52,000 square miles in 2000.\(^9\) Construction on the edges and boundaries of towns at a rate over 50 percent contributed to the land expansion. As a result, estimates show that over 60 percent of the population now lives in newly urbanized areas while 38 percent (and decreasing) of the population lives in city centers.\(^10\)

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\(^9\) U.S. Census Bureau. (2000) The Census Bureau classifies as “urban” all territory, population, and housing units located within an urbanized area (UA) or an urban cluster (UC). It delineates UA and UC boundaries to encompass densely settled territory, which consists of: 1. Core census block groups or blocks that have a population density of at least 1,000 people per square mile. 2. Surrounding census blocks that have an overall density of at least 500 people per square mile. While the U.S. Department of Agriculture defines urban areas/developed areas/urban/built-up areas as: cities, villages, other built-up areas of more that 10 ac (4 ha), industrial sites, railroad yards, cemeteries, airports, golf courses, shooting ranges, institutional and public administration sites, and similar areas.

Figure 1.7 - U.S. Population Projection
Graph depicting U.S. population growth since 1980-2005, and projected growth over the next 25 years.
Boundaries between cities and towns have become blurred, as a repercussion from the staggering development of land. The shift from dense centralized towns and centers to a low-density landscape of population is due to horizontal growth. The city contained itself in specific boundaries due to social, economic and political agendas; it similarly presented barriers to growth. At the edges and fringes of cities the undesirable industrial building forms and spaces created a belt around cities. Due to this belt, the population began to expand into new lands by horizontal growth into the landscape instead of building and densifying the existing city limits. The conception of the suburb was a direct product.

Spatial growth because of this rapid rate of migration may further the edges of towns and cities to a point where identity and social capital will be in question. Complex challenges and policy decisions must then be made to address the current and future impact on the urban and rural landscape.

1.4 - Why the growth?

Traditionally cities have grown out of the necessities of a community to cohabitate around economic functions, creating social and business flows that reduce transportation of goods and services. In the post World War II landscape a number of factors helped push growth into the wilderness. The combination of government subsidized road-building, cheap gasoline prices and the change to an information-based economy weakened the incentives to live in central cities. Many observers contend that today’s evolving capital consumerism enforces choice and the choice has been made to move out of the city. By moving further away one can lower the costs of housing by just allowing a transit trade-off.¹¹

Regional development of the Megalopolis and the blurring of city and town boundaries as a result.

Figure: 1.9 U.S. Megalopolis & Megaregions
Regional development of the Megalopolis and the blurring of city and town boundaries as a result.
In strengthening the webs and networks created through commerce, the physical congruence between cities has suffered. Conflicts have risen out of cities’ desires to market and brand themselves in the competitive regional and global markets. As these conflicts increase politicians, environmentalists, geographers, farmers, designers and many others associated with land development are struggling to find solutions to deal with the causes and effects of this massive horizontal urbanization. Resulting from the proliferation of single-story homes and office buildings with extremely low densities contributing to the blurring of identity. For example social conflicts arise among communities shaping and affecting the area as a whole. Anti-urban attitudes, racism and capitalism, technology, affluence and democracy have played a hand in the formation and continued growth of the built environment, creating the fissure between the rural and urban city forms. Thus, the edges between the suburbs and the central city are at risk of becoming crucial battlefields for municipalities, social groups, urban fabric, land-use and municipal policy decisions. Conflicts arise as a result that create: a cities’ desire to market and brand themselves in the competitive global and local markets, social conflicts among communities that impact and influence neighboring borders and cities along with the area as a whole. Thus, the edge and border between cities and communities is the crucial battlefield for municipalities, social groups, urban fabric, land-use and municipal policy decisions. In focusing on the networked infrastructure, such as transportation, telecommunication, energy, water and streets, cities and urban regions are wheels within the constant flow. It is due to this networked infrastructure that the contemporary urban and architectural discourse should be reframed.

Urban regions are shaped through the current lens of global economies and new technologies

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emphasizing the movement of finance, information, creativity, innovation, development and competition in the world economy.\textsuperscript{15} The shaping of the urban region led to the formulation of the “space of flows”, a spatial logic defined through the collection of services such as finance, real-estate, design, law, research and development that relies on the production of knowledge and flow of information as postulated by Castells.\textsuperscript{16} This economic and technology based paradigm allows an abstract outlook on the socio-physical discourse. As argued by Hall, the contemporary concept of the mega city-region is not a physical, morphological or administrative construct, but one of functional terms.\textsuperscript{17}

Castells’ ‘space of flows’ as well as contemporary theory of the function of webs correlates with another school of thought to conceptualize urban regions, postmodern geographers like Soja\textsuperscript{18} and Dear\textsuperscript{19} concentrate on the spatial consequence of the condition of the metropolis. Complexity and fluidity constitute the contemporary metropolitan form that highlights the disorder of space, showing the urban/suburban region as decentralized, complex and polycentric that lack a clear sense of center. But what makes this discourse important is the modeling that shows an abstract system of flows, networks and the links among the varied components of the system. These models ignore


\textsuperscript{17} Lang and Knox (2009) claim regional cohesion in the regional scale is the bases of integrated forces such as commuting, goods movement, business linkage, shared culture and the physical environment. Similarly Turok (2009) defines the city-region as an area where different places perform contemporary functions and interact through commuting, trade, information or other flows. As a result, new models of urban regions reflect webs; each with a different pattern, connections, and intersections, therefore one place can be a central space but an edge or border to another.


\textsuperscript{19} Dear, Michael J. (2000). \textit{The Postmodern Urban Condition}. Oxford: Blackwell
the physical and spatial realm; therefore losing sight of the collision that is present between cities in a vast urban region. Soja highlights employment, commuting, crime rates, commerce and social issues in the network but neglects the physical border zones between cities and their neighbors. Why? Postmodern thinkers are stuck naming, defining and characterizing new and developing forms of urbanization like Soja’s ‘expolis’ or Dear’s four models of postmodern urbanization: ‘world city,’ ‘dual city,’ ‘hybrid city,’ and ‘cybercity.’

Through the neglect of the spatial implications as urban generators, regions, or specifically the borders and edges, are created through the focus on economic generation. By emphasizing the webs and networks the physical congruence between cities is neglected.

To understand the notions of the web city, one should re-examine the work of Christopher Alexander. In his most notable work A Pattern Language (1977) a methodology is presented to enhance the social-spatial connectivity in borders between cities. While many scholars initially rejected it at the time of its inception, today’s theoretical discourse is being largely driven by the concept of networks, webs and complexity making Alexander’s work relevant as a study. Alexander presents us with the notion of the semi-lattice city or the ‘networked region’, which is extrapolated as a methodology unfolding as a multi-layered system.

In Alexander’s seminal paper “A city is not a tree,” the city is looked at as the organic process or the “natural city” and the city that has been manipulated by planners and designers have been created as “artificial cities.” The paper explains the failures in cities are based on the notion that they are arranged in a tree structure whereas they should be created as a semi-lattice structure. By creating a semi-lattice system, first, the spatial structure is a series of overlaps, intersections and connections producing great numbers of connections. Second, the lattice allows for the ebb and

---

flow of the inhabitants.

The current urban/suburban form reflects a sense of compromise over the forces that call for centralization and decentralization. These shifts are still deeply rooted in the ebb and flow between technology, culture, economic production, regional scale, intergroup relations, social and political organization, physical and regulatory constraints, demographics and that of popular taste and lastly class assertions. It is now questionable; as to what role the center has in shaping the structure of the developing footprint, with the polycentric creation of form that is now a major component.

Post World War II expansion into the frontier, or in the vocabulary of Garreau, movement into the farmland and villages has resulted in uncontrolled sprawl. American planners and architects adopting the modernist approach to urban planning, shifted into the post-modern economic landscape that further pushed out suburban development into capitalist corridors of development in the current American framework where concepts of borders are continually being tested and broken with the influx and readily access to information. This being the departure point, I will navigate the modernist and post-modern urban planning discourse as it follows the death and current revival of the city center. Whether this center is now being re-created in the central city or the edge/suburban city is not the important factor. It is the notion of what is leftover outside of these areas that create and define such spatial places.

In conclusion, growth and migration have played a pivotal role in shaping the current urban/suburban discourse. Stemming from the discourse of Mumford we are headed on the course of a new migration pattern that ideally will re-introduce the role of place within the megopolis and sprawling landscape. Due to the consequences of cultural, political and economic flows related to the expansion the future will need to mitigate the conflicts as the world continues to get smaller.

“The development of society is conceivable only in urban life, through the realization of urban society.”
Growth and migration consequences have created the disintegration of the urban/suburban relationship. A fragmented landscape of built forms has sprung up over the last half century. Urban historians and analysts have been scrambling to codify these new forms, resulting in hundreds of different buzzwords attempting to explain each newly noticed condition. Yet, it is clear that there are two schools of discourse: “centrist” and “de-centrist” that house each of these new formal definitions. The centrists focus on the emergence of central places ordering the suburbs while the de-centrists look at the moments that pull the metropolis apart. This chapter traces the impact that growth has had upon the creation of a disintegrated urban/suburban landscape through the development of the edge city and then the defined edgeless city.
2.1 - Manifestation of the Problem: Borders

Border: Noun
1. A side, edge, brink, or margin; a limit, or boundary; the part of anything lying along its boundary or outline.
2. The district lying along the edge of a country or territory, a frontier; pl. the marches, the border districts.
3. In U.S.: The line or frontier between the occupied and unoccupied parts of the country, the frontier of civilization. Also attrib.
4. With various prepositions, e.g. within, in, out of, and in other connections, borders is equivalent to ‘territories, dominions, limits’

Borders are no longer doing what they used to do. Borders by definition are ‘that which serves to indicate the bounds or limits of anything whether material or immaterial; also the limit itself.’ A boundary thus may be physical, social, conceptual and/or symbolic. It may be permeable and negotiable; created, maintained, elaborated and dismantled; it may be separating and unifying, divisive and inclusive. Borders used to be the tool that defined and connected one city from the next; there was a clear visual and physical separation. Yet, there is no longer a clear set of rules and guidelines that provide the markers between one city and the next, instead there is a blurred condition that has manifested from the development of sprawl

Border space is lived through images and symbols, interpreted by “inhabitants” and “users”. The relationship of physical space and symbolism is similarly present in Lynch’s take on the physical expression of borders through the organization of space. In this perspective, borders are ideological representations and cultural construction that communities use as the basis to define their existence.

For example, borders are spatial products displayed by planners and architects to contain and define built development over the territory. To understand the notion of border presented by Lynch, one also must address the position of edge. An edge is the linear element that is not a path of movement but rather the boundary between two areas. Visually and cognitively this can be a strong or weak condition, the strongest moment of this form is a clear distinction between one space and the next.

Leading to the implosion of the edge was the post-war, post-grid, post-urban contemporary city. The destruction of the grid was a sequential process, creating the stages of spatial folding that collapsed into the creation of single lots and sites of development. The loss of distinction in the edges of the grid would lead to the closure and exclusivity of the current urban forms that have yet to be reconciled.

Contributing to the weakening of the defined city was the appearance of polynuclear expansion first invented by Ebenezer Howard. This urban form was coined as Centralized Polynuclear expansion and was developed as a model for growth in his book, *Tomorrow: A Peaceful Path Toward Real Reform*, exploring the idea of the “Garden City.” The garden city builds itself on the premise that there is an urban core around which new nuclei gather in a centralized manner. In opposition to growing along the urban perimeter the polynuclear form grew as outward projections, then gathered into a field of contained points or satellites revolving around the core. Garden cities were from the onset radical creations that reflected varied agendas pursued by industry, political desire, and social reform.

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5 *Ibid*


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Figure 2.3 - Poly-Nuclear Field
Initially this form did not gain ground but was idealized both by architects and planners. It was in the post war expansion that the concepts of this development manifested. Post war development exposed housing tracts, “new towns,” commercial malls, office parks, industrial complexes and university campuses that originated around the relationship to a historical urban core.\textsuperscript{8} It can be assumed that this was one of the last moments where a distinct definition of the nuclei to the core was present. However, this model was one of the many factors that created the amorphous landscape. Yet, it allowed the course of hierarchy between the center and periphery to become imbalanced, opening the gate for exurban centers to formulate. Therefore, paving the way for “new towns” and “Edge Cities” to multiply along with a multitude of numerous other outlying urban forms. It is because of the formation of these nuclei that the power struggle created between the center and periphery never came to a conclusion. Instead there is a constant back and forth play between the assertion of each form leading to the lack of definition in the urban/suburban landscape.

2.2 - Edge City:

\textit{Welcome to the Edge City. We Americans are going through the most radical change in a Century in how we build our world, and most of us don’t know it. From coast to coast, every metropolis that is growing is doing so by sprouting strange new kinds of places, edge cities}

- Joel Garreau, \textit{Edge City} (1991)

Edges are the cultural, historical, political, social and environmental events that have tremendous effects on architectural, urban and regional form.\textsuperscript{9} The definition of ‘edge’ evokes the terms of


\textsuperscript{9} Rahamimoff, Arie (2005) “Jerusalem: Lessons from a Shared City,” City edge: Case
margin, frontier, limit and extremity and alluding to senses of risk, alertness while opening the notion of vulnerability. Therefore, the edge is a threshold, an entrance and a beginning, as well as an end.\textsuperscript{10} If we put the edge in urbanism as a point of reference it is the periphery to the built environment, a contrast to the forefront (starting point).

The concept of the “edge city” is a popularized conception coined by Joel Garreau in, \textit{Edge City: Life on the New Frontier}. Garreau contests that a city typology has emerged in the periphery of the metropolis, which is competing for economic, social and cultural dominance as currently seen in the traditional central city. The idea of the edge city builds on the framework that every city today in America is growing into a city of multiple urban cores. It is these cores that are explained as extensions of the current urban environment around historical central cities. These cities are taking shape in the areas that 30 years previously were farmland or villages. Whether these cities are: ‘outer cities’,\textsuperscript{11} ‘exopolises’,\textsuperscript{12} ‘technopolises’,\textsuperscript{13} or ‘techno-cities’,\textsuperscript{14} gets at the question of whether these are the alternatives to the central city.

The notion of the “edge city” can be contested, but the trends are apparent as early as the formation of the suburban environment in the post World War II population expansion. Suburbanization was a popular residential and retail transformation of the agricultural or ‘wilderness’ areas outside the

\textit{studies in contemporary urbanism}. Oxford: Architectural Press

\textit{Ibid}


\textbf{Figure 2.4 - Edge City Development}

Top Image: Depiction of the shift outside the city center, no defining urban characteristics.

Center Image: Further development corresponds to the introduction of infrastructure.

Bottom Image: Development has now produced a new center that is competing with the ‘old’ city center.
city. Generally though, the white-collar jobs remained in the central cities.\textsuperscript{15} It wasn’t until the 1980s that massive amounts of office space along with a surge of residential and retail space migrated to the suburbs. This transformation allowed for citizens to live, work and engage in recreation without ever leaving the suburbs.\textsuperscript{16} Beauregard therefore asserts that edge cities are not physically or socially adept to be considered central cities but are geographically “outer cities,” instead just growth corridors, suburban downtowns, technopolises or techno-cities emanating from central cities. Garreau then further reflects on the urban development of the edge city as a bridge between the urban form of the 19\textsuperscript{th} century and the current trends in the 20\textsuperscript{th} century. It is apparent in Detroit, a city built in Fordian methodology of assembly, a city that is now ringed in Garreau’s edge cities. As he sees this formation, it is the tool that has released urban planners and architects from the shackles of the 19\textsuperscript{th} century city.\textsuperscript{17} Garreau though never fully accepts the edge city as a complete city arguing that it is lacking of community and history. There is also little in the ways of high culture and social diversity typically associated with cities.\textsuperscript{18}

Garreau was not the first to recognize the economic implications of these developing nodes outside the city. Robert Fishman in 1987 termed the development of the ‘technoburb’ as a similar model for the fracturing of the downtown development. While a year previous the Economic Development Administration (EDA) reported similarly on the development of cities outside the traditional nomenclature of the urban and suburban.\textsuperscript{19}

\footnotesize{\begin{itemize}
\item \textsuperscript{15} Beauregard, Robert A. (1995). Edge cities: peripheralizing the center. \textit{Urban Geography}. Vol. 16, 708-721
\item \textsuperscript{17} Garreau, Joel. (1991) \textit{Edge City: Life on the New Frontier}. New York: Doubleday
\item \textsuperscript{19} Bingham et al. (1997) \textit{Beyond Edge Cities}. New York: Garland Publishing
\end{itemize}}
This analysis brought to the surface the developments of a new paradigm in urban and architectural design challenging the notions of the central city. Challenges to the ideas of the edge city would come forward through two groups, one, the new regionalists and, two, from literature calling for suburban dependency. The new regionalists grounded their work in the regionalist arguments of the 1970s in that by broadening the economic and political base of central cities, downtowns would be revived. Suburban dependency hypothesized that suburbs and therefore edge cities as defined by Garreau need the central city. The social and economic health and survival is dependent on the central city. As a result of these varied viewpoints Edge City fueled the questions revolving around whether these urban places are truly self-serving places or are always in need of the relationship with a downtown in a central city.

Garreau’s ‘edge city’ therefore becomes the departure point in which to direct future research and questions. The text gives a sense that most edge cities are economically similar and perform much the same functions as the next edge city. But this is generally not the case, edge cities support and house varied economic, political and social relationships. Also, relationships between the edge city boundaries and the cities they are connected to are never discussed. It is specifically in these spaces that one can see the future need for architectural and urban solutions. For lack of a definition of this resultant space I will call this zone the “boundary space,” being the edge and border space between the megalopolis and the suburb.

21 Suburban Dependence theories are exemplified in the work of H.V. Savitch (1993), Richard Voith (1992), and Larry Ledebur and William Barnes (1992, 1993)
Mediated space: Line – negotiated space – solid line or dashed line

Pomerium (Latin, from post + moerium > murum, “wall”), was the sacred boundary of the city of Rome) – the vacant zone on both sides of the holy trenches demarcating the city’s draft boundaries – formed a boundary space.\(^{23}\)

2.3 - Edgeless City

Edgeless cities, a form of sprawling office development that does not have the density or cohesiveness of edge cities, account for two-thirds of the office space found outside downtowns.\(^{24}\) Edgeless cities spread themselves throughout the urban environment by springing up along transportation routes and interchanges. Without a distinct spatial form it is difficult to understand the beginning and end of these places as they fill the space in the urban/suburban periphery. Edgeless cities are notable by their function alone, they contain and house a particular employment. Initially, dominated by “office parks” but have since developed into shopping areas and places of commercial employment. Because they are scattered and are made of isolated or small clusterings of buildings with varied density across vast landscapes, they are edgeless.

The difference between the creations of the edgeless city versus the edge city is more of a factor of degree then of absolute differing characteristics. In the first manifestation of the edge city it was initially considered an edgeless condition that still was linked to the central city. If we follow the criteria that was initiated by Garreau, that was expanded on by earlier conditions set by Leinberger and Lockwood, we must measure the office space area in determining the difference.

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size, density and area of office clusters meets and exceeds five million square feet an edge city is defined. Yet, because of the discrete bounded condition edge cities can also be termed as satellite cities, while edgeless cities are harder to define due to the lack of a clear edge.

Edgeless cities therefore are not new urban/suburban form, but a piece of the developed landscape over many decades. Due to the need to define sprawl as a major component of suburban growth many unmarked or undefined spaces were missed in the collection of factors that have produced sprawl. This poses the problem that there is a great deal of additional chaos beyond initial growth that is contributing to the growth and expansion of the built footprint.

Ibid
2.4 - Centrist Argument vs. the De-centrists:

Currently in the discourse of urban form there is a key divide that has created two distinct schools. The first argues for the decentralizing of the metropolis into suburban centers, expressing the idea that form should reflect current commerce flows, referred to as the “centrists.” Centrists favor commerce; the built environment should exist as central places in the suburb as networked distribution of commerce over regional landscapes. On the other hand the “De-Centrists” will argue that the current nature of commerce grew as a product of the traditional centralized city form. Centrists will argue that a central or nodal place should be strengthened within the city. Most notably Christopher Leinberger champions the centrist cause while Robert Fishman writes towards the de-centrist stance.26

The centrist view focuses on growth as a reaction to the change of manufacturing to service economy. Additionally the change from rail to truck transit has favored the location of suburbs over that of the city. Lastly, the changes in communication have made the ties with location a factor that no longer is a primary item to the placement of businesses. Along with the material causes for the migration outside to the suburbs there is a major social factor that Leinberger cites. He presents a case that Americans do prefer cities but reject the congestion and unsafe environments that are inherent with the creation of urbanization. Therefore, a decentralized metropolis is present but the elements of a city are being sewn together and re-centralized across a loose urban fabric. Yet, Leinberger contradicts these assumptions by arguing that today many satellite cities have evolved into urban villages and are being identified by their specific industries.27 If technology enables the flexibility businesses have in determining their locations, then why have they conglomerated instead of existing throughout the urban/suburban fabric?

27 Ibid
On the other side of the table the ‘de-centrist’ view upon the current condition points to the idea that the movement of commerce from the core of a region or city is less likely to resurrect in a new multi-centered location. This results in a condition that is much more chaotic than a polycentric structure due to the evolution pulling the metropolis apart. This notion is described in Fishman’s description of the technoburb:

The technoburb has no proper boundaries; however defined, it is divided into a crazy quilt of separate and overlapping political jurisdictions, which make any kind of coordinated planning virtually impossible. Compared even to a traditional suburb, a technoburb at first appears impossible to comprehend. It has no clear boundaries; it includes discordant rural, urban and suburban elements; at it can best be measured in counties rather than in city blocks. Consequently, the new city lacks any recognizable center to give meaning to the whole. Major civic institutions seem scattered at random over an undifferentiated landscape.28

What makes Fishman’s technoburb assessment unique is the notion that the argument is centered on the creation of these spaces in relation to individualism and how society will build urban form. Instead of commerce and technology creating space, space becomes employed in the development through a cultural process.

Similar to the centrist stance, the de-centrists have holes in the argument; edge cities are present in the landscape. Additionally many factors that are present in the centrist argument remain and are working coherently in shaping the development and further pushing sprawl.

The inner city will continue to isolate itself from the suburb and city. There are specific stereotypes associated with the inner city that hinders change to these spaces. Generally the inner city is associated with slums and a degraded level of class, race and gender conglomeration. Therefore, by supposing the fifth migration will hurdle the conflicts that the inner city creates based on our perceptions is quite naïve. By focusing on the re-urbanization of these areas through the lens of black and white middle-class re-urbanism numerous roadblocks will occur. Yet, Fishman is correct in asserting that an imaginative approach must be used in the recovery of the depleted urban edge condition is in the direction, we as architects and planners must head in.

Edge cities are spontaneous growth nodes and monuments to the powers of an unfettered capitalism in which investors and developers respond to new economic arrangements and provide people with the material desires of comfort.29

The edgeless city is the unmarked growth of the new metropolis. They are a mundane ubiquitous generation of urban swelling; while no boundaries may be drawn most people can intuitively determine these shifts or spaces. Yet an empirical study is lacking in the characterization of such spaces.30

In the changing concepts towards city planning and borders, I seek to answer the following questions: What are the conditions of the border zone in the current and future urban region? How cities meet and co-exist with each other? What is a useful methodology to apply towards the architectural and urban planning for these spaces? By building and enhancing the social and spatial connections this thesis looks to create an epistemological shift. Through understanding such works as A Pattern Language (1977)31 we may embrace the idea that addressing these spaces will be a process driven

approach that accepts the conception of networks, webs and complexity and multiplicity. By favoring the notion of the networked region, we will be able to frame a design method that addresses the multitude of scales. Recognizing the multi-layered system present that builds around the central city, border city and edge city a solution can be created that will adapt and bend the changing needs of these three urban forms.

We have witnessed a return back to cities, but this has been distorted in a manner that doesn’t support the original conception of the central city. Civic cores and main streets have turned into commercial strips, urban shopping enclaves that are run by private interests in a choreographed manner. The separation of urban and suburban is rendered non-existent as a result of private and commercial interests.
“The dominant central city represented urbanism as a way of life, filled with excitement, heterogeneity, culture and entertainment, skyscrapers, and industry, as well as crime, grittiness, drugs, and poverty. In contrast, there was suburbia, with its uniformity, open spaces, detached homes, automobile-based lifestyles, relative boredom, soccer moms, commuting breadwinners, cul-de-sacs, and such political and cultural Power as to define the U.S. as a “suburban nation.” Over the past half century, however, there has been an extraordinary intermixture of these two worlds, creating a growing recognition that traditional definitions of the city and urban-suburban life need a major rethinking.”
USA

Country Code

Location in Earth

Country Footprint (Continental)

Urban/Suburban Footprint

Country Area

Land Area

Country Population

Metro Inhabitants

Inhabitant Composition

Immigration

Average ($) Income Per Household

Unemployment

USA

3,794,101 MI²

156,250 MI²

308,745,538

82.6 %

White = 79.6%
Black/African American = 12.9%
American Indian & Alaska Native = 1.0%
Asian = 4.6%
Hawaiian & Pacific Islander = 0.2%
Two or More Races = 1.7%
Hispanic/Latino = 15.8%

11.6 %

52,029

8.9 %
Throughout urban history there has always been a transitional zone between the city and rural. This zone allowed for a direct social and economic interplay between the two forms. Typical early functions in this space included burial grounds, pottery works or other industries that were too toxic for the city itself or needed a footprint bigger then space allowed inside the walled city. Additionally, marginalized citizens who could not afford the luxury of security the walls allowed lived in these transitional zones. On the other hand this zone supported houses and retreats of the power holders inside the city. This allowed for the migration away from the congestion, noise and social unrest that was present in the center of the city. The creation of the transitional zone has continued from one edge to the next over the course of history and has been contributing to the development of urban/suburban sprawl resulting in the destruction of the rural environment. This chapter traces the development and consumption sprawl has had over the rural landscape through the explosion of urban and suburban footprints.

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3.1 – Tracing Sprawl

To assess the impact of growth and development on the built landscape we must trace the evolution of cities from the walled city to the current polycentric communities. The city grew up as a means to protect a community from the wilderness and landscape; a wall was erected around the city as a clear demarcation of the internal versus the external. Therefore, growth was always contained and a natural density occurred relating to the survival needs of the community. During the 15th century the urban wall started to become less of a factor as a clear component of cities. Due to developments in military technology walls started to play multiple roles in the containment and defense of cities. Technology would start to influence in a larger measure the direction and creation of cities. During the ‘Industrial Age’ the speed at which transportation moved would come to have one of the biggest factors on the direction city design would take. Due to the impacts of the environmental changes to the city a migration took place to find healthy clean urban forms in juxtaposition to the dirty industrial cities. As clean technologies began to take place and the idealization of the suburb was formulated in citizens’ minds through capital that current course of city forms is manifest.

3.2 - Sprawl

*Everything in sprawl is called center, yet nothing is central to sprawl.*

Sprawl was first used by the English in the nineteenth century, but has become a particularly American word, introduced during the 1950s to describe the urban growth spilling out from the edges of towns. Sprawl is the most basic and simplistic way possible, as low-density, scattered, 

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Figure 3.2 - Footprint: City vs. Metro
Ratio of the metro land area versus the city land area around the world. The title of the city is representative of the city limits while the figure next to it represents the multiplier to depict the metro land area. As the case of Atlanta the metro area is 63.2 times larger then the city limits of Atlanta itself. Noticeable is the values of North America versus the rest of the world. These figures do not represent the density. For additional land area analysis see figure 3.3.
Figure 3.3 - City Land Area
Comparative analysis of city limits foot print and corresponding population. Figure depicts a range of cities around the Europe and in the United States. These figures continue off the world map in the previous figure 3.2.
urban development without systematic large-scale or regional public land-use planning.\(^4\) To live in sprawl creates a lifestyle independent of the bonds of space and time.

America notably became a suburban nation during the last half of the 20\(^{th}\) century; the number of Americans living in the suburban areas nearly doubled from 1950 to 2000.\(^5\) In the 1950s the suburbs housed 27 percent of the population. The share of Americans living in the suburbs roughly doubled in 2000 amounting to 52 percent of the population resulting in development that further eroded the boundaries between urban and wilderness. Initially, the suburb was an economic and industrial arm of the traditional central city, mimicking the production model of Fordist methodology. Beyond the centers of commerce and development, new housing structures where created allowing citizens to have unattached homes on small plots of land. The American notion to marry the home and garden was formulated through the interpretation of Ebenezer Howard’s “garden” movement, and then further explored by Frank Lloyd Wright’s “broad-acre” manifesto. The impact on the landscape resulted in the urban footprint of 52,000 square miles as of 2005. Roughly seven thousand acres of forests, farms and countryside have been lost to sprawl each day, since 1970.\(^6\) At what cost are we paying for the increasing expansion of the urban environment? Currently there are numerous social, economic and environmental costs that are being incurred. The great concern is at what amount are we covering and creating a stop to these impacts? How do we re-direct opinions by economist and developers? These two groups view sprawl as a natural process that creates a long-term land use efficiency model. But the private landowners in turn are paying the price for marginalized social and environmental values.

\(^5\) U.S. Census Bureau, 1974 & 2000
About half the sprawl nationwide appears to be related to the land-use and consumption choices that lead to an increase in the average amount of urban land per resident. On the other hand population growth represents the other half of the contributing factor in sprawl. Numerous areas of the country witness an imbalance in the ratio of growth to capital consumption. As the case in the southern half of the U.S., population growth plays a much larger role in contributing to the land consumption. Places like Los Angeles and Phoenix have a 100 percent consumption rate due to population growth while Atlanta has a 66 percent rate, where population growth is the majority contributor to sprawl over per-capita consumption.

Additionally, as a result of government intervention, sprawl was indirectly encouraged through legislation and the creation of a highway system. Sprawl was not solely produced by federal legislation but came into fruition due to a number of various factors. Anti-urban attitudes, racism and capitalism, technology, affluence and democracy played a hand in the formation and continued growth of sprawl. Creating the fissure between the rural and urban city forms, as a result of these numerous factors a middle-space is present and ebbs and flows around the city and suburb.

Suburbanization was a popular residential and retail transformation of the agricultural or ‘wilderness’ areas outside the boundaries of the city. Generally though the white-collar jobs remained in the central cities. It wasn’t until the 1980s that massive amounts of office space along with a surge of

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7 www.sprawlcity.org
8 Sprawl is generally attributed to the expansion of growth as a result of population or capital consumption. Capital consumption defines the market forces as developers move in and increase the land values instead of naturally increasing due to demand of the growth.
residential and retail space moved into the suburbs. It was in this transformation that citizens could live, work and engage in recreation without ever leaving the suburbs.11

What are the consequences of the formal and spatial definitions to these ‘spaces’ as a result from the built environmental expansion? How does the exchange of information, goods, services, economics and politics influence the architectural concept of middle ground linking these cities? Sprawl isn’t the only cause of ecological problems, but is an ecology in itself.12

3.3 - Suburb Nation

Suburbs = a residential area, ‘these’ can be spoken together with a city due to the relative commuting distances. Typically there is a much lower population density then adjacent inner city neighborhoods. Suburbs can be found as a growth spore, rising in the adjacent lands found around cities.13

America transformed into a suburban nation during the last half of the 20th century.14 Suburban population by the end of the century therefore amounted to 141 million citizens and equated to three-quarters of the population change.15 Many of these changes were a direct consequence of Federal intervention; in 1954 Congress passed the 1954 Federal Housing Act, which included the landmark “Section 701 planning grant program.” Section 701 created a template that would dominate planning of cities throughout the second half of the 20th century. It focused on five separate components,

14 U.S. Census Bureau, 1974 & 2000
15 U.S. Census Bureau, 1974 & 2000

Figure 3.5 - Suburban Housing Sprawl
Suburban ‘tract’ home development that now is the customary development form of the suburban landscape.
Figure 3.6 - Footprint: City vs. Metro
Ratio of the metro land area versus the city land area around the world. The first circle represents the existing metro land footprint and the circle on the right for each city is what the projected land area would be.
US Cities: current projected growth of urban/Suburban footprint by 2025

- Las Vegas: 52%
- Phoenix: 35%
- Atlanta: 32%
- Dallas: 24%
- Houston: 21%
- Denver: 21%
- Jacksonville: 18%
- Los Angeles: 13%
- Seattle: 14%
- Miami: 14%
- San Diego: 11%
- Washington D.C.: 10%
- San Francisco: 8%
- Chicago: 8%
- New York: 6%
- Boston: 5%
- Philadelphia: 3%
## Figure 3.7 - Population vs. Land Area
Comparative analysis of the largest metro populations in America and their corresponding city and metro footprints. See figure 3.3 & 3.6 for visual footprint of a selection of these cities.

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th>Metro Population</th>
<th>City Limit Area (sq. ft.)</th>
<th>Metro Area (sq. ft.)</th>
<th>% Growth (Average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>8,391,881</td>
<td>21,994,346</td>
<td>468.9</td>
<td>6,720.0</td>
<td>6.01</td>
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<td>33,954.0</td>
<td>13.33</td>
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<tr>
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<td>9,635,671</td>
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<td>8.03</td>
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<td>5,627.0</td>
<td>10.48</td>
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<td>13.99</td>
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<tr>
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<td>131.3</td>
<td>7,910.0</td>
<td>51.59</td>
</tr>
<tr>
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<td>1,287,064</td>
<td>885.0</td>
<td>3,221.0</td>
<td>17.59</td>
</tr>
</tbody>
</table>
notably each was housed separate from the next: 1.) Housing subdivisions, 2.) Retail centers, 3.) Employment centers, 4.) Civic institutions and 5.) Streets/roads.\textsuperscript{16} In addition to this legislation President Eisenhower signed into law the Federal-Aid Highway Act (popularly the National Interstate and Defense Highways Act) of 1956, which provided 90 percent matching grants to qualifying state and local highways.\textsuperscript{17} As a consequence, travel to and from the city center and suburb was shortened, further spurring the migration of citizens, businesses and divestment that would impact the traditional city centers. Although the greatest effects would be felt in the in-between spaces of the city and suburb, leading to the isolation of lower class citizens who could not afford the migration.

Additionally, as a result of government intervention, the boundary space formed as an effect of sprawl. Sprawl was not solely produced by federal legislation but came into fruition due to a number of various factors. Anti-urban attitudes, racism and capitalism, technology, affluence and democracy played a hand in the formation and continued growth of sprawl.\textsuperscript{18} Creating the fissure between the rural and urban city forms, as a result of these numerous factors the middle-space ebbs and flows around the city and suburb.

Suburbs now became the designation of land inhabited beneath the shadow of walled towns and cities. Suburban historically has been conceived as a place of inferiority, dependent on another and lacking of any specific sense of identity. They have grown out of the need to attach to walls and boundaries and stretching outward to grab hold of the farmlands in the ‘wilderness.’ The creation of suburbs in America has always been linked to consumption, those of the wealthy and middle-class


have consumed the bulk of goods and influence the political structure of the cities they are attached to. Suburbs have been associated with the dream of land-ownership, having a single-family home on a fenced plot of land is the inspiration of happiness.\(^{19}\)

As these housing developments continued to grow they became their own centers beginning to form and gather their own set of politics and boundaries separate from those imposed by the traditional city, allowing for the severing of the suburb and city. The economic arm of the city centers began to drift away and either formulated themselves into cities and towns themselves or started on a course of decline, as a result of the retreat where both cities and suburbs began to internalize themselves in their own ways. While the city contained itself in specific boundaries and expanded vertically the suburb further grew and sprawled horizontally into the landscape. Each further entrenched themselves behind political boundaries, sought to disassociate themselves from the problems of each other. Through the codifications of these boundaries social and political life was framed. Additionally urban and rural form began to be allocated towards the city or suburb. Leftover spaces began to appear once each of these powers disassociated themselves from the undesirable neighbors, such as inner-city residents, industrial zones and infrastructure.

“The only good choice for most suburbanites is to drive, and to drive a lot. And that is exactly what we are doing. Motor vehicle use in America doubled from one to two trillion miles per year between 1970 and 1990. In the 1980s, vehicle miles traveled grew more than four times faster than the driving-age population and many times faster than the population at large. There are many reasons for this surge in driving, but a growing body of research makes it increasingly clear that sprawl comprises a large portion of the problem: people in spread-out locations drive more.”\(^{20}\)


Sprawl has created an access condition that has restricted movement to almost exclusively taking place in vehicular means. Public transportation access is so spread out and limited that it has been seen as an irrelevant method. Families and individuals are therefore isolated members of society and the notion of public space is limited to transportation arteries.

3.4 - Conclusions

Currently there are four suburban/urban edge conditions that are being examined by planners and architects. First is the shrinking city, where vast groups of people are leaving both the city and suburb as a result of the changes in jobs. Generally this is specific to regions where the source of work revolves around a singular industry. The migration out of these areas creates a patchwork of vacant lots in the urban fabric. Detroit is one of the most famous examples of this trend where some urban areas are showing a vacancy upwards of 50 percent. A current census projection shows that the city of Detroit has had a negative 25 percent population recession.

Second there are the cities and suburbs that are clearly defined and contained. These cities typically have expanded their built environment to their borders. Generally they cannot accommodate further growth and expansion inside their boundaries. It is clear where one municipality ends and the next starts, there is a clear middle ground for exploration. Boston and its metro region is a distinct example of this particular urban condition.

Natural Resources Defense Council.

\(^{21}\) The notion of the shrinking city is a newer definition that is being used to explain the phenomenon that is happening to post-industrial cities and towns. Typically these are one-industry areas that are losing their populations, the built environment has become a patchwork of vacant and disappearing lots. Detroit is currently the most famous example where 25 percent of the population has moved on due to the decline of the car & steel industry.
Third is the in-between or ‘nothing space’ cities; Robert Lang has termed this the ‘edgeless’ city.\textsuperscript{22} The edgeless city has no clear center and is heavily built on the car as a means of connection to the suburb and city. Edgeless cities, form of sprawling office development that does not have the density or cohesiveness of edge cities, account for two-thirds of the office space found outside downtowns.\textsuperscript{23} Edgeless cities spread themselves throughout the urban environment springing up along transportation routes and interchanges. Without a distinct spatial form it is difficult to understand the start and end of these spaces as they fill the spaces near the urban periphery between the city and suburb. Atlanta’s current growth has developed as a result of the edgeless city condition. Arteries of development string out of the center along transit routes. The lack of a center resulting from the growth in a linear fashion has developed disconnected arteries, it is at these disjoints that the middle ground is found.

Lastly, the fourth urban form is the idea that we continue forward on a modified path with the expansion into new fringe landscapes, by proposing alterations and changes to the current trajectory that includes introducing ecologically sustainable practices.

The boundary city is the extension of the post-modern global urban form that taps into the expansive network between cities, regions and nation states creating greater episodes of flexibility and flux. Flexibility of opportunities create an environment where residents are now free to choose lifestyles that are no longer dependent on the geographical location and secondly the scale of urban regions create spatial, cultural and infrastructural conflicts.\textsuperscript{24} Planning and architecture must successfully

\textsuperscript{22} The edgeless city concept was first introduced in the Brookings Institution’s Survey Series in October 2000


navigate the needs of communities and beyond to the interrelationships to the region as a whole.\textsuperscript{25}

Part I has traced the development of the current urban/suburban form through the consequences of growth and migration. By first examining growth and migration, then the effects these figures have played on the development of the built environment as the definition of urban and suburban has been blurred. At the present the conception of border and boundaries no longer serve their intended purpose and the landscape is one large mat of development. If we continue on the current trajectory we will no longer be able to sustain our growth. Many regions of the country are already feeling the strain of growth as water is becoming scarce and must be pumped in through hundreds of miles of pipeline. Therefore, these effects are playing a role not only on the city and suburb, but also on the whole of the built and natural environment. As I have argued we need to explore a shift in our thinking towards developing solutions to the growth problems. Instead of continuing with the current patterns of development we must proposed solutions that will reassert the definition of city and place. Additionally we have to explore the ideas of identity and community, as the world has become a space that no longer is localized. Part II will take this argument further by examining the problems and forces at work in Georgia and Tennessee. This area has been growing at one of the highest rates in comparison to the majority of the U.S. These rates are projected to continue at an astonishing factor. Therefore I will unpack the idea of creating a new town as a response to the lack of direction these two states have in addressing the consequences expected due to the growth changes. Seeking to contain growth in a defined sustainable form.

PART II: FUTURE [AS] PROJECT
GEORGIA & TENNESSEE [AS] PATTERN
“The cities everyone wants to live in should be clean and safe, possess efficient public services, be supported by a dynamic economy, provide cultural stimulation, and also do their best to heal society’s division of race, class, and ethnicity.”

RICHARD SENNETT
CHAPTER 4:

Figure 4.1 - Georgia & Tennessee
Relationship of the two states and the current urban/suburban footprints.
CHAPTER 4: GEORGIA & TENNESSEE

Over the course of the next quarter century the Sun Belt Region is going to experience a continued growth rate that has exploded over the second half of the 20th century. Many factors are contributing to this growth; weather, economic incentives, easements and cheap land values make this region advantageous to businesses and growth. In parallel is the high migration rates emanating from Latin and Southern America are contributing to the growth in this region.¹

¹ The Sun Belt comprises the southern tier of the United States and is usually considered to include the states of Alabama, Arizona, Florida, Georgia, Louisiana, Mississippi, New Mexico, South Carolina, Texas, roughly half of California (up to Greater Sacramento), and at least parts of Arkansas, North Carolina, southern Nevada, and southern Virginia; more expansively, Colorado, Oklahoma and Utah (and all of California and Nevada) are sometimes considered as Sun Belt states. Author and political analyst Kevin Phillips claims to have coined the term “to describe the oil, military, aerospace and retirement country stretching from Florida to California” in his 1969 book The Emerging Republican Majority. The term “Sun Belt” became synonymous with the southern third of the nation in the early 1970s. There was a shift in this period from the previously economically and politically important northeast to the south and west. Events such as the huge...
Figure 4.3 - Georgia Figures

- **State Area**: 59,425 mi$^2$
- **Urban Land Area**: 9,449 mi$^2$
- **State Population**: 9,687,653
- **State Urban Footprint**: 63.6%
- **Average Elevation**: 591 ft
- **Average Rainfall**: 60 in
- **Average Temperature**: 62.4 °F

**Inhabitant Composition**:
- White: 65.0%
- Black/African American: 30.0%
- American Indian & Alaska Native: 0.7%
- Asian: 2.8%
- Hawaiian & Pacific Islander: 0.1%
- Other: 0.1%
- Two or More Races: 12.1%
- Hispanic/Latino: 7.0%

**Unemployment**:
- Metro Inhabitants: 10.8%

**Average ($) Income Per Household**:
- Metro Inhabitants: 50,861
Figure 4.4 - Tennesse Figures

- **State Area**: 42,143 mi²
- **Urban Land Area**: 5,225 mi²
- **State Population**: 6,346,105
- **Metro Inhabitants**: 73.5%
- **Average Elevation**: 900 FT
- **Average Rainfall**: 48.4 IN
- **City Footprint**: 42,143 mi²
- **Metro Footprint**: 5,225 mi²
- **City Code**: TN
- **Average ($) Income per Household**: 40,895
- **Unemployment**: 9.6%
- **Average Temperature**: 59.6°F
- **Inhabitant Composition**:
  - **White**: 64.2%
  - **Black/African American**: 3.3%
  - **American Indian & Alaska Native**: 0.3%
  - **Asian**: 1.1%
  - **Hawaiian & Pacific Islander**: 0.0%
  - **Other**: 0.2%
  - **Two or More Races**: 1.0%
  - **Hispanic/Latino**: 29.9%

**Figure 4.4 - Tennesse Figures**
I am focusing specifically on the impacts that growth will play in Georgia and Tennessee. Georgia is projected to increase 22 percent over the next quarter century in total population while Tennessee is to expect a 12 percent growth rate; in comparison the U.S. as a whole is projected to increase by 25 percent over the next quarter century. Therefore, I argue the regional implications that growth play are key to the successful management of growth.

Currently a proposal between Atlanta and Chattanooga along the existing Interstate 75 is being examined for a high-speed rail system. My analysis will specifically address the impact that can be developed around a high-speed rail line as the catalyst for smart growth principles to develop a new town.

4.1 - Overview

By 2025, roughly 2 million of the 22 percent growth increase over the whole of Georgia is anticipated to happen between Atlanta and Chattanooga. To put that figure into focus, the city of Paris is 2.1 million people and has a land area of 40.7 square miles, the city population of Philadelphia is 1.5 million, and compared to the existing population found in the Interstate 75 corridor is 3.2 million.\(^2\) The impact of housing this magnitude of growth is staggering, the question therefore arises, what is the course of action being pursued to address such growth over a projected time frame? Currently, migration of immigrant workers from Mexico, warmer climate, and a boom in the agriculture industry allowed for the southern third of the U.S.A. to grow economically. The climate spurred not only agricultural growth, but also saw many retirees move into retirement communities in the region, especially in Florida and Arizona. Sun Belt. (2011, May 16). In Wikipedia, The Free Encyclopedia. Retrieved 07:41, May 20, 2011, from http://en.wikipedia.org/w/index.php?title=Sun_Belt&oldid=429376131

\(^2\) U.S. Census & World Almanac. The figures listed represent the population in the city limits and does not factor reflect metro population figures. The growth figures listed earlier also correspond with the figures in the Rail Corridor Proposal sourced from U.S. Census data.
Figure 4.5 - Georgia & Tennessee Population
the only major action that these two states are examining is the development of a high-speed rail proposal that focuses on the increase that will be felt on the interstate network. Why are these proposals not linked to the creation of plans targeting the urban/suburban environments and the rural take-over?

It is based on the proposed rail model that I hope to prove and provide a discourse around my thesis; highlighting the fact that infrastructure is an effective way to resolve the problems associated with border and edge spaces resulting from urban/suburban growth. Do cities therefore just drop off and become a victim if they don’t receive a rail station? Or do new cities have the ability to be defined stand-alone spaces in the region when a rail station is placed, that offer more benefits than just being satellites to central cities? It is in this exploration that we can gauge and judge whether the ideas of region vs. city truly are expressive of the urban/suburban future.

4.2 - Urban/Suburban Form

The city and town development in the Interstate 75 corridor reflects the traditional development of cities in America during the 19th century. A city was formed around a main-street that collected and housed the commercial and economic needs of the citizens. As was the case in Georgia, all of these towns developed as a direct result of the addition of a rail station, allowing agriculture goods to be transported to mills for production. The major crop in this region was cotton so commerce developed around the growth, harvest and production of cotton. This resulted in the creation of an urban form that had an industrial base adjacent to the centers and main streets of these cities. Industrial buildings created a ring of development that limited the outward expansion of housing. Therefore, an additional ring of development transpired outside the industrial beltway that encouraged a dispersed housing nature creating developments of sprawl. Throughout the course of the 20th century this growth continued to occur adding a third ring of development. This third ring
Figure 4.7 - Atlanta Figures
Figure 4.8 - Dalton Figures
Figure 4.9 - Chattanooga Figures
would come to house commercial centers adjacent to the interstate and highway system. While the area between this ring and the industrial circle would vary in scale, housing would fill this space at an extremely low-density progression. Thus, the built land area would increase drastically and the city would have armatures that connect and link transit arteries. It is specifically the pattern of horizontal development that is causing damaging effects to the environment, creating a reliance on vehicle transportation. This growth problem is not immediately noticeable due to the present low-density, there are very few active measures to address the changes that will come to the environment as the growth of the area keeps increasing. It is specifically due to the obsession with transportation that Georgia and Tennessee are pursing alternate means to highways, diverting some of the pressures on the existing highway systems as a primary goal over other strategies.

4.3.1 - Interstate 75 – Corridor

The landscape of the Interstate 75 corridor consists of a rolling topography bisected by rivers and streams along the whole distance. Between Atlanta and Chattanooga are suburban and rural cities with single-story developments and homes.

The idea of a high-speed passenger transportation system between Atlanta, Georgia and Chattanooga, Tennessee has been examined for the past 10 years. Initially the Georgia Department of Transportation studied the Interstate 75 corridor for the potential incorporation of a high-speed passenger service. Subsequently, in 2000 the Tennessee Department of Transportation initiated a study that would create a rail plan that intends to enhance passenger connections between neighboring states. This plan would connect into high-speed rail corridors to the north, east, and south and west of the Atlanta-Chattanooga corridor. This corridor is viewed as a major component in building Atlanta as a high-speed rail hub for the whole of the Southeast.
Figure 4.10 - Atlanta & Chattanooga: Region
Regional connections and location, highlighting the rail & air transit.
4.3.2 - Federal High-Speed Rail Development:

At the present, the Federal plan for high-speed rail corridors does not include the Interstate 75 corridor that Georgia and Tennessee are in the process of researching. Instead, there are arteries that are directly to the north and south of the proposal, and it is specifically because of these planned Federal alignments that both states are studying how to connect their metropolitan areas into the high-speed rail system. The end intention is to connect the Southeast region into the Chicago network. Presently there is no federally funded link being proposed between the Southeast and Chicago, instead both are connected through the eastern seaboard high-speed rail system.

4.3.3 – High-Speed Rail Proposal

Georgia and Tennessee are nearing the end of phase one of an assessment towards the potential development of a high-speed rail line projected to connect the Atlanta and Chattanooga airports, this study is being guided by the Georgia Department of Transportation (GDOT). The primary goals for the study are looking at the existing and future transportation needs in association with the projected growth in travel between the two cities. At the present, Interstate 75, which each of these two cities are connected, is at its maximum capacity for vehicular traffic. Due to the expanding freight traffic there has been increased stress on the use of the interstate. In addition to finding alternative methods to remove vehicles from the interstate there is a push to increase and enhance access to the airports in both cities. The Atlanta airport is one of the largest airline hubs in the U.S. therefore, there is a push to increase access and push regional connections beyond the airport. After connecting the two airports the secondary agenda is to link the airport to each respective downtown areas.

The transit study is a unique case; it is not typical for a transit department to pursue a study that has
Figure 4.12 - High-Speed Rail Corridor
Federal HSR proposals and corresponding corridors and city connections. This map also locates cities not impacted by the proposals.
HIGH-SPEED RAIL PROJECT
GOALS: GDOT & TDOT

- Address Travel demand and population growth
- Provide high capacity versus highway capacity
- Enhance airport access
- Maintain or improve air quality
- Address safety deficiencies in the study area
- Support economic development
- Reduce energy consumption
- Enhance intermodal connections
- Address social demands of various population groups
- Support comprehensive land use planning and smart growth initiatives
- Provide a link in the southeast U.S. region HSGT system

a number of important factors open for later debate. Because the study is currently in a Tier 1 Phase\(^3\) it is only looking at sighting a new transit line, it is remaining neutral in terms of the end technology that will be used. In addition the locations of stations along the line are recommendations and will be up to the local municipalities that are directly related to the line itself for specific placement. Some of the towns that the proposed line passes through are very much interested in the connection they will have to the line, while other towns see it as just a component that is next to the freeway and outside their jurisdiction and thought.

The GDOT sees the proposed line, as it’s own entity in itself. Therefore no additional secondary or tertiary transportation networks are being examined to increase access to the transit networks in Georgia and Tennessee. The proposal assumes that these networks will later be restructured to connect into the rail system; future growth is to be pursued solely by the corresponding counties or municipalities and not a developed component of the rail line’s impact.

4.3.4 - Station Development:

Station locations in the proposal are being approached to serve new customers through three different typologies. Downtown, suburban and multimodal stations are the typologies driving the location siting and study. The downtown is viewed as a way to keep the urban core vital and connected to the rest of the region. Suburban stations are focused on the crossroads of interstate highways, explored as a means to eliminate travel to downtown rail station. There is little, if no focus on actually placing these stations into the cores of suburban areas. Lastly, the multimodal station is expected to create a larger hub of transit around airports, linking airports to the urban/suburban regions. Presently small town stations are a phase that is being pursued after the first three station

Federal Rail Line Proposal

60 mile radius
This distance is the optimal distance for high-speed trains to meet their range of speed between stations.

30 mile radius
This distance is the minimum distance needed between stations to make the high-speed rail train economically feasible.

Figure 4.13 - Interstate 75 Corridor
Station locations and development as related to the urban/suburban landmasses in Georgia and Tennessee.
typologies are constructed. Therefore, larger towns in the corridor such as Dalton and Carterville, residents must drive to Atlanta and Chattanooga or multimodal stations to access and participate in the high-speed rail.

Station location and planning will be one of the major opportunities to encourage a different course of growth management. The current proposal focuses largely on how to connect the car into the high-speed rail, instead of grasping the potential that public transit systems could be networked around the placement of stations. Stations are taking on a park-and-go stance while the primary goal is to expand the air travel network. Therefore, the locations are not necessarily removing cars out of the equation they are just re-routing them and shifting vehicular traffic away from the Interstate 75. As we have seen in the development of cities as a result of westward expansion, development occurred in direct relationship with rail stations. It is through this relationship that an opportunity is available to introduce alternative means to house growth. Unless there are new zoning and density codes that are developed as stations are placed in existing city centers along the corridor little change will take place.

As is the case in European cities, land is in higher demand around transit stations which impacts land prices. The demand for land as a result of pricing directly impacts the density of the location and prices then drop as one moves away from the transit network. However, if there is no demand for transit density will no be effect. It is because of this precedent, the location of a station is critical in encouraging the development of smart growth by concentrating capital to a starting location.

4.3.5 – Travel & Environmental Impact

In accordance with the studies that have been initiated between the Georgia and Tennessee transportation departments commute times very greatly and is dictated by frequency of stops along
**Travel Demand Growth - By Transportation Mode [Year 2020]**

<table>
<thead>
<tr>
<th>Travel Mode</th>
<th>Business Travel</th>
<th>Non-Business Travel</th>
<th>All Travel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Trips</td>
<td>Mode Share</td>
<td>Total Trips</td>
</tr>
<tr>
<td>High-Speed Rail</td>
<td>1,070,428</td>
<td>8.55%</td>
<td>930,611</td>
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<tr>
<td>Intercity Bus</td>
<td>17,700</td>
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<td>114,991</td>
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<tr>
<td>Airplane</td>
<td>382,621</td>
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<tr>
<td>Automobile</td>
<td>11,053,675</td>
<td>88.26%</td>
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<tr>
<td>Totals</td>
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Note: Projections are based on 8 and 12 daily weekday round trips. Service levels are reduced by 25 and 33 percent for Saturday and Sunday, respectively. The fare is based on a rate of 40 cents per mile plus a $5.00 surcharge.

**High-Speed Rail Proposal - Projected Ridership - Annual Boarding by Station [125 MPH Maximum Speed]**

<table>
<thead>
<tr>
<th>Stations</th>
<th>8 Daily Trains</th>
<th>12 Daily Trains</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2010</td>
<td>2020</td>
</tr>
<tr>
<td>Nashville</td>
<td>314,609</td>
<td>355,864</td>
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<td>Nashville Airport</td>
<td>330,642</td>
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<tr>
<td>Murfreesboro</td>
<td>64,707</td>
<td>79,000</td>
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<tr>
<td>Manchester</td>
<td>34,960</td>
<td>39,699</td>
</tr>
<tr>
<td>Chattanooga</td>
<td>64,185</td>
<td>73,913</td>
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<tr>
<td>Lovell Field</td>
<td>43,737</td>
<td>49,743</td>
</tr>
<tr>
<td>Marietta</td>
<td>77,584</td>
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</tr>
<tr>
<td>Beltway</td>
<td>65,187</td>
<td>76,648</td>
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<tr>
<td>Atlanta</td>
<td>303,166</td>
<td>396,416</td>
</tr>
<tr>
<td>Atlanta Airport</td>
<td>252,810</td>
<td>352,080</td>
</tr>
</tbody>
</table>

Note: Projections are based on 8 and 12 daily weekday round trips. Service levels are reduced by 25 and 33 percent for Saturday and Sunday, respectively. The fare is based on a rate of 40 cents per mile plus a $5.00 surcharge.

**COST PROJECTION:** ATLANTA to CHATTANOOGA - **$47.20 + $5.00 surcharge**
the proposed corridor. Travel times between the two airports can be achieved as quickly as 29.2 minutes, and a maximum time is projected at 113.1 minutes. The average automobile time is 118 minutes between each of the downtowns; the additional time needed to get to the respective airports add an average of 30 added minutes to the commute.

4.4.1 - Development & Growth:

Over the course of the past 30 years a major demographics shift has been taking place within the Interstate 75 corridor. Historically the white population has held a majority stake in the southern region of the U.S. Yet, census reports between 1980 and 1990 show a trend that is taking place across the whole south, the Hispanic and foreign-born population has been growing at a staggering rate. In many of the counties within the Interstate 75 corridor the Hispanic population now represents 8 to 15 percent of the total population, additionally the foreign born percentage has reaches of 40%, in contrast to 1980 census figures that show a representation that barely reached 2 percent. Because of this drastic shift in demographics there are noticeable changes taking place to the urban and suburban spheres, specifically in the modification of public space. These new groups of people are considered “in-transit,” whether it is between one social or economic class and the next or from one region to this one.

When driving through the towns found in the corridor it was very clear where the Hispanic presence has impacted the city structure. You began to see a larger population of people using the public spaces, and creating their own spaces of interaction. Therefore, it creates a unique situation that must be addressed in the future development plans towards form.

The industrial base throughout the corridor is dominated by trade, transportation, utility and manufacturing businesses. Largely dominated by the carpet and floor covering industries, there is
Figure 4.15 - Year of Entry by Foreign Born
Comparative analysis of the population growth in regards to foreign migration over the counties effected by the high-speed rail proposal.
COUNTIES - INTERSTATE - 75 CORRIDOR - COMPARATIVE DEMOGRAPHICS

Figure 4.16 - Comparative Demographics
Comparative analysis of the Demographic changes over 1980-2005 in the counties effected by the high-speed rail proposal.
COUNTIES - INTERSTATE - 75 CORRIDOR - COMPARATIVE DEMOGRAPHICS - HISPANIC VERSUS WHITE

Figure 4.17 - Hispanic vs. White
Comparative analysis of the population distribution over the counties effected by the high-speed rail proposal.
Figure 4.18 - Industry Base
Ratio of industrial base in the counties that will be effected by the development of a high-speed rail line.
an additional push to bring in new industries. Chattanooga itself is one of the finalists for a new car production plant; also, there are numerous incentives in place to encourage technology companies to invest in the redevelopment of the corridor. Atlanta achieved an increase of 400,000 new jobs over the last decade; many of these jobs sprung up in the rural/suburban boundaries while the metro areas are experiencing a decrease in employment. The ability to accommodate industrial and commercial growth is exactly what makes the Interstate 75 corridor appealing to develop and push forward a new city, not only as a destination place for middle-class communities, but as a holistic nodal city. By introducing a town of such magnitude I argue has the potential to converge multiple social and economic classes that have the ability to both live and work in the region or city.

Therefore, this region has a strong economic base that can alleviate the development that is sure to take place in both Chattanooga and Atlanta.

4.4.2 - Growth Trajectory

By 2025 the growth between Atlanta and Chattanooga is projected to increase by 2 million inhabitants. Only a fraction of this figure reflects the projected growth that will be witnessed in the Atlanta Metro Area. The spatial trends that have taken place over the last century have shown that this area sprawls further and further from the central city. Instead of creating practices of densification, Atlanta has developed into a system of edge and edgeless cities that are connected through the freeways radiating from the downtown.

If the pattern of growth continues along the current rate, by 2025 there no longer will be a distinction between urban/suburban development and the rural landscape. Instead there will be a continuous development that sprawls the whole length of the corridor from Atlanta to Chattanooga. The smaller towns that lay north of Atlanta will get incorporated into the sprawl. These towns will therefore lose their specific identities and just be considered a continuation of Atlanta.

Departure into Proposal: Past/Present/Future

The Interstate 75 corridor therefore allows for a unique development situation to address the problems resulting from growth that exist and will continue to expand. I will argue that current proposals to expand the existing transit network in Atlanta and Chattanooga are not a feasible solution given the constraints on time and the speed of growth that is taking place and rate it is projected to continue. Due to the current spatial structures found throughout the interstate corridor a significant change to the built environment would only provide a quick release in specific insertion points. But, when we are dealing with the magnitude of 2 million native and foreign influxes of people, drastic proposals must be examined. It is due to the limitations of the existing policy options that I am proposing the introduction of a new form of development. The existing urban/suburban structures drastically limit...
In accordance to the population growth and past development (ref. Figure 4.20 & 4.23) this diagrams shows the projected expansion of the built footprint of the cities in the Interstate 75 corridor if we continue on the current trajectory over the next 30 years.
INTERSTATE 75 CORRIDOR: SPRAWL - PROJECTED URBAN/SUBURBAN LAND FOOTPRINT

Figure 4.22 - Projected Sprawl Footprint
In accordance to the population growth and past development (ref. Figure 4.20 & 4.23) this diagrams shows the projected expansion of the built footprint of the cities in the Interstate 75 corridor if we continue on the current trajectory over the next 30 years we will experience one continuous urban/suburban fabric from Atlanta to Chattanooga.
Figure 4.23 - Population Change: 1980-2005
Figure 4.24 - Cities in the Interstate 75 Corridor
Comparative analysis of the city limits to metro footprint and the relationship to population, land area and density.
<table>
<thead>
<tr>
<th></th>
<th>FOOTPRINT</th>
<th>POPULATION</th>
<th>LAND AREA</th>
<th>DENSITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dalton/metro</td>
<td></td>
<td>19.82 sq mi</td>
<td>1,407.95</td>
<td></td>
</tr>
<tr>
<td>Calhoun/metro</td>
<td></td>
<td>11.65 sq mi</td>
<td>915.42</td>
<td></td>
</tr>
<tr>
<td>Cartersville/metro</td>
<td></td>
<td>23.39 sq mi</td>
<td>411.94</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- **Footprint**: City limits
- **Population**: Metropolitan statistical area
- **Land Area**: City limits
- **Density**: Metropolitan statistical area

Scale: 1:23 miles = 1:125,000 ft
change and are resilient to a fast-paced evolutionary policy. It is due to the historically resilient nature of the urban/suburban development of the U.S. that it is not realistic to witness radical change. The whole corridor itself is created on an extremely low-density model of dispersion that the introduction of transit alone will not solve the problems. For transit to make an impact the level of introduction would be on a massive scale that in unfeasible, it is specifically because of this notion that planning a rail station in the *middle-ground*, growth and development has the potential to impart a new methodology in the region.
Figure 4.25 - Growth Comparison: 2 million

Analysis of what the addition of 2 million people can look like, comparing U.S. and European Cities to the major cities in the Interstate 75 corridor and the corridor population.
Figure 4.26 - Growth Impact: Philadelphia, PA
Comparison of the impact of a footprint of 2 million people.

Figure 4.27 - Growth Impact: Barcelona, Spain
Comparison of the impact of a footprint of 2 million people.
PROJECTED GROWTH IMPACT - PARIS VS. INTERSTATE - 75 - COMPARATIVE ANALYSIS OF INCREASE OF 2 MILLION PEOPLE

Figure 4.28 - Growth Impact: Bucharest, Romania
Comparison of the impact of a footprint of 2 million people.

Figure 4.29 - Growth Impact: Paris, France
Comparison of the impact of a footprint of 2 million people.
CARTERSVILLE
Figure 4.30-53 - Chartersville, GA
Pictures taken during site visit, February 2011
Figure 4.54-61 - Adairsville, GA
Pictures taken during site visit, February 2011.
Figure 4.62-71 - Calhoun, GA
Pictures taken during site visit, February 2011.
DALTON
Figure 4.72-93 - Dalton, GA
Pictures taken during site visit, February 2011.
Figure 4.94-115 - Dalton, GA
Pictures taken during site visit, February 2011.
Figure 4.116-134 - Interstate 75: Freeway, GA
Pictures taken during site visit, February 2011.
REMOVING THE [HIGHWAY] EXPERIENCE

DALTON [I-75] CALHOUN

INFRASTRUCTURE
When the ancient Greeks felt that they had reached the edge of a city or its limits, they did not expand the periphery of the existing city, but went on to build a new one.
Figure 5.1 - City for 100,000 Diagram
CHAPTER 5: PROPOSAL

In today’s urban regions, the edge city is no longer a satellite to the central city. Asserting itself as a city that stands on its’ own. Therefore, the edge city competes with the central city of the past for dominance within the regional network. Due to the new conflicts between the edge city or suburban city and the centralized city an additional spatial form is taking shape, which I believe, can be harnessed in the middle-ground. The middle-ground will allow for an altered concept of spatial quality that may effectively provide a collective place to mitigate sprawl.

The middle-ground is the extension of the post-modern global urban form that taps into the expansive network between cities, regions and nation states creating greater episodes of flexibility and flux. Flexibility of opportunities creates an environment where residents are now free to choose lifestyles that are no longer dependent on the geographical location. Also the scale of urban regions creates spatial, cultural and infrastructural conflicts. Planning and architecture must successfully match the needs of communities to the interrelationships of the region as a whole.

Therefore, this proposal creates a framework for a new city because this region is projected to grow by two million by the end of the current quarter century. At the present there are four development mechanisms that will be pursued to soak up the growth: One, the continuation of sprawl as witnessed over the past century, secondly some of this growth will be incorporated as a densification strategy to the existing centers of cities and towns, third is to infill the vacant spaces in the city due to the ebb and flow of population due to social, political and economic changes. It is in the fourth proposition that this thesis takes shape, introducing the idea of a new town to incorporate and contain the eminent growth. I explore the conception of the *middle-ground* as the location for the development and framework that incorporates smart growth strategies for new cities of 100,000.

5.1 – Middle-Ground

*There is an immediate relationship between the body and its space, between the body’s deployment in space and its occupation of space. Before ‘producing’ effects in the material realm…, before ‘producing itself’ by drawing nourishment from that realm, and before ‘reproducing itself’ by generating other bodies, each living body is space and has space: it produces itself in space and it also produces that space.*

Henri Lefebvre, *The Production of Space*

The ‘middle’ is a space permanently shifting; a place in itself, a border-made country. Moreover, it is a conquering between two urban territories, the city and suburb. Unique, infiltrated, camouflaged, planning for our times.

Figure 5.2 - “Sixth Migration”
Parti Diagram depicting the migration into the middle-ground, or the sixth migration into a defined and contained new town.
this ‘middle’ project attracts everything towards itself that it can be defined. It is an urbanism of open networks, architecture unhindered by limits, open to phenomenology of landscapes, but also the architecture of conjunction of the minimum and lacking interest.\textsuperscript{4} Therefore, the \textit{middle-ground} as I define is the condition outside the legal boundaries of both the suburb and city. Historically, this was the transition between one urban form and the next; economies filled this space with private entities unbounded by the legality of the city jurisdiction. The middle between different urban and suburban conditions often embodies political, social and economic conflicts, derived from the juxtaposition of diverse social groups, different political organizations and conflicting land-uses. Although one must be aware of such conflicts, such conflicts do not need to be recognized as the driving factors.

Because of this floating definition of place the middle-space has developed into an environment that lacks concrete definition. I is exactly in this lack of containment that a new urban form will grow. It will seek to overlay a new form on the current networks of social and economic capital presently connecting the suburban and urban infrastructure.

Cognitive sociologists refer to this space as “the unmarked.” Generally spaces that are exposed and defined have a specific quality that are beacons for study while unmarked places are seen as mundane, ubiquitous, and the majority intuitively knows this space, but that is as far as they choose to expose the potential of these places.

The subdivision of the nineteenth century created the transformation of the American populous and the natural landscape.\textsuperscript{5} Initially a division of the central cities and expansive territory, the United States has now come to distinguish a middle environment. Originally the middle was viewed as the

\begin{itemize}
\item \textsuperscript{4} Gausa, M., Guallart, V., Muller, W., Soriano, F., Porras, F., Morales, J., (2003). \textit{The metapolis dictionary of advanced architecture}. Barcelona: Actar.
\item \textsuperscript{5} Oles, B. T., & Massachusetts Institute of Technology. (2008). Recovering the wall: Enclosure, ethics and the American landscape.
\end{itemize}
suburbs, but this definition can no longer be representative of the middle. A population growth and migration shift has caused the suburb to house more than half of the U.S. population, which lead to the adoption of ‘sprawl’ as the representative of the middle. Yet, currently sprawl is no longer the politically acceptable term for the middle. At the present there are hundreds of descriptions and verbs that attempt to bind the middle environment. Leo Marx\(^6\) suggested this environment be called the ‘middle landscape.’ Recently the architect and planner Peter Rowe expanded this term. Rowe refers to the suburban as pluralistic landscape that houses subtle distinctions between functional and social identities. The perception of the city boundary as the demarcation of a place has today largely disappeared. The explosion of peripheral suburbs or edge cities has generated an urbanity that derives from a city that today can be functionally everywhere.

While political philosophers speak of metaphorical division between individuals and groups, the walls of the world are things of earth and stone, wire and concrete. Here the problem lies: reliance on legal division has meant inattention to the shape and scope of real division in the landscape.\(^7\) Urbanization is a process that transcends borders and can scarcely be stopped by administrative and politically defined territorial borders. On the contrary, the process of urbanization began when the borders between city and country dissolved and the external barriers that once protected the city and cut it off from its surroundings – walls, ramparts and moats – fell away. Greenbelts that served as a symbolic border have become inner city parks and open spaces.\(^8\)

Recognition of the boundary:border condition as not only a spatial construct, but also the catalyst to highlight and flush out unique divisions in the regional network, will drive social and spatial relations.

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\(^6\) Coined in *The Machine in the Garden: Technology and the Pastoral Ideal in America*, by Leo Marx, which was further expanded upon by John Brinkerhoff Jackson.

\(^7\) Oles, B. T., & Massachusetts Institute of Technology. (2008). Recovering the wall: Enclosure, ethics and the American landscape.

Theorizing urban regions, scholars frame the emphasis on finance, information, creativity and innovation that lends itself to a relationship of inputs and outputs. This paradigm has created an economic and technology based discourse that is marginalizing the social and physical elements of the discourse. The rise in social life as a result of the creation and commodification of the single-family home plays further fragments the spatial realms.

The networks of social, spatial and economic capital have created a fractured social geometry that has shaped the restructuring of the social boundaries and categorical logics of class, income, occupation, skill, race, ethnicity and gender that characterize the modern metropolis.\(^9\)

Fractured social geometry has taken shape from the far-reaching restructuring of the social boundaries and categorical logics of class, income, occupation, skill, race, ethnicity and gender that characterized the modern metropolis.\(^10\)

Land division grew distant from the social, ecological and topographical conditions of particular places; boundaries in the American landscape combined in a new way the parallel and interdependent aspects of control and concealment. Tension between these aspects can be traced in American ambivalence toward territorial barriers at different times and scales.\(^11\)

For most Americans, the real center of their lives is neither an urban nor a rural nor even a suburban area, as these entities have traditionally been conceived, but rather the technoburb, the boundaries of which are defined by the locations they can conveniently reach in their cars. The true center of


\(^10\) Ibid

\(^11\) Ibid
this new city is not in some downtown business district but in each residential unit.\textsuperscript{12}

The emergence of the network society has created a bi-polar system of centralized and decentralized sets of activities. Leading to the increased fragmentation and isolation of communities. Research focuses on the detection of such complexity and neglects responding to the changes needed to refocus on the visual and cognitive boundaries. The preferred methodology stance is to treat the layers in the region instead of reflecting on the multitude of conditions. Therefore, there needs to be an appreciation created to enhance the multi-layered-ness in the boundary instead of reducing factors into singular items.

\textbf{Middle Class:}

The middle class has arisen similarly out of the definition-less bounds of the \textit{middle-ground}. Historically the middle class has included everything between the poor class and the social elite, similar to space, that to define such a vast area comes with numerous complications. Personal politics and personal identity are defined by place while at the same instance they are constitutive of place.

Due to the rise of social life in the creation and commodification of spaciousness found in the single-family home, there are no typical design guidelines for the creation of the single-family home. Instead it is the outward expression of a value system. Domestic virtue, efficiency and spaciousness are the prized elements that created the house, which in turn contributed to the personal, community and national identities of the middle class.

Yet, this relationship cannot be understood without bringing up the evolving definition of the middle class. The collectors that define and organize the definition of the middle class is due to market capacity and the division of labor.

“The middle class in America,” Bledstein wrote, “appeared as a new class with an unprecedented enthusiasm for its own forms of self-expression, peculiar ideas, and devices for self-discipline.”13

Historians of the “consensus school,” refer to the middle class as a bourgeois, entrepreneurial, privatistic group that is found in all levels of society. Reflecting a sense of liberalism the middle class is not a distinct social class apparent in American society. Therefore, the collection of a middle class is not recognized as the creation of class but the embodiment of bourgeoisie liberalism. In separating out the middle class within the hierarchy of organized classes would question the character of American society. Louis Hartz implies that the collection of middle class ideals created the national consensus and not a class in itself.14

Other theorists will argue that the middle class is an outward expression of the polarization of class. The middle class initially seen as the champions of a ‘new order’ is disintegrating as a class. Because of the moving definition of the middle class there is no determined roll when the class asserts itself. In accordance to the divisions of labor, the class situation of the middle is a much larger expression of class relations.15

Identity:

Identity has always been the affirmation of self through the overlap of others – it is the element of making a space for the self, or the creation of a turf. More often then not, this takes place in the margins or the middle. Identity is found in the relationship of social groups or communities as they are assembled within a location or space. Bringing up the issue of spatial uncertainty as being the conflict of identity both in the space as well as with the social group. An identity is then asserted as others begin to form around each other or through the creation of a spatial recognition.

Identities exist in a paradoxical space in which there are no fixed centers and margins but the reliance of social collection.

As presented, the creation of a social centrality held together with the definition of a middle class should be viewed in parallel with the fluid collection of marginal spaces, or the middle ground. Spatial politics therefore embody a practice that identifies with the multiplicity of class definitions. Identities are created and symbolic of the migration and population growth into the middle spaces. These spaces take on an effect that localizes and collects social classes. Therefore, identity is created as the migration and collection of class begin to assert themselves. This assertion articulates the possibility of alternative futures only achievable in the amorphous space of the middle. It is in this creation of identity that new urban spaces can be examined and put into practice. Due to the notion that everything has a center and a margin, identity fills in the spaces around the center and margin. The margin and center inherently are defined by their definition, while the floating or middle ground

between the two rely on the social assertion of the population to express and drive definition.

It is the expression of oneself through their spatial relationships that creates place; human nature dictates the desires to make a location their own. By feeding the need to migrate and assert the sense of self-recognition, a recognition that is overlapped and fractured through the association with others.

5.2 – New City: Proposal

“As our population grows larger, our planet grows smaller.”

Richard Rogers, *Cities for a Small Planet*

As a result of the growing population and effects that growth have been having on the environment we will not be able to continue to sustain our current lifestyles. In the future, concession will have to be made in how we expand, decreasing our consumption and use of the limited lands and resources available. One of the many decisions we can make as a society is the focus on developing the urban/suburban building environment, by searching for methods that reduce our footprint. Decreasing the creep of development, numerous components in the building cycle can be minimized or altogether eliminated. The creation of an amorphous landscape has not only added a strain on the resources available in the local scale, but the creation and consumption of materials used are extracted from the far reaches of the planet. Consequently any change to this extraction will generate a large impact on the use of our resources, whether positive or negative.

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It is specifically in response to this consumption and growth that I am proposing the development of a framework that will reverse these trends. This framework will provide a means to formulate a network of new towns that will work with other three growth forms to house the population increase. I predict that not all of the projected growth can be housed through the production and development of new towns but will be a multi-faceted methodology to combat the continued expansion of sprawl. By focusing on four means of development we can start to reassert identity and a sense of place, reversing the current trajectory of blurred boundaries between urban/suburban and rural areas. These methods being, one, continuation of sprawl; two, densification of existing cities centers; three, infilling vacant areas at the edges of the city and suburb; fourth, the development of new cities that introduce smart growth perimeters.

My proposal will focus on the creation of a new town to house 100,000 citizens that will create a sense of identity built around a new density not present in the Interstate 75 corridor. This town will explore appropriate density, containment, and social-spatial identity around sustainable growth within its own environment. In turn this model will affect the surrounding areas in a positive manner that encourages anti-sprawl measures.

In Chapter 4, I have outlined the projected growth and development that will take place in the Interstate 75 corridor. It is one thing to limit urban development within boundaries but the additional question is how do you absorb the development that will still occur without such practice? This Supply-side Orientation – the attempt of communities not to absorb large shares of the region’s projected growth, but instead to address growth by imposing limitations on the hand-out of single family residential building permits as well as the restrictions to the implementation of public works projects. Therefore sensitivity is placed on meeting the housing growth needs of regional and sub-regional city and town networks. Nelson, A. C., & Dawkins, C. J. (2004). Urban containment in the United States: History, models and techniques for regional and metropolitan

question is the goal of the new urban development this thesis supports, while there are numerous containment practices being implemented today, they fail to address the needs of new development instead focusing on correcting the problems mid-stream. I therefore am pushing a combined practice of containment that originates in the creation of a new community that preserves the ideas of community and identity that is being lost in the drive to create regional structures.

In the next quarter century the Interstate 75 corridor between Atlanta and Chattanooga will see a population increase projected to reach two million people. The consequences of such an expansive growth figure is staggering. Currently the Tier 1 Rail study is not examining the effects this figure will have on the consumption of the land in the corridor. Instead the GDOT & TDOT study is looking at the role growth will have, primarily connecting the airports of the two major cities and secondly reducing the amount of vehicles on the road. Even though the Interstate 75 is currently running at capacity the figures representing ridership by the high-speed rail line will not make the impact that is needed to effect the trajectory of existing growth and development.

To fully understand the impact an increase of two million people will have on the corridor I have super-imposed four cities that have a population around two million. Each of these have a density that is standard for most European cities, yet is uncommon for this region of the United States. This offers a baseline analysis of an appropriate density and land area that contains the growth of two million people. Although this condition sheds a light instead on the severity of the situation as we continue on the current path of building and expanding in this landscape. In the figure 5.4 the axon depicts the addition of two million people and presents the problem that in the next quarter century there will be a continuous landmass connecting Atlanta to Chattanooga.

Figure 5.3 - City vs. Metro Footprint Projection
In accordance to the population growth and past development (ref. Figure 4.20 & 4.23) this diagram shows the projected expansion of the built footprint of the cities in the Interstate 75 corridor if we continue on the current trajectory over the next 30 years.
Therefore, the high-speed rail line proposal offers the vessel to attach a framework that creates defined cities of 100,000 people that will address the current trajectory of two million people while exploring the potential of new cities to manifest as one of the four means to offer a place of existence for the developing population.

5.3 – Growth Development: Four Strategies

Currently there are four means to provide a livable environment for the impending growth of two million people. As a worst case we can continue to expand as we currently are resulting in a low-density horizontal landscape of one story commercial, residential and industrial buildings. This will further expand the problems due to the amorphous development upon the social welfare of the citizens along with the destruction of the natural environment. Second, we can re-focus development on existing cities and towns and strengthen the centers and downtowns as collectors for growth. Third, the effects of migration and growth have created numerous zones between one area of zoning and the next, as the production base has changed numerous ‘free’ spaces are available to explore as places for development.

By using available land through an inward re-discovery of the city directives to incorporate growth as apposed to continued sprawl pose sustainable practices. Yet, there are numerous roadblocks that could hinder the re-development of cities. The contamination of post-industrial sites around the city require numerous steps in the cleanup process of the land. Along with the site problems there are legal problems with the transfer of liabilities regarding the past, present and future impacts the site may have on the inhabitants. These are the major problems of sites on the edges and peripheries of cities and towns while the center had its’ own set of issues that must be navigated towards the densification. Because of the shifts in growth into the many new urban forms as a result of the migration to the suburb there is a general lack of desire for individuals to move back into the city and
infuse capital to a place that has been in neglect. The push to the suburban due to inconsequential land and transit costs will be a tough precedent to overturn. It will take drastic gas and land prices to push people to reevaluate their expenditures even though they are destroying the environment at an alarming rate.

Even as these steps will be met with resistance so will the development of new cities, but together these four methods will be able to provide a release valve to the continued sprawl if we pursue the current trajectory of development.

5.4 - Density Development of the place

The idea and creation of new towns are not a new one, but have a long and storied lineage. I am therefore picking up on these ideals and conceptions to provide a framework for development instead of suggesting a formal design strategy. Instead the focus is centered on the understanding and modeling of urban/suburban density figures.

How do we encourage an increase in density? Many planning authorities have two proven methods to stimulate an increase to density numbers in existing cities. These factors I propose also must be the cornerstone factors in the development of a new town. By increasing the supply of public transit, both in the frequency and amount of lines and secondly the regulation of land use. The land around station stops should be encouraged to have a high density while areas at the edges of the transit

20 The modern conception of the new town derives from the 19th century planners, politicians and architects as a response to the pollution and congestions resulting in cities due to the effects of the industrial revolution. Initial plans such as the Garden City by Ebenezer Howard that positioned nuclear development around the central city, while Arturo Soria’s Linear City model dreamed of infrastructural development as the creator of new city models. The Linear City was further developed and explored by N.A. Milutin in the socialist Russian context.
Foot Print for 100,000 Inhabitants:

Area:
50% = Housing
50% = Streets/Open Space/Commercial/Civic/Support/Etc.

(1) person = (400) sq. ft. - Average Area

(400 sq. ft.) x (100,000 population) = 40,000,000 sq. ft.

(40,000,000 sq. ft.) x (2) = 80,000,000 sq ft

Foot Print: 80,000,000 sq. ft. = 1836 acres = 2.87 sq. mi.

Average House Sizes:
1950 - 800 sq. ft.
1970 - 1,500 sq. ft.
1998 - 2,190 sq. ft.
2009 - 2,422 sq. ft.

3.19 people per household (family household)
1.19 people per household (non-family household)

Foot Print for 100,000 Inhabitants:

Area:
50% = Housing
50% = Streets, Open Space, Commercial, Civic, Support, Etc.

(((100,000)/(3.19 persons)) x (2,422 sq. ft.) = 75,924,765

(75,924,765 sq. ft.) x (2) = 151,849,530 sq. ft.

Foot Print: 151,849,530 sq. ft. = 3,485 acres = 5.44 sq. miles.

Figure 5.5 - Foot Print for 100,000: Diagram
Analysis of what the addition of 2 million people can look like, comparing U.S. and European Cities to the major cities in the Interstate 75 corridor and the corridor population
radius should have containment initiatives imposed to limit the development of sprawl. Assuming that land values and housing prices do not increase at a rapid rate the restrictions and urban growth boundary enforces densities will increase. This does though need a balance between development and the floor area ratio that is permissible.

Currently the average area of housing per person in America is 400 square feet, if we use this figure as a baseline figure for a city of a 100,000 we end with a footprint that is 2.87 square miles. This area incorporates the needed open space, infrastructure, civic, commercial and housing for a community of 100,000. If we compare this with the average single-family house figure in America which currently 2,422 square feet for an average family size of 3.19 (inhabitants), results in a city footprint of 5.44 square miles (ref. Figure 5.7). Putting this in perspective, the city of Cambridge, MA has a population of 102,070 and a land area of 7.1 square miles.

In contrast to the figures I have developed referencing the average needs of inhabitants and the current house figures, if we use the density figures that are representative of the growth and development of the cities and towns found in the Interstate 75 corridor we are presented with a magnitude of difference that greatly outnumbers the average figures for cities of 100,000 (ref. figure 5.6). This figure shows the footprint of a city of a 100,000 if we where to build using the existing density values found in each of these cities. Dalton has the worst sprawl figures while Atlanta would be almost five times larger then the average footprint for cities with a population around 100,000 in America.

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21 U.S. Census - 2009
22 Reference: figure 5.8. The population chart represents and examines a selection of American cities that have a population between 100,000 & 109,000 and a range of land areas. Data compiled from U.S. Census Bureau – 2000 & 2009 population statistics.
FOOT PRINTS FOR A CITY OF 100,000 - COMPARISON OF EXISTING CONDITION

“New City”
Area: 5.44 sq. mi.
Population: 100,000

Chattanooga
Area: 402.9 sq. mi.
Population: 100,000

Dalton
Area: 539.9 sq. mi.
Population: 100,000

Atlanta
Area: 158.8 sq. mi.
Population: 100,000

Footprints for a city of 100,000 - comparison of existing condition
Figure 5.7 - Foot Print for 100,000: City Area
Analysis of cities with a population of 100,000
### CITIES AROUND 100,000 - COMPARISON OF POPULATION & DENSITY

<table>
<thead>
<tr>
<th>Population</th>
<th>City</th>
<th>Country</th>
<th>Area</th>
<th>Density</th>
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<tbody>
<tr>
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<td>Germany</td>
<td>26.1</td>
<td>4,054.0</td>
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<td>Bangladesh</td>
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<td>Greece</td>
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<td>France</td>
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<td>Vicenza</td>
<td>Italy</td>
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<td>Norway</td>
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<td>Canada</td>
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<td>103,577</td>
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<td>Germany</td>
<td>35.9</td>
<td>2,867.0</td>
</tr>
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**Figure 5.8 - Foot Print for 100,000: Comparison**
Analysis of cities with a population of 100,000
URBAN FABRIC STATISTICS - 25% BUILT COVERAGE

- dim: 250 ft. x 400 ft.
- total area: 100,000 sq. ft.
- bldg. coverage: 25%
- bldg. area: 25,000 sq. ft.

(1) Floor
- 25% Coverage
- F.A.R. - 0.25

(2) Floors
- 25% Coverage
- F.A.R. - 0.50

(3) Floors
- 25% Coverage
- F.A.R. - 0.75

(4) Floors
- 25% Coverage
- F.A.R. - 1.00

(5) Floors
- 25% Coverage
- F.A.R. - 1.25

Figure 5.9 - Urban Fabric: 25% Coverage
Analysis of what the addition of 2 million people can look like,

Block Development:
F.A.R. = Based on Gross coverage figures
(1) Floor
25% Coverage
F.A.R. = 0.50

(2) Floors
25% Coverage
F.A.R. = 1.00

(3) Floors
25% Coverage
F.A.R. = 1.50

(4) Floors
25% Coverage
F.A.R. = 2.00

(5) Floors
25% Coverage
F.A.R. = 2.50

Block Development:
F.A.R. = Based on Gross coverage figures

URBAN FABRIC STATISTICS - 50% BUILT COVERAGE

dim - 250 ft. x 400 ft.
total area - 100,000 sq. ft.

bldg. coverage - 50%
bldg. area - 50,000 sq. ft.

Figure 5.10 - Urban Fabric: 50% Coverage
Analysis of what the addition of 2 million people can look like,
URBAN FABRIC STATISTICS - 75% BUILT COVERAGE

- dim - 250 ft. x 400 ft.
- total area - 100,000 sq. ft.
- bldg. coverage - 75%
- bldg. area - 75,000 sq. ft.

(1) Floor
75% Coverage
F.A.R. - 0.75

(2) Floors
75% Coverage
F.A.R. - 1.5

(3) Floors
75% Coverage
F.A.R. - 2.25

(4) Floors
75% Coverage
F.A.R. - 3.00

(5) Floors
75% Coverage
F.A.R. - 3.75

Figure 5.11 - Urban Fabric: 75% Coverage
Analysis of what the addition of 2 million people can look like,

Block Development:
F.A.R. = Based on Gross coverage figures
The next major step after establishing the growth boundary of the new town around a baseline figure for the city footprint is the assessment of density. Specifically I am addressing the DNA of the city or the ethos of the place. This is created through the development of a density that will support effective walking and public transit centers along with mixed-use programming. The density figures I am working with will assume that the majority of housing throughout the city will be stick built (Type V) construction, the maximum height per building code is limited to 5 stories. To achieve the density to house the 100,000 residents I have devised three block typologies ranging from 25%, 50% and 75% land coverage. If we use these figures the lowest floor area ratio figure would be 0.25 at one story of development at 25% coverage of the block while the highest F.A.R. at 75% coverage and 5 stories of development would be 3.75. For additional typologies reference fig. 5.xx. Therefore I propose a framework that will require the majority of blocks in the city be a mixture of building heights between three and five stories resulting in an average F.A.R. for the city of 2.0. In creating a density figure of this magnitude the development of three types of public spaces can be planned throughout the city such as pocket parks, squares, and large parks/commons.

The ethos of the city will be manifest out of the density statistics for the whole of the city. Many of the citizens that will be moving into the city (ref. Chapter 4 demographics charts) are coming from areas of the world that are accustomed to high density figures, it is in this density that identity will be formulated and neighborhoods will be established.

5.5 - Area to house the New Town

Locating the intervention of the new city will be positioned in the middle-ground, specifically situated between the perceived edge of sprawl between Chattanooga and Dalton. The selection of this place as the test site for the new city is based on the availability to direct land use towards containment and zoning practices to develop a city. Additionally this space is a prime crossroads for the Interstate 75
Figure 5.13 - New City - Territory Plan
and proposed high-speed rail line. Falling right on the 30-mile radius from the Chattanooga airport a train station is possible because it meets the minimum distance for siting. The Interstate 75 has a rest stop at this location so is perceived as a suitable stop between Atlanta and Chattanooga. By moving the proposed station in Dalton to this location connections can be developed to move people between both cities. Therefore, the city will act as a lighting rod in the landscape as a place that mitigates sprawl. Ideally it will manifest itself across the landscape in the Interstate 75 corridor while the additional growth will be housed in the existing cities and towns instead of the continued progression of sprawl. The new train station will be the central node that the development of the new city will be centered. Through the introduction and planning of the initial ring of the rail station, the station will be used to collect and support economic development.

5.6 - Pieces of the New Town

Design Concept Development of a city around transportation

1. Creating a place that allows for a strong density that builds communities and leads to the creation of identity of a group of people
2. Access to transit that will connect and feed into the regional structure that in turn will stimulate additional public transportation systems beyond the primary function of airport connections.
3. Socially and culturally dealing with the “in-between-ness” of the people, in-between two poles, incomes and stages in the lives of the people
4. Social use of the public sphere

Transportation

By utilizing automobile transit to rail stations this will result in exacerbating the problems of sprawl,
generating a focus on the development of stops and increasing the frequency of growth. Architects and planners must focus on the siting of stops in the rail line and how those need sites to be channeled into zoning and development issues. Designing models of the growth expected to take place will result in a design that will collapses the distance/time between two destinations. Instead of driving into a station to move across the country a smart efficient means to travel to the stops for each traveler must be met – refocus on the notion of systems of flows and network capacity as a driving factor to set boundaries and limits to the growth of the built world and/or sphere. What are effective distances to travel? We must look at the full circle of energy savings, instead of only thinking about getting cars off the road. This creates a domino effect that will effect and transform incrementally the built landscape.

By encouraging smart growth, sustainable development and other methods to put the path of sprawl on a new course, long-range management plans must be re-examined and presented. Instead of relying on the quick fix method to address the population growth and related transport issues, encompassing frameworks must be set into motion as a release to the current development strategies, or lack of strategy. Therefore, practices of containment must be aggressively pushed both to the urban and suburban sphere.

Urban containment itself is not a new practice of development but has been a historical practice throughout the world. Notably in America thoughts regarding containment practices take root in the solution proposed by Ebenezer Howard to create “garden cities.” Howard focused on creating compact new towns that housed 30,000 inhabitants in 1,000 acres that were then separated from the city by a greenbelt of 5,000 acres to combat the unhealthy conditions of the city into new towns. This city conception may have directly influenced the migration and development of suburban towns found in the early 20th century. The “garden city” would not stop the impending sprawl but would create the departure point to pursue containment efforts throughout Europe. In the text Planning
Control in Western Europe examines the practice of urban containment in Denmark, France and the Netherlands. One of the most interesting common themes was the development of public transportation that links both the rural and urban spaces. Through investments both public and private a transit network of public transportation, walking and bicycle paths were used to decrease the usage of automobiles.

Urban containment is a framework currently gaining traction that manages the growth by preserving the separation between the urban and rural environment. Initially, containment has two fundamental goals: 1.) Promote compact and contiguous development patterns that can be efficiently served by public services and 2.) Preserve open space, agricultural land, and environmentally sensitive areas that are not currently suitable for urban development. To put these guidelines into their most basic principle is to impose a boundary or edge that houses the built footprint and urban spread. Development is a gradual process; therefore most planners will dictate that the goals in the containment manifesto should be achieved over the course of 10-20 years. It becomes imperative to achieve a balance between the projected growth outcomes of an area with the development limitations of capital growth dictated by market trends.

Containment aims to impact the economic discourse on a regional scale because there is an emphasis on the development of lands inside the boundary as well as outside. Land outside in the rural space is restricted to resource mining and very-low-density development creating interests in the ‘outside’ land to house and define the bounded community. This allows for a focus on the creation and increase of lands inside the containment zone. Without a strong value difference between both spaces there comes a decreased value for development.

CITY FOR 100.00 - DENSITY DISTRIBUTION
In the case of Georgia and Tennessee a unique question is posed, typically containment is a focus of a distinct community, but how do you address the sprawl of one city over state lines? Urban containment practices support the growth and management of a regional structure it should be within the capacity to be put into practice by both city and state jurisdictions. As the case will arise through the development of a high-speed rail line between Chattanooga and Atlanta, containment practices will be critical to the success of the transit line. In conclusion the development of a contained space of growth will re-focus development inward instead of outward as sprawl.

*What are the smart growth boundaries for southern towns? Why stop now and why change the rules – what do I come back with, what is the reaction?*

This proposal doesn’t call for a form but a framework and compilation of pieces that develop a strategy to created interventions of new town development to mitigate the projected growth of two million people. By presenting a strategy to develop and house the impending growth we may mitigate the problems that will arise as a result of the population growth. Through assembling a soci-spatial framework that objectifies density as a means to create identity and place the conception of a new city is formulated. By pursing containment practices land can be set-aside for specific purposes such as public space, rural farmlands that will impact the region in a positive manner. Therefore, by pursuing an approach that incorporate the four growth practices we can re-address the creation of cities as a means to shape and define the social sphere instead of succumbing to the problems of the undefined sprawling landscape that is the present.

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*Figure 5.16 - Density Distribution*

Opposite Page:
Density proposition, creation of identity from coverage.

*Figure 5.17 - Urban Fabric*

DNA of the density figures at an average F.A.R. of 2.0 with a 50% coverage and building height at 3-5 stories.
“Being political means... regarding changing and even with considerable efforts no longer reversible processes not as a threat, but as an opportunity to rethink the horizon of one’s own thinking, one’s own activity. What we need is the willingness of the architects and town planners to develop from being service providers... into being protagonists, designers of the social horizon.”
CHAPTER 6: CONCLUSION

6.1 – Reflection

This project set out to explore the consequences and development that was created as a result of population growth and migration. By tracing the effects I found that the urban and suburban environments have become weak definitions of spaces. Through the multiple expansion streams the definition of boundary and border have ceased to exist as their definitions explain. The built environment is one large amorphous sprawl of development. As sense of confusion is manifest as a result, it is in this confusion and lack of markers that we do not fully grasp the consequences of our actions. Yes, the environmental warning bells have been sounding since the 1970s, but what has truly been done to reverse these effects? Utopian proposals have been explored, but largely due to the political and capitalistic landscape these have only become ‘paper’ projects.
This thesis sought to shed light on the drastic figures that are projected to take place. As is the case to be in Georgia and Tennessee, future growth will be a factor that cannot be ignored. The sheer amount of people migrating into this region alone will pose problems that have to be addressed in new and unique manners. Adding a high-speed rail line will not be enough, but planners and architects need to sit at the table and have a discourse with transportation engineers. I am asserting that the current proposal for rail development isn’t bold enough and must incorporate urban/suburban forms of development along with minimizing the vehicle footprint in this region. By proposing four methods of development to minimize the current and projected sprawl these devices will be the shift in thinking that can affect the Interstate 75 corridor in a positive manner.

THE MIDDLE SPACE WILL BECOME THE RELEASE VALVE TO THE SWELLING OF BOTH THE SUBURB AND CITY IN THE REGION PRESERVING THE SOCIAL IDENTITY OF PLACE AND SPACE. CHAMPIONING THE ‘SIXTH MIGRATION’ OUR FUTURE URBAN DISCOURSE WILL CONTINUALLY EVOLVE AROUND A SUSTAINABLE EXISTENCE...

By introducing a new town, new residents can easily find respite in a place that is clearly bound and defined. The density figures will create a DNA to the city that explores a sense of identity. Many of the people projected to move into this place are considered an ‘in-between’ class, because of the increased density affordability can be achieved. Yet, not only economic ease, social factors will be more positive then the existing cities in the corridor. By controlling and channeling growth a social-spatial quality can be pushed instead of the typically stigma associated with the periphery spaces. This I am calling to be explored and developed in the middle-ground, as I have laid out, the middle-ground is the collector and container to define the ‘in-between’ citizens. Spatially located in the open space outside the sprawl of each city. The location is specifically called out as a location to explore new towns instead of trying to adapt such a large mass of development within existing towns. Therefore, the relationship of the middle-ground and definition of center are parallel. Design
created is housed in the framework of the *middle-ground* by strictly setting up density, boundary, spatial and social structure.

What is the value of stopping sprawl in this location?

**6.2 – Future Direct[ion/ives]**

As demographics are shifting where the majorities are becoming the minorities and the minorities are controlling and shaping their own destinies, new cities can become the collector and space to incubate such cries. The politics of such a proposal give advantages to the creation and jurisdiction of people that can have voting privileges that impact and enforce a system of changes.

**6.3 – Solutions for Other Regions**

This thesis did not intend to propose a design solution but set out to create a design framework or strategy to respond to growth and migration. As the United States is expanding by 25 percent over the current quarter century it is becoming more and more imperative that we provide a shift in the development of our built environment. Though, this figure is an average over the whole of the country, some areas will be experiencing growth that is much higher than the national average. Therefore this thesis examined the notion that we should address growth through plans that use four methods to house growth. The primary focus though should be the development of new towns. By using this framework we can decrease our land footprint as much as a quarter of our current area and even more if we pursue densities that are half high as Europe. Additionally the framework looked at developing a place to house the growth in joint with new forms of transportation in the American landscape. This pursuit will have great affects on the vehicle usage currently being used. By taking the model that was used in developing the western half of the U.S. during the 19th century cities can
be created around transportation junctions in support of a local, regional and national scale of flows.

6.4 – Conclusion

In conclusion, this thesis developed and examined a framework based on the research of specific effects currently taking place in the Georgia and Tennessee region. The growth figures are staggering for this location. By proposing the re-directing of findings in the current high-speed rail proposal linking Chattanooga and Atlanta we can make a larger impact on the impending growth. Through the development of a new town framework along side the current means of development we can reverse the impacts and house sustainable urban/suburban development.


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Figure 0.1 – Growth Projections. Drawn by N. Prevendar. Statistics Data from U.S. Census Bureau, 2000, 2005 & 2010

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Figure 5.9 – Urban Fabric: 25% Coverage. Drawn by N. Prevendar

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PART III: CONCLUSIONS
CHAPTER 6: CONCLUSIONS

Chapter Quote – See Neitzke, Peter (1997). “The question is: when will architects become political?” Baumeister, October