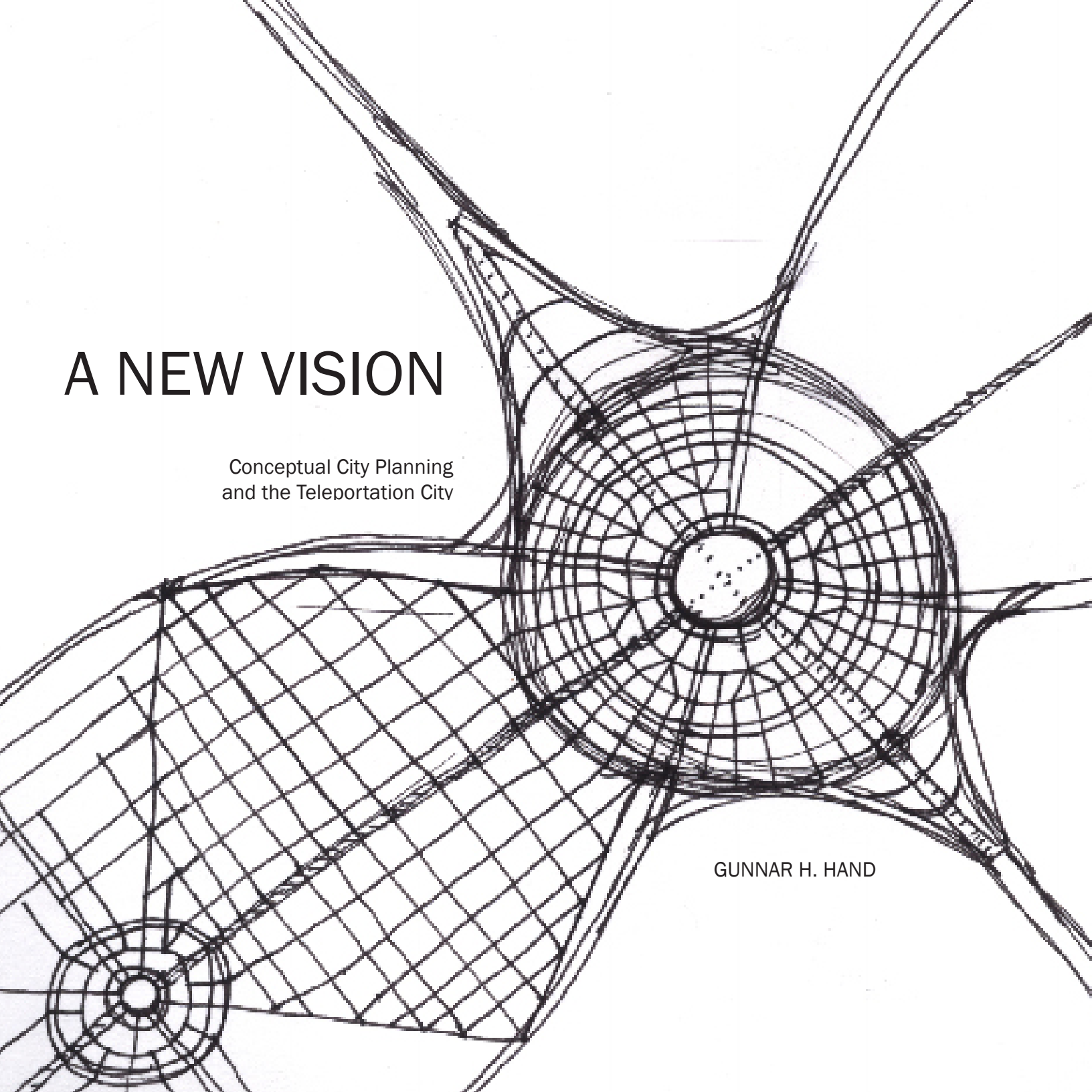
A NEW VISION

Conceptual City Planning and the Teleportation City



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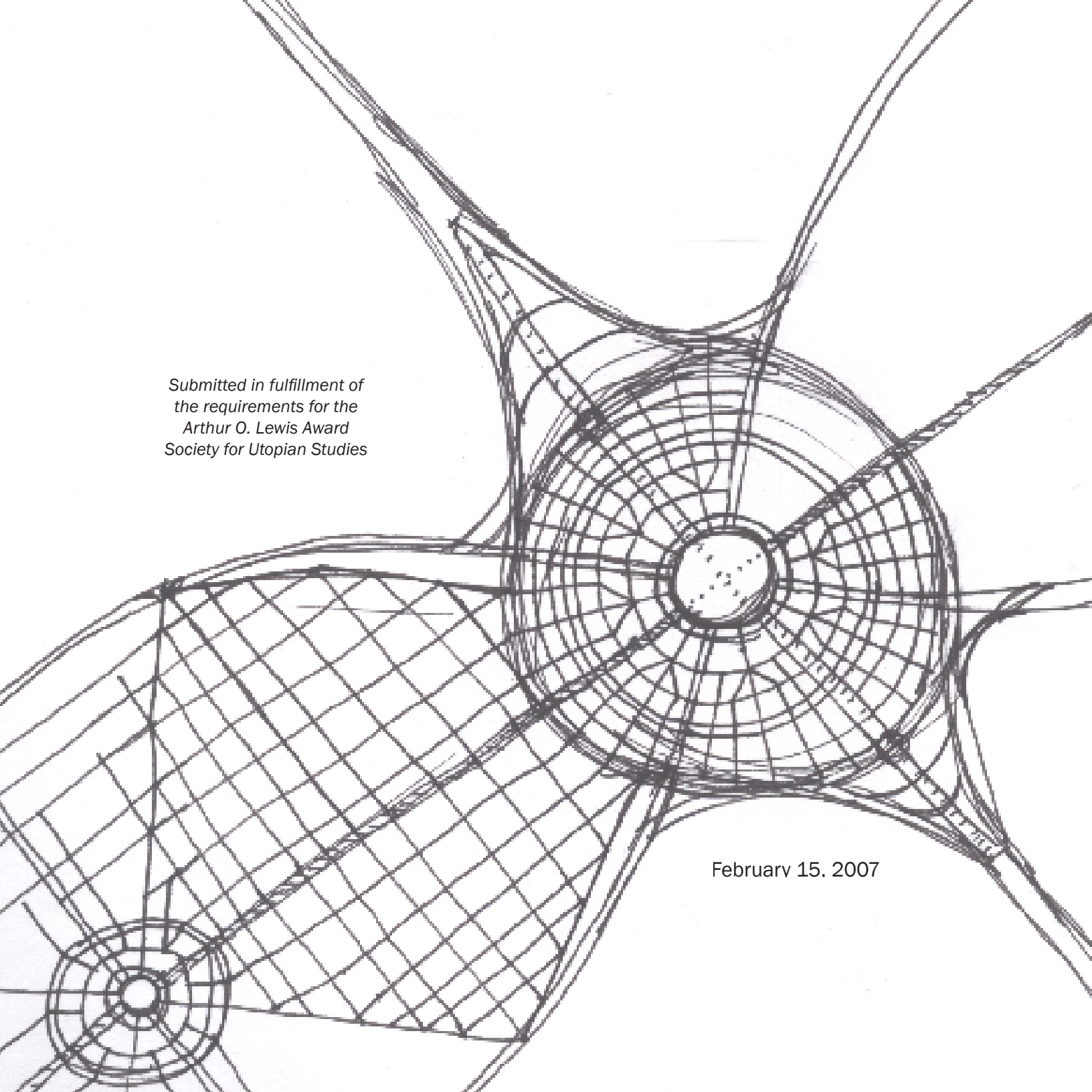

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CHAPTER I: INTRODUCTION

A. PROBLEM STATEMENT

In nearly every epoch, a new vision of the city is created to envision a better future or realize a social movement. These utopias provide a way of thinking about the human built environment and how it might be organized, designed, and function. As facilitator and eternal representation of human achievement, the city is a symbol of civilization. As such, humanity is on a quest to perfect these physical systems, influenced by our ethos and subject only to our imagination. Inherent to this continuous renewal is the reciprocal relationship of the environment in our lives. To improve the city is to both improve ourselves and our mechanisms of betterment. Each era of renewal is a redefinition of what we believe is best, and through the lessons of the past we can begin to create our own ideal future.

The vitality of the city has always been determined by the people within it, and designed by those who conceptualized and built it. The city is the nexus of activity where societies are formed and reborn generation after generation.

Le Corbusier's Radiant City is a utopian vision that had a profound effect on society and the built environment. The modernist ethos successfully advocated the separation of uses, launched the public housing movement and constructed the interstate highway system. Although many post-modern theories have consistently reexamined the city, they lack the political zeal and legacy of built projects that brought about the broad social change characteristic of modernism. Modernism introduced a theoretical framework that a utopian vision of the city that could realize the modern age of man. To this day we attempt to correct the wrongs of urban renewal and suburbanization through nascent movements such as the New Urbanism, which embodies not a progression in human thought and planning, but a return to traditional means of development.

New Urbanism advocates the planned expansion of our cities (Smart Growth development), but lacks the progressive and comprehensive utopian vision that marked the modernist movement. Instead, New Urbanism employs either partial corrections or improved suburban development. I propose conceptual city planning as a strategy that embodies the vision for a city within a symbol. Utopian design should occur on a city-by-city basis, constructed by an overarching concept derived from its citizenry, thus determining the appropriate symbol used as a development strategy. By redirecting the current trends in development from the past and towards the future, a utopian vision of a post-industrial and post-automobile oriented city will launch the age of sustainability.

A new era has dawned, and we are reminded daily of the ramifications of our new reality. Globalization has led to the expansion of corporate interest and economic speculation to every corner of the globe, quickly followed by technology, goods and services, and cultural diffusion. Through this expansion and colonization of the earth, we are increasingly aware of the physical, psychological and temporal limits to this world. Production, business, and finance are global processes, and cities must adapt to this new reality in order to stay competitive and relevant. Contemporary city design

and planning must do more than serve capitalism's demands by moving our political economy into a more sustainable and socially responsible system. However, a new ideal city, characterized by fluidity and equality, committed to individuality and the common good has not yet emerged. Lost is our vision for the city. To this end, I propose a new utopia: the teleportation city.

B. OBJECTIVES

The objective of this thesis is to simultaneously establish a theoretical framework to justify a new utopian vision of a sustainable city and develop the design of such a city. It will reunite the role of the planner, currently relegated to public policy-making, with the monumental city visioning that is the legacy of the profession. We have strayed from the influential work of Daniel Burnham, Fredrick Law Olmstead, Edmund Bacon, and even Robert Moses. For too long the architect, landscape architect, and designer have usurped the role of the city and regional planner, in part due to our own focus on community-based planning and social work in the 1960's. While it is the planner's breadth of expertise that is his/her greatest asset, the design component of the city planning spectrum has long been acquiesced to the design professions. Architects have frequently gone outside of their expertise to propose a vision for the entire city. This thesis is not concerned with architecture, but acknowledges architecture's principles that affect a sustainable society, place making and urban design. By re-envisioning the city from a planner's perspective, one that is holistic and all-encompassing, the planning profession will reemerge and reclaim its leadership role in guiding the development of the built environment.

The conceptual city plan is synonymous with the comprehensive plan. They both can happen everywhere, but are unique to each place. While comprehensive planning derives its goals and objectives from the public and employs the actions of every public officer and city administrator, the plan remains as abstract as the contemporary understanding of utopia. What conceptual city planning proposes is the manifestation of the community's goals into a concrete and specific vision that can do more than merely guide action, but drive development. The comprehensive plan should inform the design and development of the city, and the conceptual city model is the embodiment of this strategy. It is the physical implementation element of the long-range plan. By incorporating the conceptual goals from the democratically-conceived comprehensive plan into a formal design, conceptual city planning fosters the progression towards an envisioned, ideal end.

It must be understood that to achieve an end state or an end in civilization is impossible, but to design the perfect ordering of a city, a utopia, is to say that there is an end to existence and change. Instead, the design of the teleportation city is a vision that can perfect the process of development and progress towards an end. It is the mastering of the processes of civic development. While the design holds intrinsic order, entropy is infinite, and this thesis understands the role of the utopia as an abstraction, but promotes its use towards beneficial, physical results.

The conceptual framework of the teleportation city will serve as a guide for future development and redevelopment in all cities. While this concept for the design of the city focuses on sustainability and creating a seamless transition of goods and services equitably to all inhabitants of the city, I contend that conceptual city plans can have a real effect in transforming our most ambitious goals into reality.

It must be understood that to achieve an end state or an end in civilization is impossible, but to design the perfect ordering of a city, a utopia, is to say that there is an end to existence and change. Instead, the design of the teleportation city is a vision that can perfect the process of development and progress towards an end. It is the mastering of the processes of civic development. While the design holds intrinsic order, entropy is infinite, and this thesis understands the role of the utopia as an abstraction, but promotes its use towards beneficial, physical results.

C. SCOPE OF THE STUDY

This study will begin with a historical review of utopian visions of the city from their original conception through the Industrial Revolution, twentieth century modernism, post-modernism, and the contemporary ideal. Civilization has consistently fantasized about the perfect city, and such imagining has provided an impetus and justification for the development and redevelopment of cities. Although the city is shaped by numerous factors beyond the control of the planner, such as geopolitics and popular culture, these influences cannot be ignored when considering the formation of an ideal communal habitation.

I will then review literature that extracts archetypal civic forms and organizations that have traditionally created the city. These place-making typologies include design methods for streets, urban open spaces, community facility distribution, land use patterns and transportation networks. "Using this analytical background, the designer could proceed to develop a visual plan at the city scale, whose object would be to strengthen the public image" (The Image of the City, Kevin Lynch, 1960, p.116). By analyzing these forms, I will be able to employ them in the creation of the teleportation city.

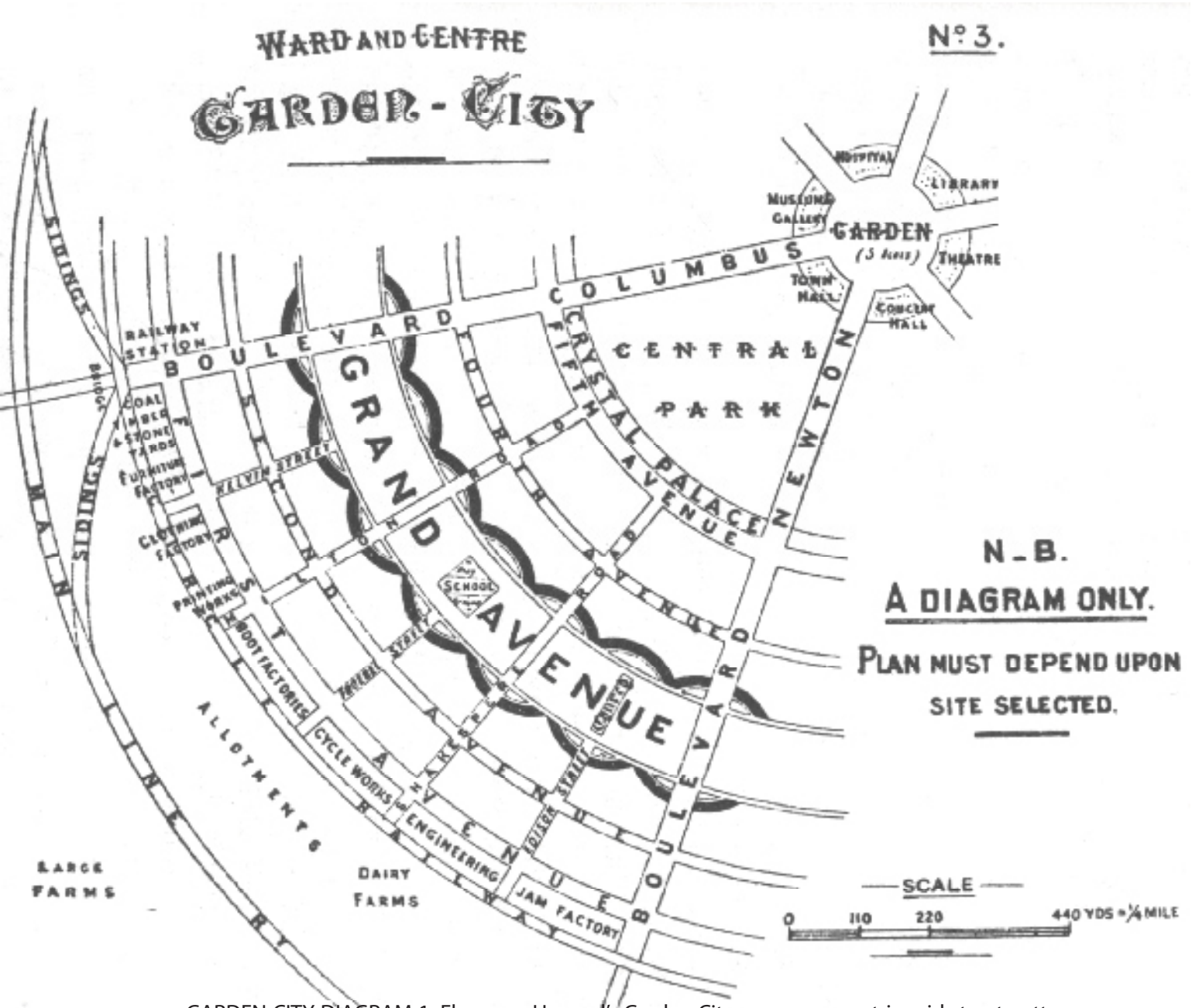
D. METHODOLOGY

To create a contemporary utopia, it is necessary to review and fully understand the proposed utopias of the past. Each vision has been directly influenced by its author and the moment in time which it was created including the human drama, culture, geopolitical and economic climate, and I seek to do the same with the growing interest in sustainability today. In order to create a utopia, I first define "utopia", and critique the notions and assumptions regarding the concept. While I intend to design a utopian vision, the real concern is to prove that such an illustrative design to accompany the comprehensive plan has been neglected, and is critical to contemporary planning documents. The conceptualized city acts only to steer the market forces of development by utilizing public investment in transportation, land use, and open spaces to drive private development in the envisioned city. Conceptual city modeling has the same intent as the comprehensive plan, but transforms its ideas into a design.

With this historical justification, I will proceed to give a detailed description and definition of the teleportation city within a conceptual city planning framework. A review of its form, function, and purpose will precede the exact and more intricate design of the city. The design of the utopian city will include transportation, land use, open space, and community facilities plans. Illustrations of the teleportation city will include sketches, plans, sections, and perspectives to convey the design of this utopian concept.

E. LITERATURE REVIEW: TEXTS ON THE CONCEPT OF UTOPIA

There is a wealth of literature on utopian visions of the city. To decipher a clear path through the many iterations, I chose the original texts that first conceptualized the ideal city as well as the most influential movements in the last century. Beginning with the origins of the utopia and the theoretical foundations of producing such visions, the literature review will then extend to the physical characteristics, and the best methods or practices to employ place-making and create a vibrancy in the city.



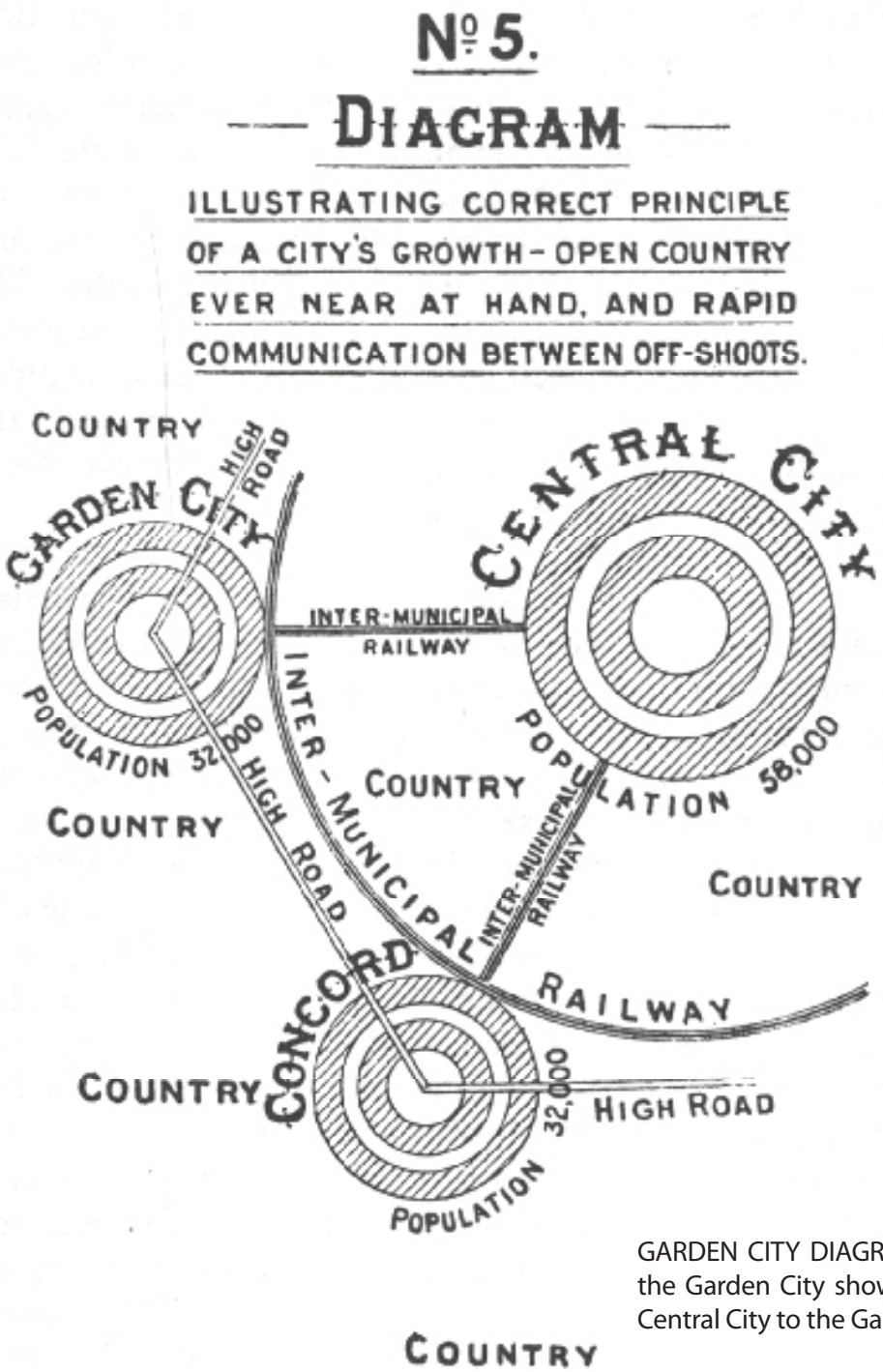
GARDEN CITY DIAGRAM 1. Ebenezer Howard's Garden City uses a concentric grid street pattern with an overlay of intersecting diagonal arterial streets, a land use and transportation strategy utilized since the dawn of permanent human settlements.

It is imperative to begin with the birth of utopian philosophy and the ideal city. In The Republic of Plato Socrates deduces the "true city" through a method of dialectics. As founder of Western political thought, Socrates weaves an intricate argument for the ideal city and the philosopher king as its most suitable ruler. Embedded in the Greek virtues of wisdom, courage, temperance, and justice, the philosopher king is made and born with a "gold" disposition. A leader's greatness, tested through education and experience, outshines all others as he ascends to his natural leadership position. According to Socrates, "Since philosophers are those who are able to grasp what is always the same in all respects", they are best suited to rule (The Republic of Plato, 1991 edition, p.163). Through the creation of a guardian class, the polis or the idea of the city, evolves. Socrates outlines the first description of not only what a city should be, but who and how it should be formed. This is the first utopian vision of the city.

The concept of an ideal man, an ideal leader, an ideal government, and an ideal city are all interconnected proposals in The Republic of Plato. In the nature of philosophy, to frame and pursue the ideal is the best course of action regardless of its consequences. In this pursuit, defeat may come easy and success hard, but the eternal struggle for perfection, for wisdom, is the noblest of endeavors. While the physical plan or layout of the city is not within his description, Socrates does review and suggest what this ideal city should theoretically have. The true city for Socrates is one that satisfies the individual's basic needs. It is a city that minimizes the desires of the body, which in turn allows for the soul to become daring. In this city, community is bred by the individual need for each other for survival. Each person chooses his own path based on his natural ability, understood simultaneously as one's inclination. This polis is a place where justice is self-evident and forms itself, and the things that corrupt the body and soul are not inhibited, but are rendered indifferent by the public's virtuous pursuit of wisdom for its own sake.

Similar to the philosophical man, the city must temper its bodily desires, like food and sex, for those of the soul, such as reason and education. Socrates' discussion of balance has consistently been present in every utopian vision since. Without one thing, its opposite will grow stronger, and only with temperance can all things be brought into harmony. Temperance becomes the crucial link amongst all things, ensuring compromise among all individual pursuits to produce virtue in the city. It explains the overlapping nature of the physical and mental. In his "Interpretive Essay", Allan Bloom explains that there is an inherent conflict between the good city, and leading a life of indulgence. "There is a tension between the activities necessary to preserve life and those necessary to live it well" (The Republic of Plato, Interpretative Essay, Allan Bloom, 1991, p.362). According to Socrates, to master these desires is what makes man reasonable and just.

This ideal city, however, proves impossible as it relies too heavily on justice prevailing by itself, and the city remains susceptible to invasion. Its relative austerity creates a poor, small and unchanging regime whose foreign policy must match the ambitions of other wicked cities. Machiavelli, for instance, opposes the concept of virtue and advocates a strong ruler who will use any means necessary in order to preserve and expand the state. Although it was necessary to appear virtuous, virtuousness was argued to be counterproductive at maintaining the state and one's own power, making war and vice necessary evils (The Prince, Niccolo Machiavelli, 1992 edition). In the true city, a guardian class protects every citizen. To control the spiritedness of the guardian class, the philosopher king, spirited yet tempered by his pursuit and selfless love of wisdom and the city, can control the guardians (The Republic of Plato, 1991). In this scenario, the guardian class and the rulers of the guardian class must



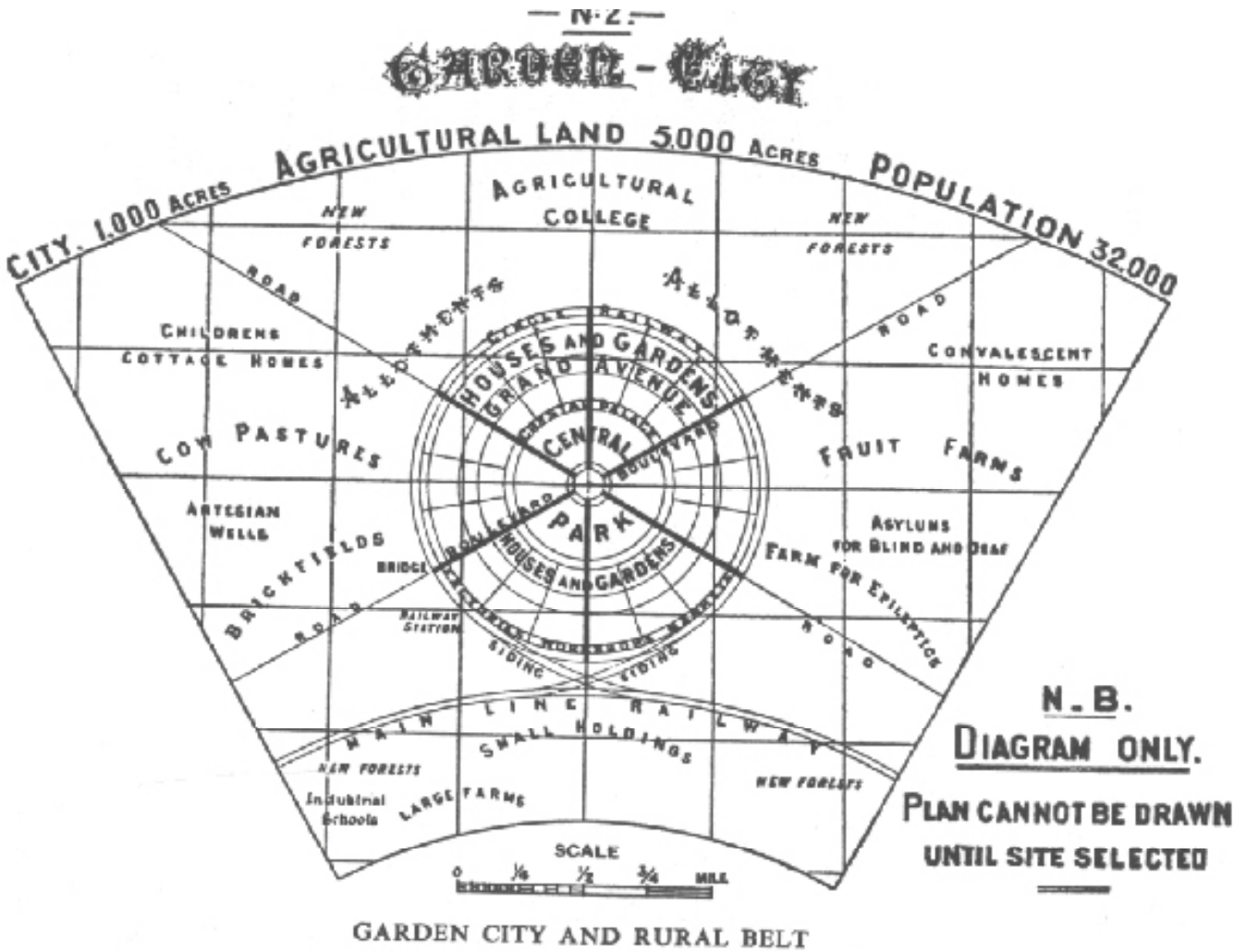
GARDEN CITY DIAGRAM 2. A regional view of the Garden City shows the relationship of the Central City to the Garden City.

align their own good with the good of the city. Socrates argues that together with the power of the guardian class and the lack of excess in the ideal city any attempt at invasion would be rendered futile.

In *Designing Utopia*, Michael H. Lang discusses John Ruskin's urban vision for Britain and America, referencing Ruskin's diverse proposals from many of his seminal works including *Unto This Last, The Poetry of Architecture, The Stones of Venice, the Seven Pillars of Architecture*, and *Fors*. Consistent throughout his work is the belief that happiness is found when labor and the toiling of the mind unite. His utopian vision rejected laissez-faire economics and the large industrial complex in favor of a guild society, one that returned the worker to artistic expression in his duties and his life. "Unless you provide some elements of beauty for your workmen to be surrounded by, you will find that no elements of beauty can be invented by them" (*Designing Utopia*, Michael H. Lang, 1999, p.9). His urban vision has played a leading role in the development of many contemporary planning ideals, and is evident in modernist values of form and function: "That what is most adapted to its purpose is most beautiful" (Ruskin, 1999, p.20).

The influence of Ruskin's works can be seen in the City Beautiful Movement, the Garden City Movement, the New Towns Movement, and in many of the central principles of modern planning in Western society. His beliefs in historic preservation, green belts, regional planning, a hierarchy of urban places, human scale, and craftsmanship are incredibly relevant to this day. Ruskin saw city building as an extension of the art of architecture, and therefore everyone within the city had a voice and a responsibility towards its development. Ruskin's vision of the ideal city was a pastoral setting where man and nature lived in commune. Beauty was the organic organization and construction of buildings based on need and founded on the immediate environment. Ruskin was a proponent of the beautiful simplicities inherent in the traditional practices of city planning. He thought the symmetry of architecture and urban design paltry, and he found the solution, once again, in the example of nature where patterns are repeated, but it is the subtle variations, as in the veins of a leaf, that truly create a place. Ruskin was not an anti-urbanist because of his love for the beautiful cities of the Renaissance, but he deplored the effect the Industrial Revolution had on cities, changing their purpose from places of life to places of labor. Ruskin is accredited as a guiding force in the promotion of socialism.

Garden Cities of To-Morrow, written by Ebenezer Howard in 1898, is a work that proposes how the ills of the city can be cured by returning man to nature, a recurrent theme in utopias. According to Howard, the only way to achieve this integration is not to green the city, but to return the city and many of its inhabitants, currently congested and polluted in the "vile" city, back to the countryside. "My proposal is that there should be an earnest attempt made to organize a migratory movement of population from our overcrowded centers to sparsely settled rural districts" (*Garden Cities of To-Morrow*, Ebenezer Howard, 1898, p.127). Once development pressure was relieved from the city, the old industrial city could itself become a Garden City. In order to engender broad public awareness of his proposal, Howard developed a model, what he understood as a diagram, o his Garden City. In this Garden City, 30,000 inhabitants would live in a town on the periphery of the city connected to it by rail. This settlement would function as a self-contained and self-sufficient unit (see GARDEN CITY DIAGRAMS). The Garden City would bring not only people out of the city, but business and industry as well. The farms and gardens on a green belt surrounding the city would provide food stuffs for the citizenry in addition to the goods provided by a world market. Howard believed that the farmland's



GARDEN CITY DIAGRAM 3. Ebenezer Howard's Garden CIty diagram illustrates the broad vision of an ideal city that could be replicated anytime and anywhere. Note: Regional rail connects to the Central City.

proximity to the buying public would automatically create a local market for farm goods. Howard's trust in the market economy was only surpassed by his belief that the city played a vital role in its facilitation. The overall concept of the Garden City was to combine the positive attributes of the city and the rural landscape into one entity.

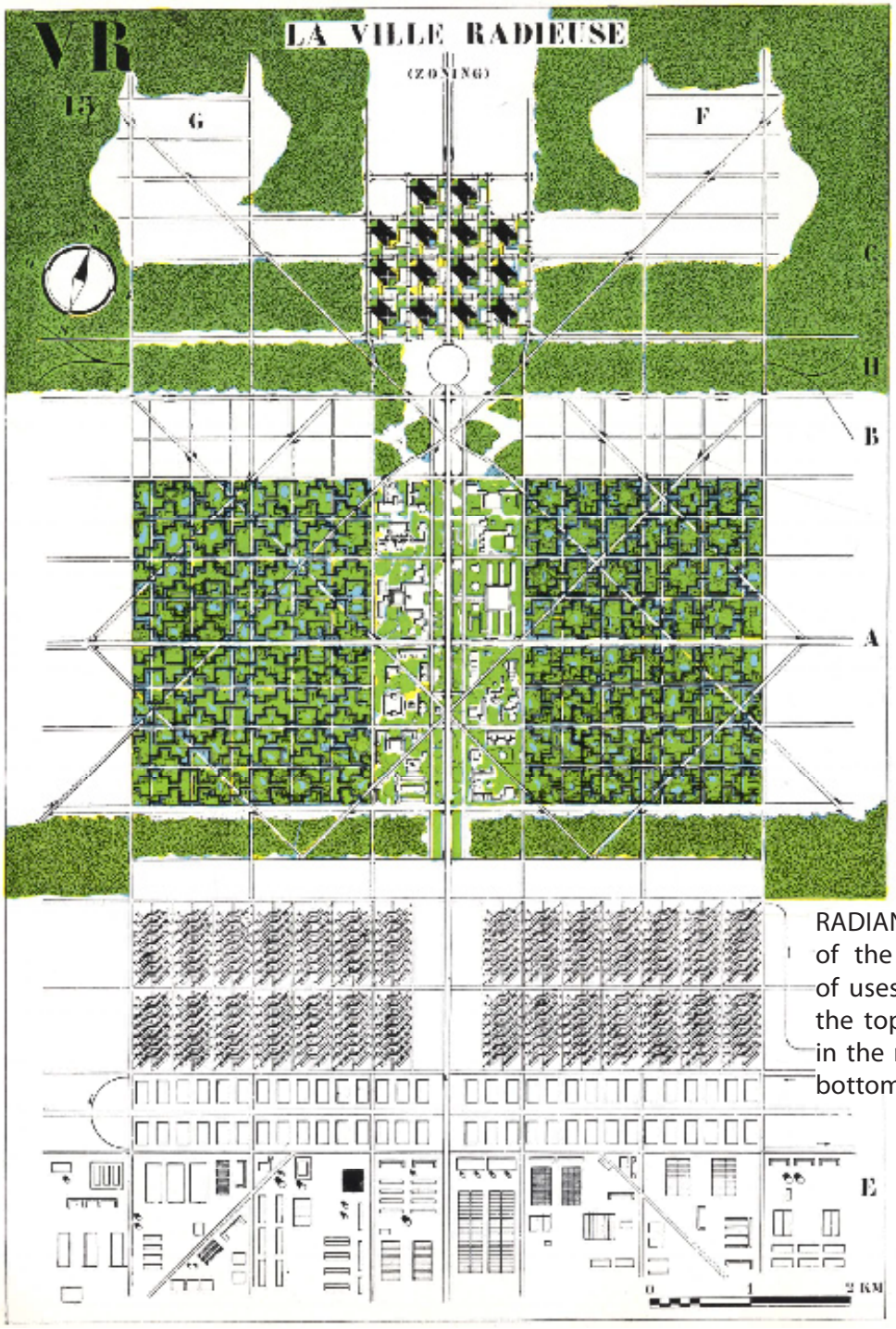
The primary public amenities and institutions of the Garden City are surrounded by a park at the center of the city. A concentric ring around the core would be residential, with an inner green belt or park promenade with schools, churches, and play grounds separating it from a second belt of residential development. An outer most ring would be suited for industrial uses with direct railroad access (see GARDEN CITY DIAGRAMS). Of the 6,000 acre site acquired for the Garden City, 1,000 acres would be allotted for the city's development, and the remaining land would be set aside for agricultural and open space uses.

While Ebenezer Howard developed a design for his utopian vision he proposed an equally revolutionary view of city governance and social interaction. While he spent a majority of his time early on proselytizing, Howard hoped from the outset to actually build a Garden City to stand as testament of a new era in development that would relieve the urban cores. In his vision, a plot of land would be bought by a private trust and developed into a city. The subsequent municipality would be deeded over to the city, and plots rented to its citizens. This rent would act as the only form of tax in the Garden City, and would be paid not in accordance with an individuals' lot size, but spread out across the entire population so that each individual pays a single fare for inhabiting the city. Between farm and town rents, there would be a sufficient amount of money to pay the interest of the original loan to buy the land, pay the principal, and fund community facilities, operations, maintenance, and programs.

Howard's system effectively proposed to rearrange and overhaul historical precedents in city governance. It would eliminate all taxes in place of a "rent-rate" system. In his envisioned system, the city would own all the land. This pseudo-socialism model might have been mistaken as communism if Howard had not been such a proponent of the free market, as his plan was contingent on private investors making the initial land purchase.

The concept of the municipality as sole landlord reflects social tendencies intrinsic in the plan. Howard sees the whole city as one, and based on the common ownership of the land, this cooperative is responsible for the health, safety, and welfare of the citizenry. Each individual would have a stake in the entire community and this, coupled with the design of the city and its role in the region, would breed a sense of community. The Garden City community would be orderly and law abiding not by force, but by this sense of individual duty imbued in communal sentiments. Furthermore, in his design, Howard allots land outside of the outer ring of development for institutions of a philanthropic nature so that all people can benefit from the Garden City, thereby creating a microcosm of the city.

In a practical manner, the development of the city would occur in stages in accordance with the proper demand and funds. While Howard's diagram was to lead the overall design, he outlines the necessity of including a broad range of professionals in the more specific development process. "It is essential that there should be unity of design and purpose - that the town should be planned as a whole, and not left to grow up in a chaotic manner" (Howard, p.76, 1898). The combination of diverse ideas, knowledge, and ability would produce the best outcome through what is ultimately



RADIANT CITY DIAGRAM 1. This plan view of the Radiant City shows the separation of uses from the central business district at the top, to the residential/mixed-use blocks in the middle, and the industrial uses at the bottom.

an incremental process. In so doing, the function and symmetry of the early stages of development will easily merge with those of later developments, creating an ever-changing and more extensive physical and social connection.

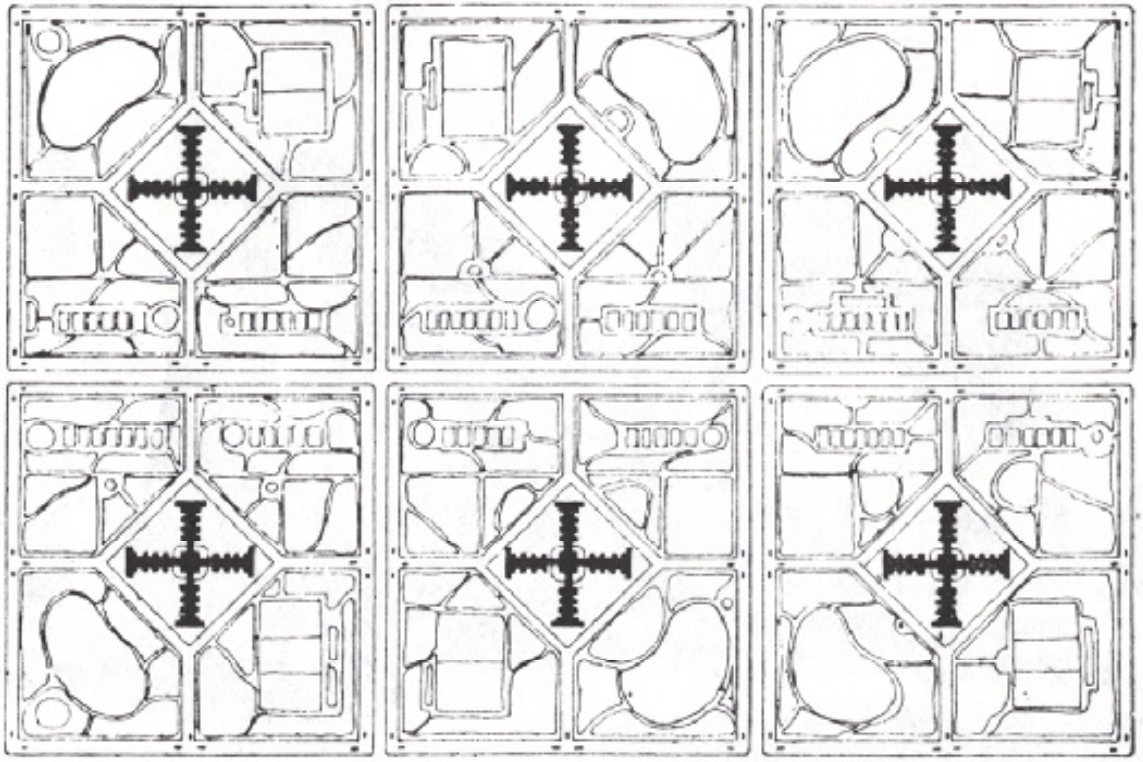
While Howard's proposals concentrated on dense, clustered urban development surrounded by vast tracts of open space, it ultimately promoted suburban-style living as an alternative to the inner cites. His persistent denunciation of the city in favor of the Garden City made rehabilitating the city taboo, and building anew outside of the city the only conceivable solution. At this point in London's history the city was justifiably deplorable, but the trend in development that spun off from this concept only intensified the problem by consuming the open spaces and farmland that the original concept sought to preserve. So without following the guidelines set forth by Howard, his vision quickly turned into a sprawling of the urban centers into the countryside. The great urban exodus into the rural abyss resulted not in these distinguishable Garden Cities, but the amorphous blob of suburban towns.

What went wrong was more than the inability to institutionalize this type of new development, but the basic social principles tacit in this form of psychical determinism. If Howard's clustering of Garden Cities around the periphery of the urban center was genuinely realized, it would still have resulted in a new ring of concentric development on a metropolitan and regional scale. Most people want open spaces and fresh air, they do not necessarily want to farm or be fully detached from the city. The people wanted the suburban archetype, but they did not necessarily want to be responsible beyond themselves and their immediate families. The green belt enveloping a concentrated center of development is the core of the Garden City, and without it, there is just sprawl.

Towards a New Architecture, written in 1931 by Le Corbusier, was the manifesto of the emerging architectural tradition now known as modernism. When he wrote that "architecture is stifled by custom" (*Towards a New Architecture*, Le Corbusier, 1931, p.73), Le Corbusier sought to break down all previous traditions in architecture and planning to reduce them to a new form. Le Corbusier sought to push the imagination of all of humanity and create a new way to live in our built environment in what he called "the modern age of man". His intense belief in physical determinism is evident in his utopian vision know as the Radiant City.

In *The Radiant City*, Le Corbusier focuses on creating a city and society that adheres to the principles of the machine age. In an industrialized society, the organization of our cities must be reordered to provide light, air and open space for each individual. His critique begins with the family unit and then extrapolates the needs of the city based on this family, its independence, and its freedom. This focus was a purely architectural solution applied to a planning dilemma of the greater city.

This city would be set on top of pylons, *pilotis*, which would create an uninhibited ground plane for pedestrians. A pedestrian would be free from all other forms of traffic for 400 by 400 meters blocks. At the edges of these blocks, the elevated highways and the truck and street car routes underneath would provide separate transportation corridors for each mode of travel. The city would be divided and separated into commercial, residential, and industrial sectors, and connected by the elevated, arterial highways (see RADIANT CITY DIAGRAMS). Centered around the automobile, the elevated highways would feed into parking lots directly adjacent and hovering above the large public open spaces. These open spaces are common around all grouped uses including the large residential towers, office blocks, and industrial factories and workshops. Each tower would have a service



RADIANT CITY DIAGRAM 3. A plan view of the Radiant City's Central Business District illustrates a limited building footprint on vast open spaces. This "city in the park" concept was the ideology behind the disastrous urban renewal and public housing projects that have become synonymous with modernist ghettos.

entrance to provide supplies for the cafeteria, social services, and businesses within each tower. Most of the services (schools, libraries, and recreational facilities) are contained within the vast tracks of open spaces. Other social services and small businesses were located within the buildings at the middle floor of each tower.

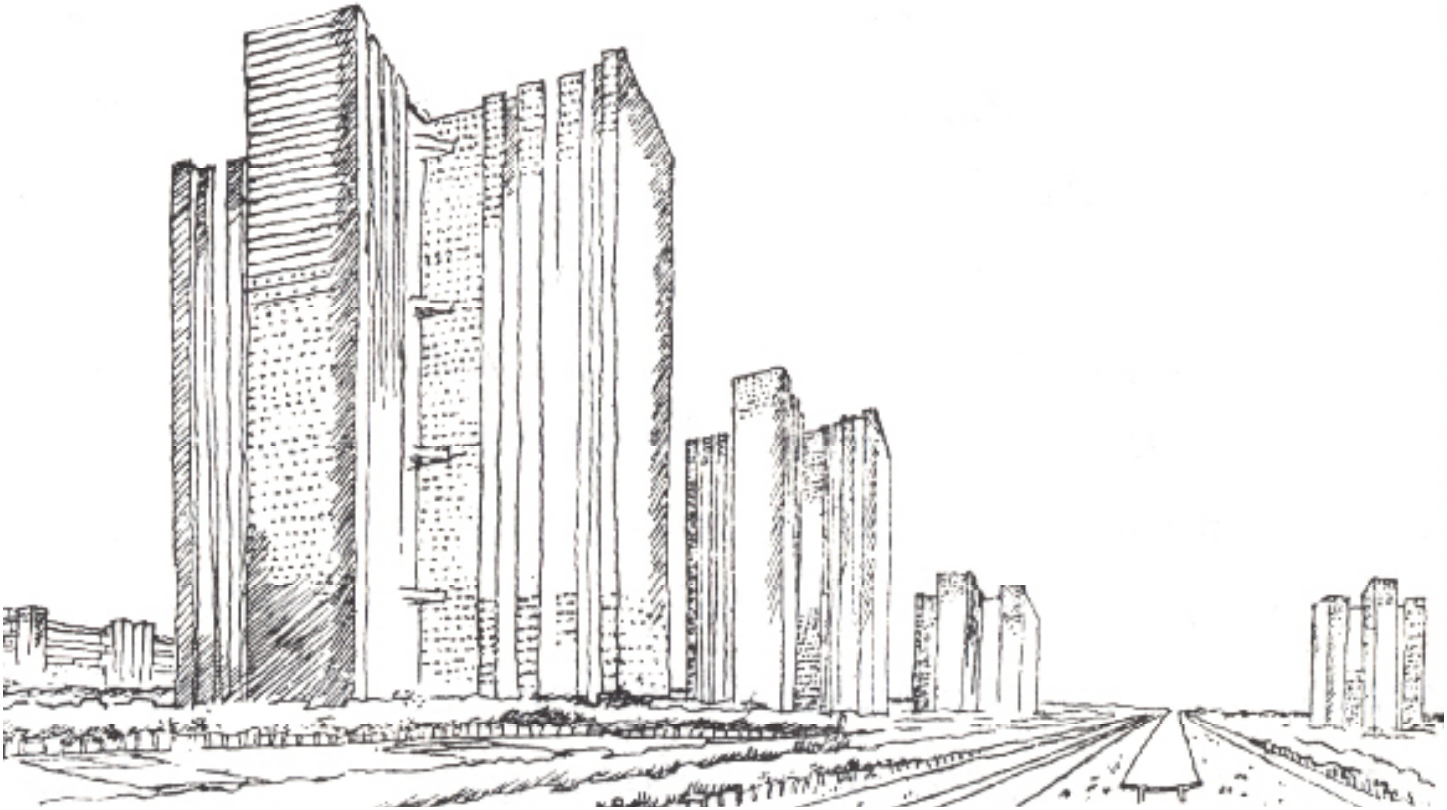
The Radiant City was the defining utopia of the modernist movement, and it had profound effects on planning theory and practice. It delineated the separation of uses, the separation of transportation modes, and the rational quality of pure geometrical shapes that projected the interior plan on the exterior. "The plan proceeds from within to without; the exterior is the result of an interior" (Le Corbusier, 1931, p.178). Le Corbusier saw the house as a machine for living, and the city as a machine for humanity's progression. His obsession with science and technology led to what he believed was the simplification of architecture through the use of steel and concrete. He sought to expand the modern age of man to all of humanity by constructing his utopia over and above the existing context.

The Radiant City provided an alternative to the chaotic city of the early twentieth century. The "tower in the park" was seen as a pure, clean, and efficient form of development within this modern context. "Instead of horizontal garden cities, we have created vertical garden cities" (*The Radiant City*, Le Corbusier, 1933, p.57). Le Corbusier rejected the idea of fleeing the city and felt mass production was a valuable development in the modern world. Instead, Le Corbusier advocated that the cities of the Industrial Revolution should be rebuilt.

The Radiant City and its proponents offered a solution for the changing political economy milieu, and accordingly caused a profound shift in priority and forms in the built environment. Central to the American realization of the Radiant City was the public housing and interstate highway system under the guise of urban renewal. The obsession with these two techniques led to an unprecedented and never since repeated clearing of "dilapidated" neighborhoods. Le Corbusier felt that the advancements of the last sixty years were equivalent to the previous six hundred, and that our modern society needed the appropriate form to facilitate its needs, thereby justifying slum clearance and the total reconstruction of inner cities.

In *S,M,L,XL* by Rem Koolhaas, principal of the Office of Metropolitan Architecture (OMA), and designer Bruce Mau review a progression of projects from a small to extra-large scale. Laced among the project descriptions and interpretations, the authors discuss architecture and planning as the product of the various constraints and contexts unique to each design. Mixed with diary entries, travelogues, and essays, the authors illustrate their grand theory of architecture. Influenced by the history of projects at OMA, the authors recognize the growth in scale of projects as an extension of the amassing of capital and the diffusion of globalization in design. While the small, medium, and large portions of the text reflect on project story lines, in the extra-large chapter, the purpose and function of the contemporary city from a uniquely European and American perspective is developed (the European born Rem Koolhaas has experiences in America, especially those during the course of writing *Delirious New York*).

"Without center, no periphery; the interest or the first presumably compensates for the emptiness of the latter (*S,M,L,XL*, Rem Koolhaas, 1995, p.1249)".



RADIANT CITY DIAGRAM 1. Le Corbusier's Radiant City was meant to improve civic health and rebuild the city for the modern age of man. With little built work in America, Le Corbusier's influence on modernist architecture and urban design radically altered the urban core of American cities. In Europe, modernist architecture was a suburban reality, while the inner cities remained upper-class neighborhoods.

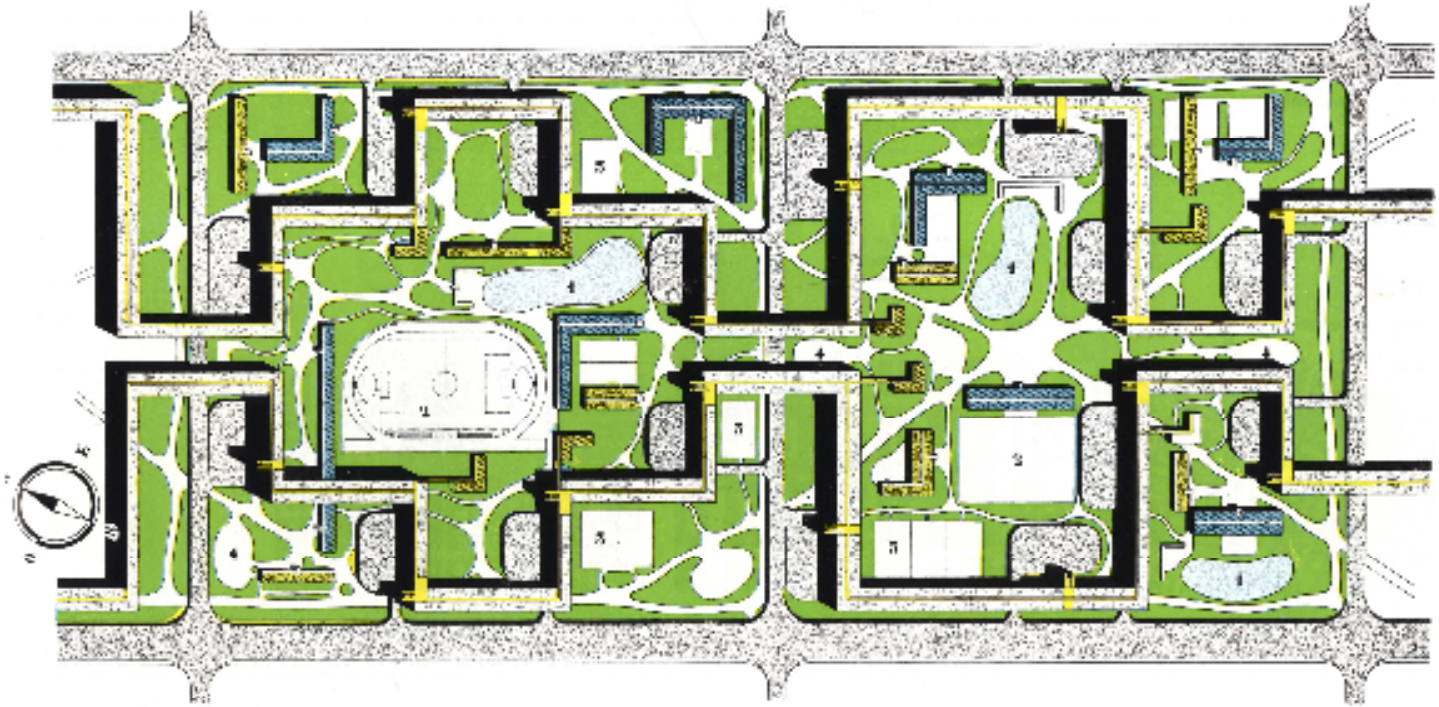
With this utopian vision in mind, it is necessary to review what has traditionally created the city. In order to create a utopian vision, the lessons from past visions must be combined and grounded within a review of historical techniques in place-making and urban design. In this manner, the thesis uses the building blocks of the city, and appropriately augments them for the new paradigm and the next era of improvements to the city as proposed in the teleportation city.

In *Design of Cities* by Edmund N. Bacon, the author interprets and isolates key development patterns and processes in the design of cities spanning from ancient Greece to modern Brasilia. Bacon argues that spaces created by the mixing of uses, vertical separation, diversity of modes of transportation, and utilizing the interrelationships among built forms are more important than the actual architecture because it is in these interstitial spaces where the public realm lies. The author consistently returns to the central idea that city design is an art of the people, and therefore the public should have a role in evaluating proposals. Although a design process that incorporates public input does ultimately result in a higher quality project, it is the visionary that provides an impetus for regional, city or site designs. "The development of an adequate hypothesis or 'design idea' of what the city ought to be imposes a severe discipline on the designer and on the nature of the design itself, but until it is done there is nothing to accept, reject, or modify" (*Design of Cities*, Edmund Bacon, 1967, p.23).

"Since designers should provide a setting for a totally harmonious life experience, the dimensions of their designs should encompass the whole of a day, the whole of a city" (Bacon, p.16, 1967). To this end, the design of cities and architecture must create tension between components that continuously stimulate and create a relationship to the individual. In addition, it is imperative that the designer design spaces not from a bird's eye view but from the view of the actual experience. Today, it is argued that this has become increasingly difficult since the designer is no longer the builder, and the medium to exchange ideas between the two are two dimensional in form. A clear course of comprehension, representation, and then realization is essential in creating an envisioned design.

Through the course of describing and deciphering the processes and influences that developed cities throughout time, several methods were identified as consistent and basic reoccurring themes in the arrangement and organization of cities. These historic examples provide an insight into successful city development and redevelopment techniques. Employed by the Greeks, but with ramifications today, "growth by accretion – space as connector" is the ordering of a building along one internal axis where an angular volume is created in relation to existing buildings. This produces an infinite variety of possible relationships among the internally oriented buildings. Prominent in Roman design and influenced by their discipline in logic and the ordering of separate uses, "axes as connectors" is the interlocking of perpendicular axes as one structure was built after the other producing a system of cross axes with a profound unifying character (see TRADITIONAL CITY ORGANIZATION DIAGRAMS).

In the later period of Rome, with their wider variety of built forms and the emergence of large scale site planning, "mass as connector", often large and circular, was employed to bind together many axes into a single composition. When the growth of cities occurred around rectangular open spaces defined by the buildings on its periphery in the medieval period, "growth by accretion – interlocking spaces as connector", an interlocking of two rectangular spaces created a connection between the internally-oriented civic space and the externally-oriented space overlooking the region that sustained the city (see TRADITIONAL CITY ORGANIZATION DIAGRAMS).



RADIANT CITY DIAGRAM 2. A closer view of the residential section in the Radiant City shows the relationship of buildings that maximize daylight, air, and open space. While the open spaces were meant to be a seamless connective tissue, the separated transportation routes and the building's sheer enormity of a recreated barrier-type condition.

During the Baroque period, which saw the advancement of the perspective drawing, "lines of tension" as opposed to volumetric form linked the scattered landmarks of old cities and defined the tensions between all of them. In contrast to "growth by tension" is the extending line of force or "growth by extension" that establishes an ordering principle from an origin out to the horizon where elements along the central axis can be added to create a network of indefinite extension (see TRADITIONAL CITY ORGANIZATION DIAGRAMS). While the history of civilization as embodied in civic design offer lessons for the future, "Each generation must rework the definition of the old symbols which it inherits from the generation before; it must reformulate the old concepts in terms of its own age" (Bacon, 1967, p.21).

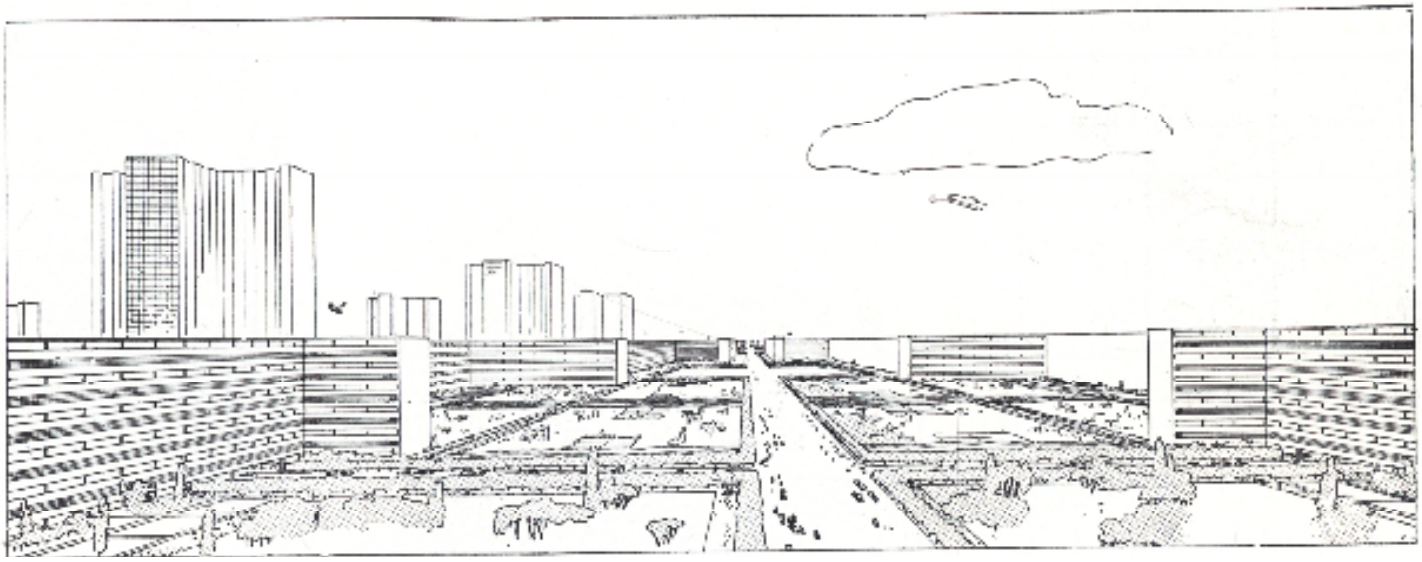
The evolution of the reoccurring themes explained above correlated directly to the ever increasing size of the city, and the need for a larger scale of organization to maintain unity and cohesion in the city. We are constantly challenged to incorporate new realties in transportation and our political economy into the very fabric of the city. "In our time cities must go through a new phase of restructuring to meet the new dimensions of regional scale" (Bacon, 1967, p.207). It is the permeating influence of modernism, Le Corbusier being the "source", which has created a detachment in architecture from the land thereby complicating the union of old and new spaces.

While Bacon asserts the true challenge is in the realization of the future with the many development patterns of the past, new town planning has provided unique insights. He contends that instead of the architecture or the plan defining the Brazilian new town Brasilia, this capital city successfully reformulates "the vision of the city as a totality" (Bacon, 1967, p.227), and therefore stands as an example of what it is to be a city of the future.

Edmund Bacon was both a classicist and a modernist. In his writings he praised the art of small-scale place-making, but most of his projects as executive director of the Philadelphia Planning Commission exhibited a tendency towards master planning. He recognized both the hierarchy of Philadelphia's alleys, streets, avenues, and expressways, and the necessity to clear land for large scale projects like Independence Mall. While he exhorts the historical city, he understood and sought the proper design of the city at a metropolitan scale. His vision of a linear city that culminated along Market Street is indicative of an effort to perceive the city from the automobile. His modernist tendencies to encircle the City Center with expressways combined with his teachings of traditional city forms reflects his understanding of the progression of the city. His vision for the future incorporated everything learned from the past. City planning is a constant evolution and revolution of our notions of the ideal.

To understand any course of action to be taken in the future, it is imperative to comprehend the past, and in the designing of cities this means identifying the forms that make a city. In *The Image of the City*, Kevin Lynch undertakes just such a process in order to develop urban design guidelines and principles. Lynch asserts, "We are rapidly building a new functional unit, the metropolitan region, but we have yet to grasp that this new unit, too, should have its corresponding image" (Lynch, 1960, p.13).

Through research conducted in three US cities - Boston, Jersey City, and Los Angeles - Lynch delineates five common features used to explain or cognitively map the city: paths, edges, districts, nodes, and landmarks. Paths are the avenues of movement that people use through the city that unite the experience of many other elements like landmarks and districts. Edges, which in some instances

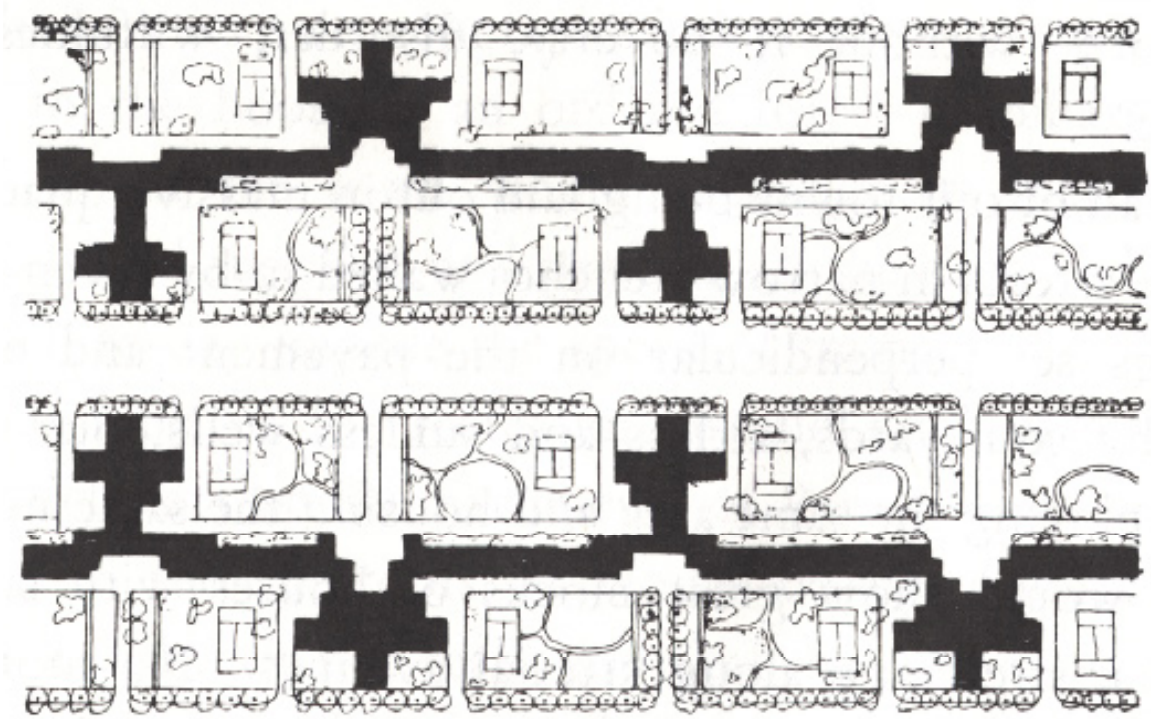


RADIANT CITY DIAGRAM 3 This Corbusier rendering shows the commercial towers looming over the interconnected residential housing blocks.

are also paths such as elevated highways, are the boundaries of the cognitive community and can either be permeable or impermeable. Edges can be the connection between two distinct districts or a disruption in continuity that essentially walls in or out experience. Districts are geographical areas of definable or similar characteristics like a linear street shopping district or a civic center. Nodes are the intersection of paths or the concentration of activity at a point. These junctions are often characteristic of the district they are within or the particular uses that are concentrated around them. Landmarks are external reference points that mark a district or a direction, and can range from a distant mountain to a local church. Among these five form elements, it must be understood that the perception of the city is relative to each individual and his experiences and history. As indicated previously, these elements are often interdependent, indicative of the complexity of the city and its built form.

From the identification of the five form elements, Lynch outlines how to increase what he calls the "imageability" of the city. For paths, it is recommended that the key lines of movement have a singular quality to differentiate them from the many other paths in the system, and that these lines should have a clarity of direction by employing a strong termini and a gradient differentiation to give the impression of progression and scale in either direction. Along the paths, objects such as landmarks or even a series of intersections that create visual exposure should be given a "melodic" organization that heightens the experience as one moves along the path. Edges are best constructed when they are laterally visible for a substantial distance with strong termini on each end (Lynch, 1960). When the edge is a connector rather than a separation of two areas, it is best to increase its accessibility and permeability into the city's overall circulation. Landmarks should sit in stark contrasts to their surroundings and be easily identifiable when viewed from far distances. They should be located at junctions, nodes, and decision points where perception is already heightened (Lynch, 1960). Landmarks are further strengthened when they have an association to them like a name or a historical event. As conceptual anchors in our cities, nodes should have a singular and coherent character surrounded by an intensity of use or placed at a point of decision. A node is more defined if it is enclosed by forms and contains a strong focal point at the center, radiating outward and even projecting some of its characteristics (plantings, materials, paving) to the periphery (Lynch 1960). Districts are both defined and enhanced by common characteristics. The research found that a grouping of small scale characteristics common to the district and not elsewhere like pavement, lighting, color, or scale is best. While districts should be strong characters in themselves, they are best comprehended when they relate to common elements in the city, acting as seams rather than barriers. Design principles should include singularity, form simplicity, continuity, dominance, clarity of joint, directional differentiation, visual scope, motion awareness, time series, and names and meanings.

City Imaging has become a way that city planners, urban designers and architects can create a narrative of a particular place. Lynch's study was a very academic analysis of how the city is perceived by the average individual on a very subconscious level. This information has become a tool in the rebirth of the manipulation of civic space. This almost subliminal strategy creates an earnest concern on who controls place-making in the city. If place-making is determined by the people within the adjacent community or neighborhood, or if individuals play a vital role in government's development or an architect's design for it, then and only then will it become truly communal. However, Lynch's reliance on the perception of an individual's experience devalues the individual's conception of the

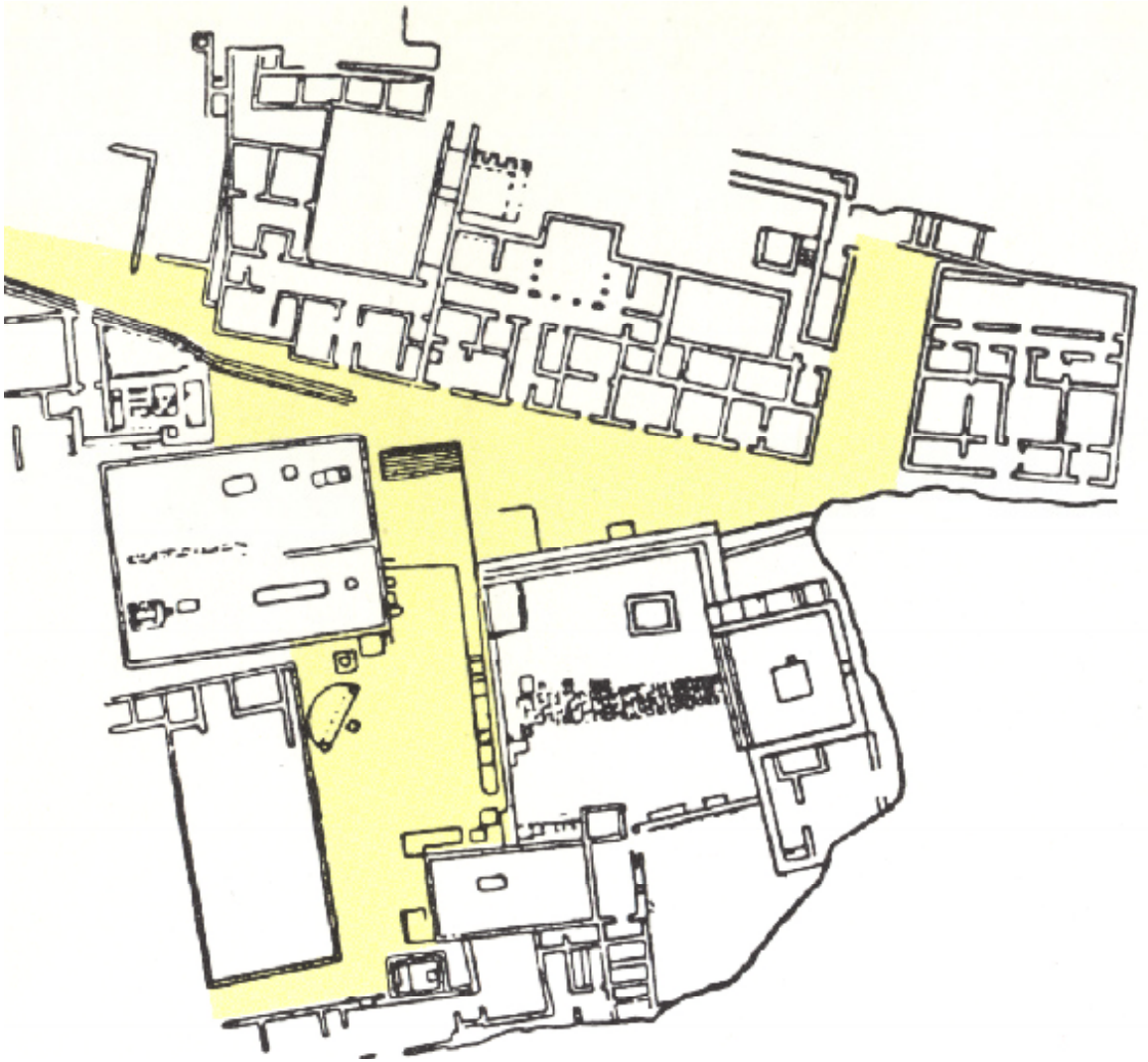


RADIANT CITY DIAGRAM 4. A plan view of the Radiant City's residential neighborhoods empasized the separation of uses and transportaiton modes, isolating the pedestrian, and expanding automobile- oriented development.

city, and it is this holistic conception that conceptual city planning seeks to employ in the creation of the teleportation city.

In *The Death and Life of Great American Cities*, Jane Jacobs develops a two-pronged approach to combat the ingrained beliefs of city planning and drastically alter it. She begins by observing and then describing the simplest of interactions along the street in order to derive some meaning from these seemingly everyday occurrences. The analysis of the city is something that Jacobs believes is devoid in the education and subsequent proposals of aloof planners, urban designers, and architects who had been taught to vilify the city and its forms in favor of open spaces, pure geometry, and the expansion of highways to rectify transportation needs. She posits that the most successful cities are those that embrace and facilitate the organic diversity of complementary and ancillary land uses. However, a planner's plan or a designer's design alone will never create the synergy as identified in the successful areas of the city (Jane Jacobs, 1961). The four essential and interdependent elements in developing synergy through diversity include primary uses or mixed uses that ensure constant activity throughout a day but whose citizens can share common facilities, small blocks that create alternative paths, preservation and re-use of "aged" buildings, and a sufficient concentration of population. Jacobs contends that to simply recreate existing, physical forms of successful neighborhoods and communities would be "An exercise in architectural antiquarianism" (*The Death and Life of Great American Cities*, Jane Jacobs, 1960, p.140). First we must understand the behavior of the city, identify what principles we want in our city, then examine the economic factors that have enabled our desired goals to facilitate the recreation of these conditions (Jacobs, 1960).

Jane Jacobs and her writings were heavily influenced by Modernism. *The Death and Life of Great American Cities* was a reaction and denunciation of modernism and its effects on the built environment and the city planning profession. Jacobs successfully advocated against the construction of a highway through her neighborhood, and in doing so helped launch the preservation movement. While she viewed what she was attempting to preserve as the result of an "organic" development of cities, this view neglects the cause and effect relationship of any development or planning ideal on the city. The urban renewal movement, a product of modernism, was no less organic than any previous development trend. Within the evolution of cities, any planning ideal, regardless of its implications or results, is no less organic than another. The resulting sterility of housing projects and interstate highway systems stands as a lesson for future generations of planners. The vibrancy advocated by Jacobs and the means to attain this condition is a product of modernism, and should be recognized accordingly.



TRADITIONAL CITY ORGANIZATIONS DIAGRAM 3. Commonly seen in ancient plazas, the orientation of individual buildings creates a vernacular open space.

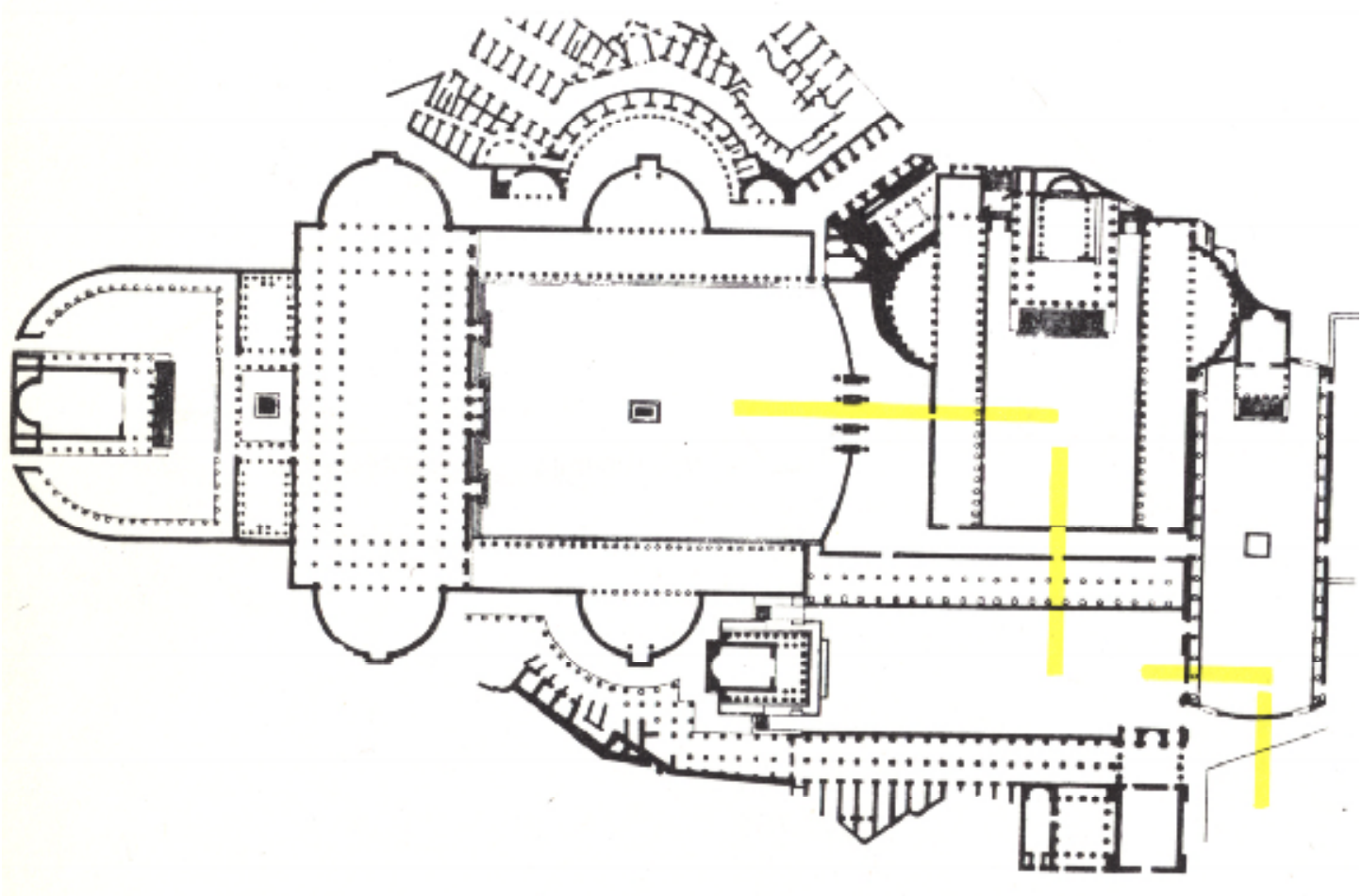
CHAPTER II: LESSONS FROM UTOPIA

The Garden City, *Radiant City* and *S,M,L,XL* all propose relative visions of a paradigm shift in the society of their respective ages. Each framed the ills of society, envisioned a cure, and true to their faith in physical determinism set out to change the human built environment and subsequently human behavior. Howard saw overcrowded, dense urban cities and set a course to develop a gradient between rural and urban, thereby developing the suburban ideal. Le Corbusier took this ideal, and injected it back into the city. *The Radiant City* illustrates a way in which human civilization could rebuild cities to create a typology where there is no distinction between urban and rural, that the city would be both, and in this fashion could be built rationally and indefinitely. Rem Koolhaas comes from a city (Rotterdam) that has an identity crisis. From this city of individual utopian architecture projects, you have fundamental and conflicting differences in the principles of adjacent sites. Rem Koolhaas, is therefore, more concerned with what a building says then how it performs. This architectural competition can only be placated by first implementing a utopian vision of the city. Utopianism must occur at the civic level so that architecture can have an ideological base to form its content. The historical context of each vision illustrates that "in times of general dispersion and separation, a great idea provides a focal point for the organization of recovery" (*I Ching*, 1950 edition, p.230).

Ebenezer Howard acknowledged, "It is obviously always easier, and usually far more economical and completely satisfactory, to make out of fresh material a new instrument then to patch up and alter an old one" (Howard, 1898, p.77). Although quite true, these old instruments are inhabited cites with deep historic, cultural, social, and economic roots that are not easily abandoned, and should not be dismissed, but rehabilitated and reorganized to meet the needs of our changing society and political economy. Instead of leaving them behind or erasing them completely, we must appreciate our historical cities and adapt then expand them to meet our contemporary needs.

Howard's belief in a multidisciplinary and incremental process was a change in utopian visioning. Most utopias are singular in vision, creating an arrogance and stubbornness in the compromise of the overall design idea. Howard did have a unique vision, but his vision was a mere diagram for a proposed future, not a definitive plan. He believed this plan could be translated into a reality by the professionals that would join in such a progressive endeavor. Howard understood that the design needed logistical and financial support, and it was this freedom to translate the plan that made it successful to build and successful as an idea.

Perhaps Howard lacked the imagination to see that his vision would amount to yet another belt of development around the inner city. But if future growth was funneled into new towns to adhere to his population and land area limits, there would be nothing but Garden Cities throughout all of England. We must think beyond this scale, and anticipate the future based on past trends. We must limit and contain our built environments geographically in order to preserve agriculture and ecological diversity indefinitely, while realistically leaving space for the growth of cities. We must continue to realize the efficiencies of cities, and promote the consolidation of our built environment



TRADITIONAL CITY ORGANIZATIONS DIAGRAM 2. Common with ancient Roman, rational architecture, the progression of space to space in a perpindicular fashion opens and closes the views of public spaces, revealing a new expereince literally around each corner.

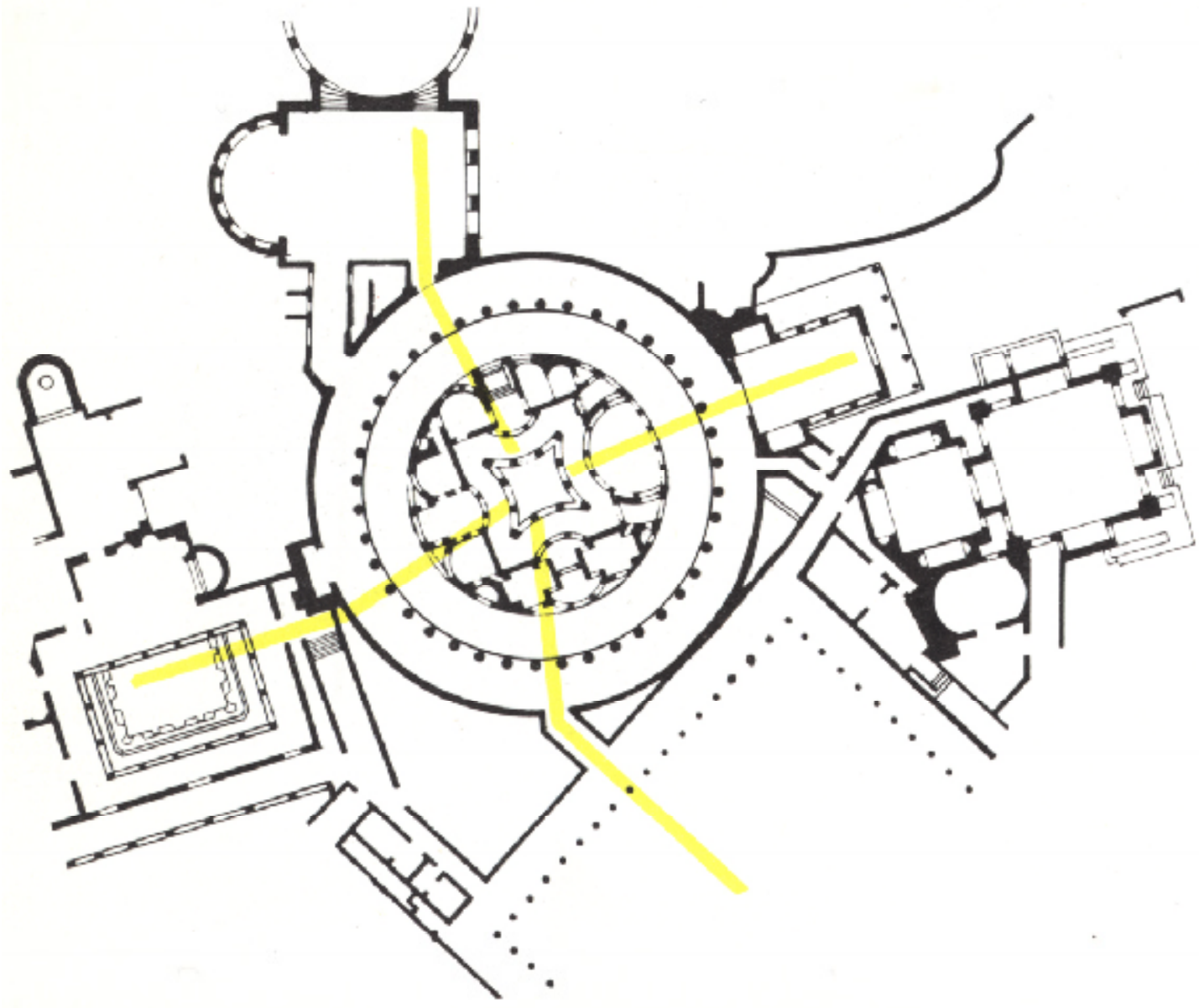
from a vast agglomerated expanse into dense urban cores. City's should contain the footprint of civilization, not expand until every inch of the planet is either city or green belt.

The most important aspect of Howard's plan was that he envisioned his Garden Cities to be a paternalistic political and economic society. While advocating self-sufficiency, the governance of the city and the means to which it maintained itself had an inherent layer of equity. The city would support its citizenry and ensure its well-being. His rent-rate and city government as a planning administration body proposals created an order for the maintenance of the plan. His vision intended to create harmony amongst its citizens, but ultimately denied the basic human instinct and need for change. Howard's plan was unique among other utopian visions, but like others, the proposal of an end is its shortfall. Welwyn and Letchworth, two towns built according to the Garden City diagram, slowly became suburban commuter towns, and the city continued to be the location for work, culture, and entertainment. While Howard created a nice place for city people to live in, a self-sustaining society is one that can access all the benefits of both rural and urban life, and this must be done on a regional scale, not in self-contained centers. What was intended to be a multi-centered society instead became a hierarchical ordering of communities with the central city as its focal point.

Le Corbusier believed that cities = house = man. In *The Radiant City*, an adherence to true individualism would create communal cooperation and freedom for all. But a house is more than one man, and a city can be millions of men. One man's individuality is certainly not equal to a city of individuals. I believe that city > house > man. In this instance, the greater good outweighs the individual's good. In the end the greater good is the individual's good because it creates a better overall built environment and community, albeit at the minimal and impermanent cost of the individual good.

Designing a city around a single individual is disastrous because it develops the entire infrastructure of a city for one man. It creates the need to build a capacity for millions of individual paths, and this inherently causes redundancy and the realization of an infrastructure system built for the maximum output (rush hour or Christmas day parking lots), not the average traffic flow. Historically, cities created common lines of travel and it is on these communal paths where true cooperation occurs. Le Corbusier extrapolated a city from the individual. Instead, the city should be seen as a sum of individuals, and then deduced to each individual component. Le Corbusier created a solution for everyone without acknowledging the desires of those individuals. *The Radiant City* was a top down approach to reform the city, and the people ultimately revolted against this. The urban renewal movement gave impetus to community based planning, which builds individual neighborhood plans into one coherent city policy.

The Radiant City solidified the role of the automobile to the point where its accessibility supersedes one thousand years of pedestrian cities. *The Radiant City* sought to give the automobile its own infrastructure that was separate from the pedestrian. In this scheme, the pedestrian would have the entire ground level to his/her use. However, what was not foreseen was that increasing the freedom of the automobile decreased the freedom of the pedestrian. The individual, bestowed the freedom of the automobile, will use that automobile to move from destination to destination. This door-to-door service means that the entire street network must adhere to its need. The implementation of the Radiant City did not and could never meet the exact criteria of its utopian vision. This resulted in more congestion, more wasted open space, and communities detached from one other.



TRADITIONAL CITY ORGANIZATIONS DIAGRAM 1. A circular rotunda can unify various spaces and uses throughout a complicated plan.

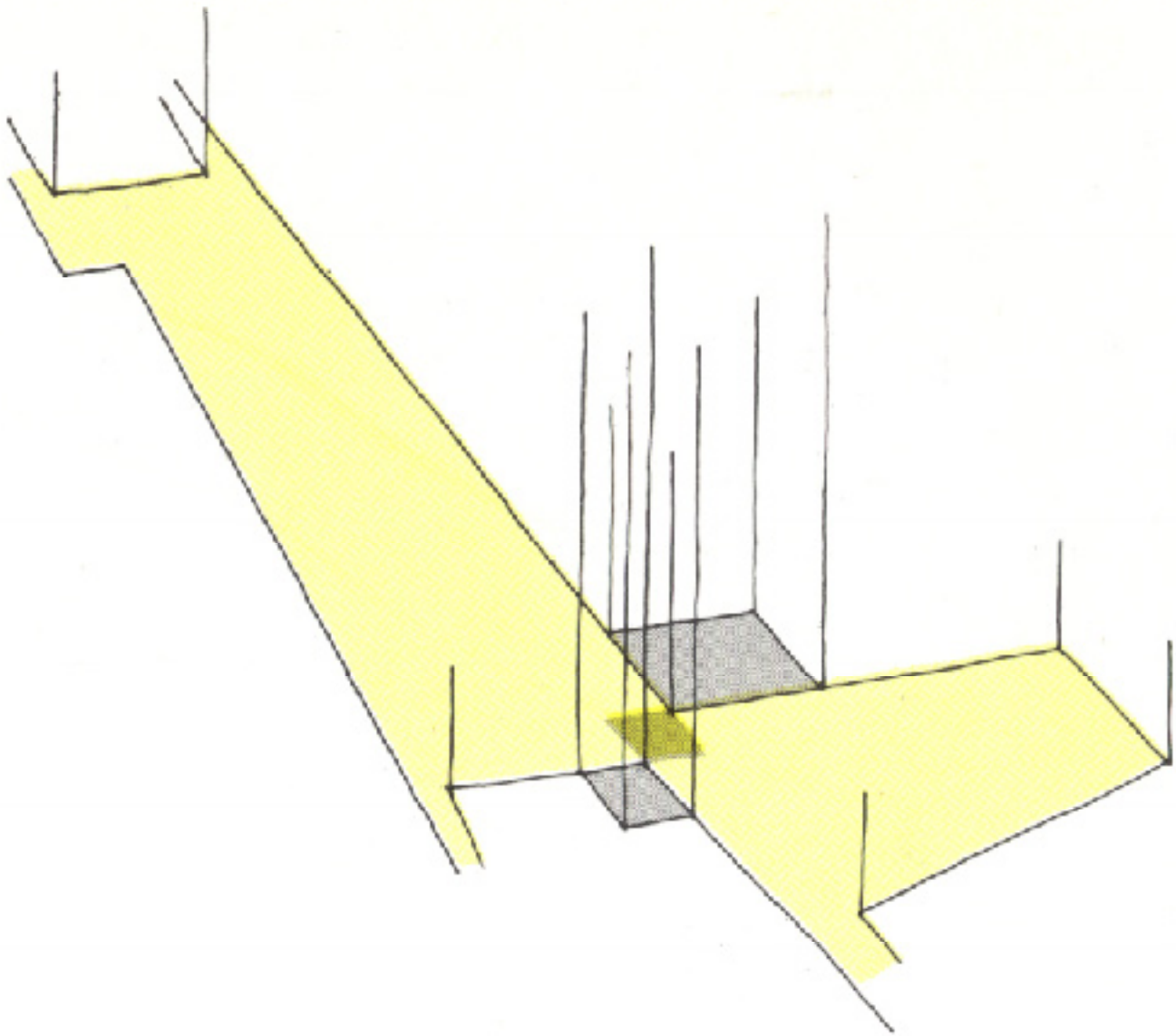
What was not anticipated was the physical barriers that raised highways have become. Instead of places of free movement, these above ground corridors created vast wastelands underneath them that were devoid of light and air. As seen today, these elevated highways are not only physical, but psychological barriers that separate communities. Truck routes and street cars underneath would only intensify the boundary condition of the elevated highways, creating not freedom for the pedestrian, but enclosure and isolation. What can be learned from this model, built in various forms across America, is that a close proximity to the street is a crucial part of the human experience in cities. To share this experience with as many people as possible increases interaction. Streets are not just functional paths, but the most prized urban open space in the city, and community interaction is increased when human activity is channeled into these public corridors.

In the Radiant City, each block is the same. There is no differentiation in the city, and this breeds confusion. There is no sense of place, only an endless expanse of equal and identical 400 by 400 meters blocks. Variety in the city is what creates vitality, not monotonous architecture and the rot of highway travel into and out of the business district. There is no identity, and therefore no connection amongst the inhabitants to their built environment. A utopian vision of the city should concentrate on the planning and grouping of uses, infrastructure, open spaces, and public amenities, and leave architecture to the changing styles of society, correspondent to its changing needs and function.

When the modernist planners began to clear blight and build anew, their forms and designs were intended to reintegrate the city. By this, they meant to bring the people who were at the time fleeing the city for the suburbs, generally the white middle and upper classes, back into the inner city, but what they did not understand was the social fabric that already existed in these "blighted" areas. In the implementation of modernism, the betterment of the housing unit and the increased freedoms provided by the individual automobile were believed to be central components in the betterment of man. The focus on housing and the automobile led to the construction of a plethora of public housing projects, a concentration of poverty, and the development of the interstate highway system. Today, housing and accessibility remain central components in any neighborhood revitalization project. However, with the failure of public housing in America emerged an understanding that the city is more than a grouping of many individuals; the city is a community. The construction of the highway system highlighted the effect transportation has on land use. These lessons allude to the hypothesis that to implement the utopia, it is mandatory to develop a holistic strategy instead of a site specific injection into the urban fabric.

In the past decade or two, there has been a repopulation of the inner cities in America. Instead of being coaxed into the city by towers in the park, people have found a connection to the very thing that once drove them away. It is the active street life and the gritty togetherness of the city that has become so attractive and lucrative. It is the dull monotony of suburban life and increasing commuter times that has driven them back to find culture and first hand interaction. Planners must find ways to accommodate and then keep the influx of population while maintaining the city's diversity and mitigating the displacement of the poor by gentrification. Throughout history there has been an attraction and repulsion of populations in and out of cities, and for the progression of society we must maintain the current momentum towards the city and sustain it. The ideal city can be both urban and suburban, but more importantly it can be one, unified entity.

"To make a plan is to determine and fix ideas. It is to have had ideas" (Le Corbusier, 1931, p.179). When



TRADITIONAL CITY ORGANIZATIONS DIAGRAM_5. This more informal type of open space is created from the connection of two separate urban open spaces through a third, usually covered open space.

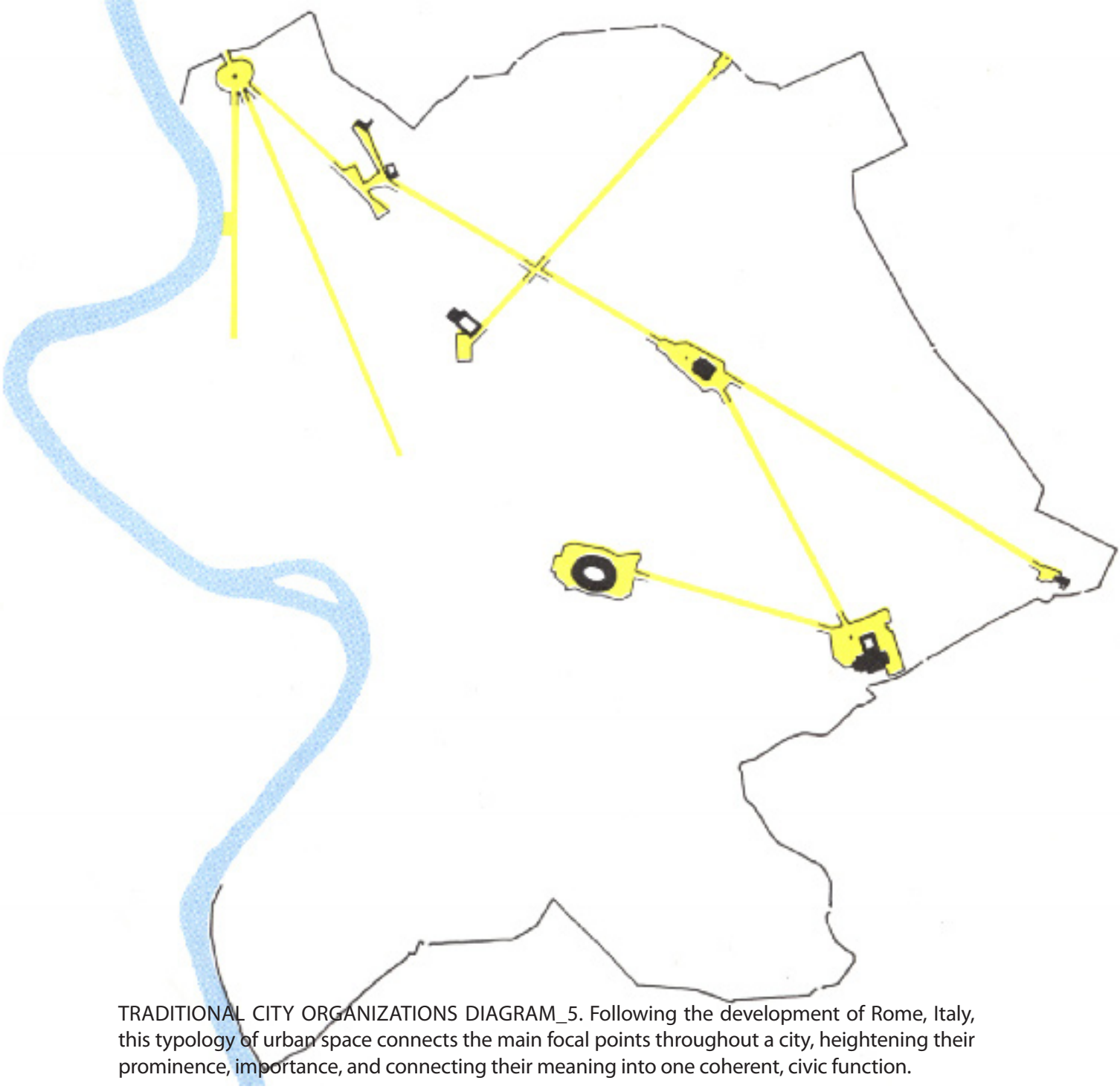
Corbusier developed the Radiant City, its power was that it was an illustrated vision. As a theoretical conception of the city, utopias are powerful generators of thought, policy, and eventually action. Crucial in this lesson is that a powerful vision does cause real change in the built environment, and although a utopia is an intangible idea, it has tangible ramifications. "We should resist the attempt to idealize the city because idealizations are about control, visual sensibility, and spatial distance" (Civitas/ What is City?; Thinking the City Multiple, Edward Robbins, 1998, p.38). From this perspective, the utopian vision must adhere to its potential of being built. In order to prevent stagnation in the plan of the utopian city, its pure concept must allow for translation and adaptability as a diagram for progress. The purpose of the utopia is to generate new conceptions of the built environment and add new layers to the city.

In *S,M,L,XL*, we can begin to formulate the vision of a future city that is devoid of a plan, and is instead an agglomeration of massive, hyper-active architectural functions layered on top of one another. Koolhaas declares, "Megastructures spell the end of the pristine volumes of modernism (Koolhaas, p.1069)". Taking cues from Delirious New York, the type of monumental architecture that contains relatively banal functions is a product of capitalist society and its grid plan. If then, the grid can produce the architectural mega-structures of the future, then the design of the circulation system and the proportionate allotment of development plots are critical in the creation of a monumental society flexible enough to conform to changing needs. Although utopian architecture seems to act independently from and supersedes its context, it still sits within a larger plan for development. The intent of the plan, like the Manhattan grid, ultimately shapes the resulting in-fill development and therefore makes it conform to its own inherent ideological principles.

The principles of relativity are inherent in a utopian vision of the city. Relativity is a state of dependence in which the existence or significance of one entity is solely dependent on another. So, our needs and desires of the city are unique as the individual within the city. Therefore, this one city has something for every person within it. And knowing this we can better program and update the city to craft it for our elected, communal goals.

We know how to build the city, the only question is one of arrangement and distribution to maximize our goals. Capitalism pervades throughout the built environment in that we physically manifest these tools and technologies to maximize our gain. Underrepresented in this economic equation is the value placed on metaphysical gain.

What is important for utopias is that although often not fully realized, utopias serve as lessons to test society's limits as well as encourage a natural progression towards unity. Although this unity in utopia appears homogeneous, utopias are meant to be bold statements in order to permeate into the public consciousness. This then allows it to be translated into every nuance of every context.



TRADITIONAL CITY ORGANIZATIONS DIAGRAM_5. Following the development of Rome, Italy, this typology of urban space connects the main focal points throughout a city, heightening their prominence, importance, and connecting their meaning into one coherent, civic function.

CHAPTER III: Conceptual City Planning

The comprehensive planning process is imperative in creating a conceptual city model. While the planner facilitates this public process, his/her own ideals remain only a guiding role. Once completed, the comprehensive plan's stated goals and objectives are only written words that can be interpreted with action. To make this plan more literal, and to extrapolate its goals and objectives into a three dimensional model of the city is the conceptual city model. The comprehensive plan informs the design and bulk of the conceptual city model, effectively creating a master plan born from the entire community.

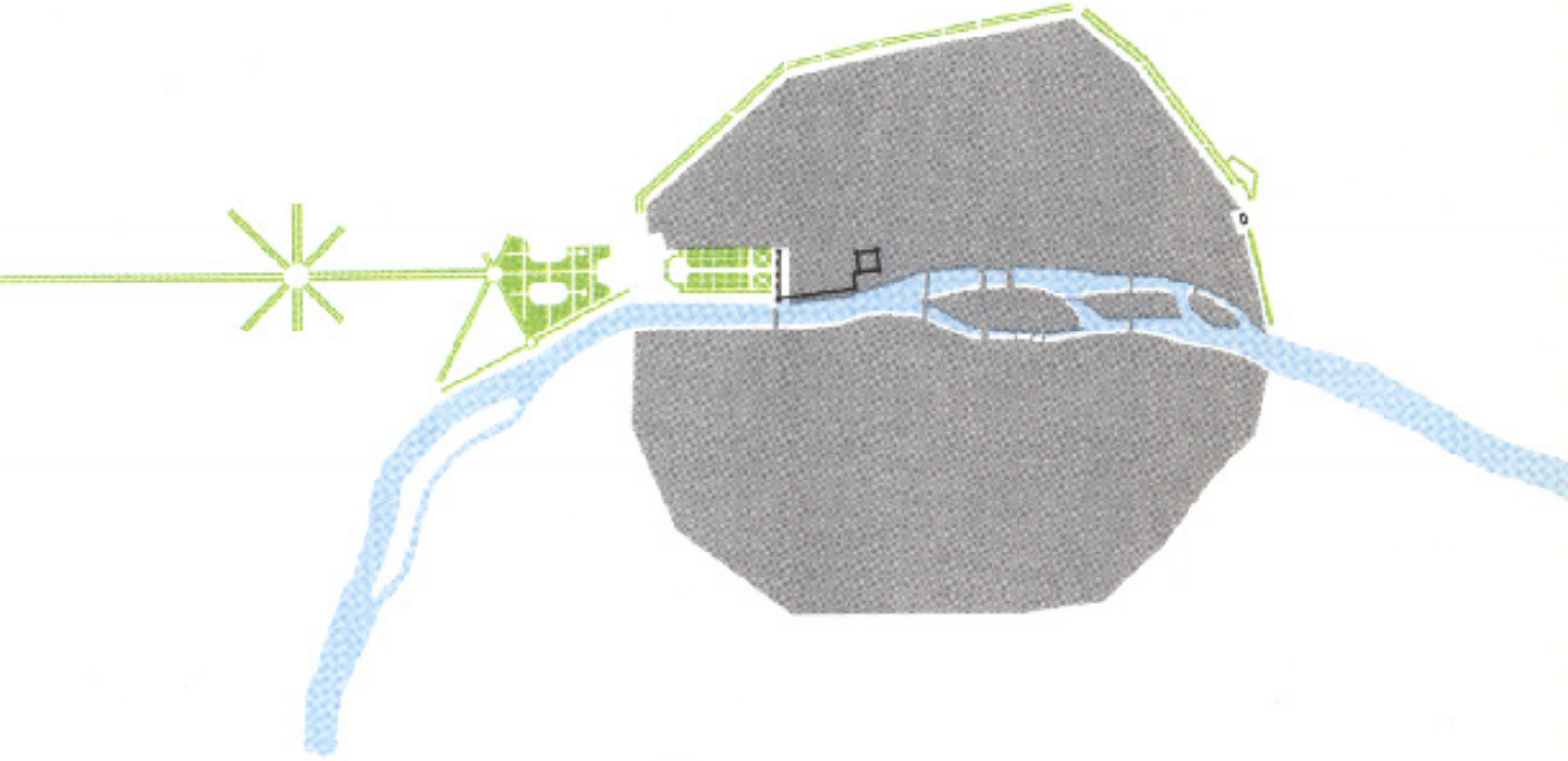
"Entire cities have to be constructed or reconstructed, in order to provide a minimum level of comfort, for if this is delayed too long, there may be a disturbance of the balance of society. Society is an unstable thing and is cracking under the confusion caused by fifty years of progress which have changed the face of the world more than the last six centuries have done" (Corbusier, 1931, p.101).

What is most needed in the city is to take the driving concepts behind city building and develop a physical plan of action. The comprehensive plan is a community-based initiative that develops a strategic vision and public policy for the continued development and enhancement of a city. What is lacking in this approach is a design and visualization of what the stated goals could and should look like. This visualization of goals and objectives could guide city development into a more harmonious and sustainable pattern (SEE Conceptual City Model diagrams). Every city can develop a unique identity and approach towards the realization of their goals via conceptual city modeling.

The location of the city and its conceptual city plan is directly related to the geography, topography, geology, and environment of that location. The ecology of a city has the greatest, and most direct influence on the citizenry's goals, objectives, and policies. For coastal cities, the form of balance, and its inherent meaning create a separate design for the city that maximizes land uses, transportation, and open spaces. A city that is located at the foothills of a mountain range like Denver, Colorado is forced to spread along the Front Range, creating a vast linear metropolis. With no geographical barrier, the city of the plains is restricted only by its concept. To create order on the expanse, a boundary that facilitates a purpose becomes necessary. Human intervention responded to the geographical situations in the coastal and mountain city, but on the plains, the city must have a self-imposed boundary. The purpose of conceptual city planning is design through public policy.

A. MODELING A VISION OF THE CITY

The conceptual city plan is a model that expresses the desired end state of the city. To harness these goals and extract a particular design or form will assist the visualization of the abstract goals into a concrete objective. By embodying the plan of the city in a design which adheres to its principles, a specific identity and form is branded for that metropolitan region. For the citizens, developers, and leaders of the city, the conceptual city model is a clear, overall aesthetic of the city. This thesis proposes a fundamental change in regional planning through the clear illustration of an idea, capable of capturing the imagination of everyone within the city.



TRADITIONAL CITY ORGANIZATIONS DIAGRAM_4. An extending line of axis projects the glory of a central core or function out into the city, creating new centers as it meets other extending, symmetrical, and diagonal lines in a symmetrical and infinite network.

What we have done with our cities prior to this moment has been a function of our needs, of supply and demand and of beauty. The development of our cities must change from the maximization of economic gain to a tempered, wisest use of economic, social, cultural, ecological and metaphysical benefits. On a metropolitan scale, cities must create a regional identity that showcases the strength and purpose of its political economy, government and people.

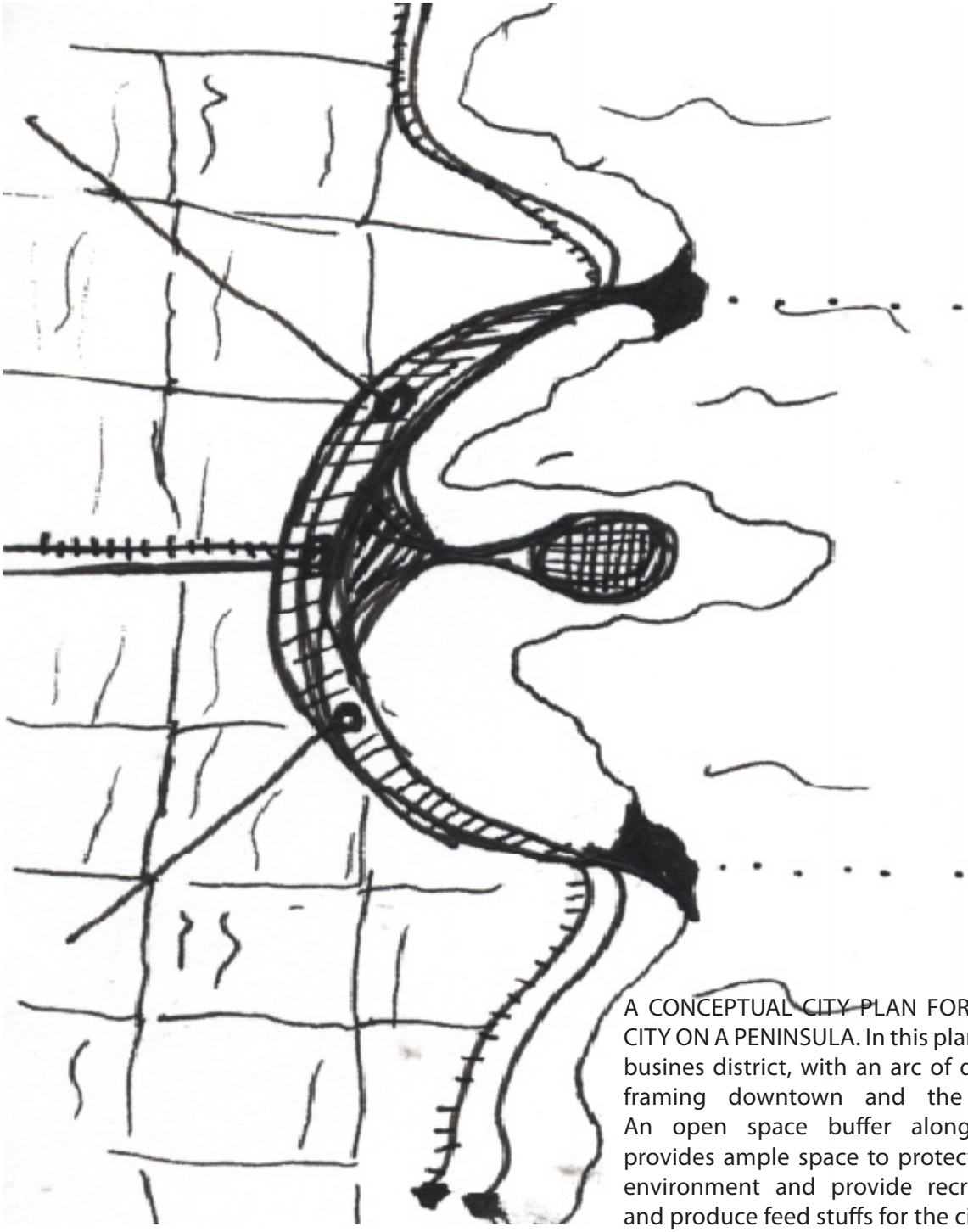
The justification for conceptual city modeling and the design of the teleportation city lies in the understanding that the established form of the current city is irrelevant from the traditional justifications of urban form. This new paradigm in city design is one shaped by the concept yet responsive to the context (topography, climate, ecosystem). While the location of cities has their own unique historical justifications, those justifications (trade routes, protected harbors, defensible position, etc.) are rendered immaterial for the city's future development. Now that tradition has established the city's location, the reorganization of its form to meet contemporary demands is completely open to new ideologies and typologies.

B. A METROPOLITAN TOOL

"The city is in itself a powerful symbol of a complex society" (Lynch, 1960, p.5). Similar to the five finger plan in Copenhagen, Denmark, which was an abstraction of the existing development patterns of that region, the conceptual city plan takes the multiplicities of the city and creates a uniform development plan that can be followed over time.

The visualization of goals and objectives acts as a guide for the city to steer development into a more harmonious and sustainable pattern. "The strength of the city plan should lie not in authority, but in the ability to influence growth" (Bacon, 1967, p.34). This process of city planning and consensus building inherently brings individuals together and fosters community in the city. Every city can develop a unique identity and approach towards the realization of their goals via conceptual city modeling. A community's composition creates a unique set of principles and goals for the city. This unique character forms a very specific response to development, urban design, architecture, cultural institutions, social priorities and governance.

Conceptual city modeling does not create a precise design for every aspect of the city, but sets the overall development within a framework that both establishes a layout capable of embracing the vernacular development of places, and creates an appropriate hierarchy that is distinguishable, therefore navigable and easily conceptualized by all. This is a planning initiative that seeks to bolster the diversity of an entire region, equally promote all of its growth, and guide that development into a coherent, efficient, and socially cohesive metropolis.



A CONCEPTUAL CITY PLAN FOR A COASTAL CITY ON A PENINSULA. In this plan, the central busines district, with an arc of development framing downtown and the waterfront. An open space buffer along the coast provides ample space to protect the marine environment and provide recreation uses, and produce feed stuffs for the city.

CHAPTER IV: AN INTRODUCTION TO TELEPORTATION IN THE CITY

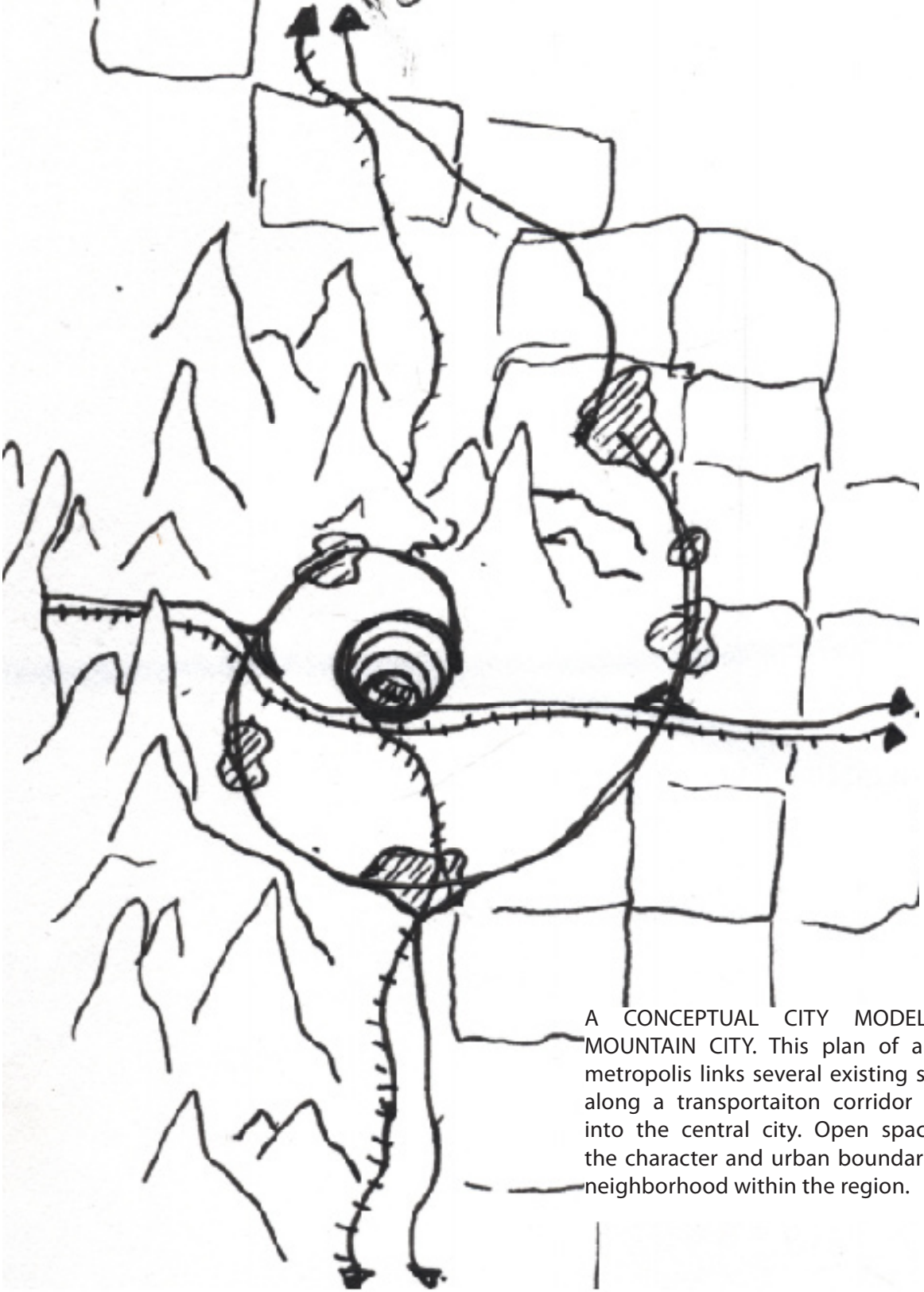
The recent proliferation of sustainability ideology in the world alludes to an economy that is increasingly efficient. This all-encompassing term includes environmental, economic, logistical, and consumptive (zero waste) efficiency. In particular, this efficiency concerns the production and delivery of goods and services. The emergence of private transportation businesses that guarantee increasingly faster delivery times will ultimately lead to the instant access of goods and services. Teleportation is the conclusion of this increased efficiency. Teleportation is the instantaneous delivery of goods and services through the process of in one location and reatomiazation at another location. This could be a technology that is introduced into the home as an appliance for transport, or a personal device that can move thoughts, ideas, or the actual person to any desired location. Essentially, teleportation is like a matter fax machine, except it does not require an end transmission unit. With the removal of transportation logistics, the built environment will transform back into a pedestrian city. Without the function of transportation, the city and its vitality will be determined not by convenience, but quality of life.

> "We need a definition of the modern consciousness. Without it we cannot keep any clear image before us of the man for whom we are building the modern home; we cannot form any clear idea of the social obligations that must form the basis of the city's official regulations and statutes; we cannot demand of the authorities, in the name of this modern consciousness that has determined the form of the modern home and defined the city, that they issue the decree, the law, the act that will set the great work of construction in motion and raise the contemporary city that we need" (Le Corbusier, 1931, p.97).

The modern consciousness is sustainability because we have only recently begun to feel the pressures of dwindling natural resources, and with this we must generate a new form of our city unit to incorporate all residents of the modern metropolitan area.

If we were able to imagine the current capitalistic system as it may exist in the future, considering the efficiencies introduced by sustainability, then we would see cities pandering to temporary desires and instant gratifications, with the automatic incorporation of long-term sustainable objectives. Over the course of humanity, heightened in the era of capitalism, the modern world has moved closer and closer to a process of instant conception, production, and attainment of goods and services. The streamlining of production and introduction of new technology in transportation have advanced sustainability in recent decades. Ultimately, capitalism finds a need and meets it. As an extension of this reality the city too evolves to satisfy its immediate need for change.

Every new utopian vision of the city has revolved around the development of a new mode of transportation. A Marxist view on the development of post-industrial cities is an economic evolution from capitalism towards a new paradigm. Globalization as it exists today suggests the possibility of a global market, affecting all nations, considered in this thesis as the "end" state of capitalism, or "true" capitalism. It is at this moment when the teleportation city will emerge because as a technology, teleportation is the manifestation of instantaneous access to capital. When true capitalism exists, supported by a capitalist form of seamless and consistent development and competition, a guild



A CONCEPTUAL CITY MODEL FOR A MOUNTAIN CITY. This plan of a mountain metropolis links several existing settlements along a transportaiton corridor that swirls into the central city. Open space protects the character and urban boundaries of each neighborhood within the region.

society will return as a vernacular differentiation in an absolute mobile and global system.

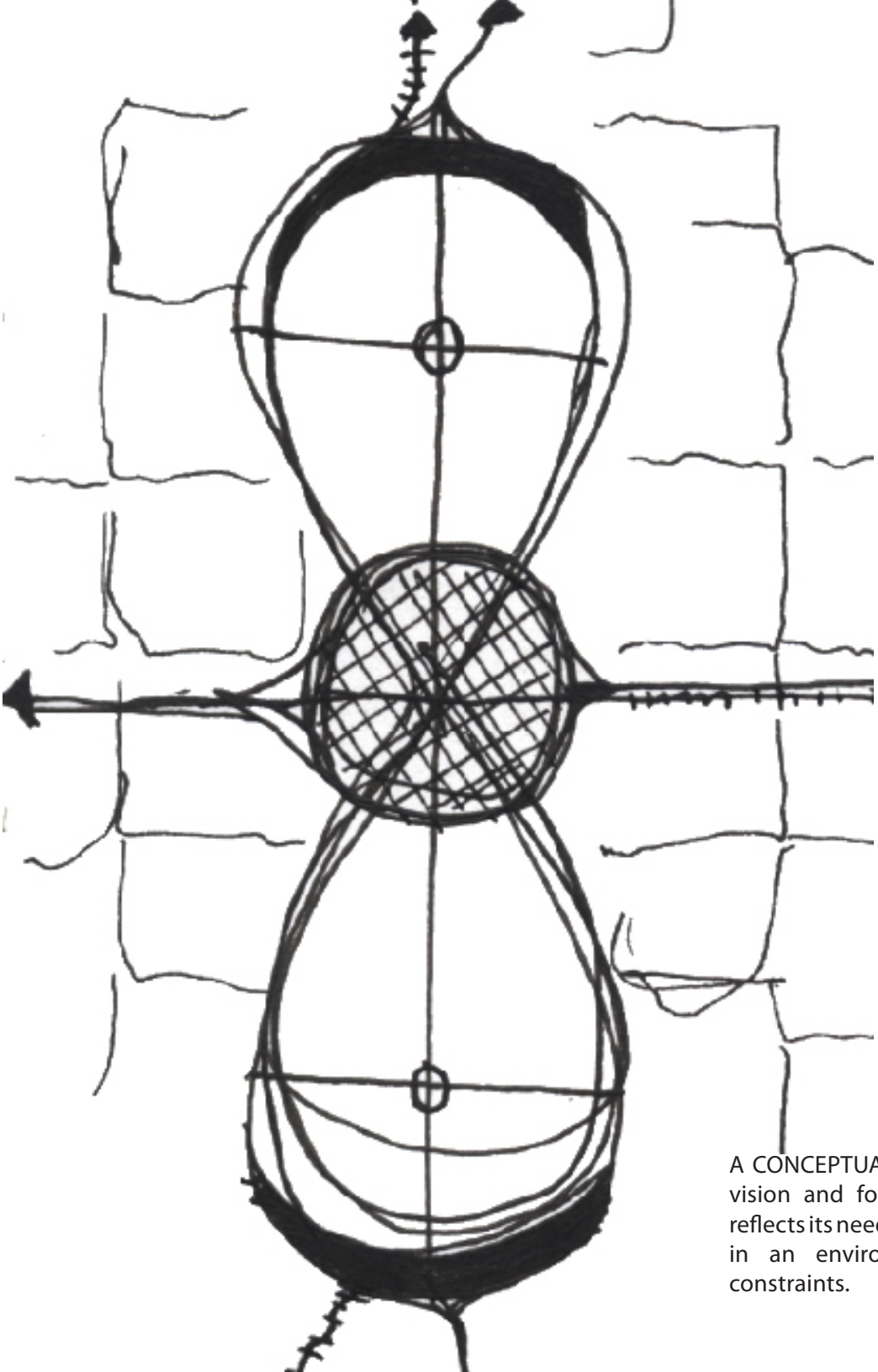
As the world becomes more interconnected, the value of place increases, and our national identity becomes more entangled in a world governing body, it is the city-state that will regain a heightened sense of citizenship and belonging accompanied by the shift towards a regional identity. What mass production has done can be seen in America today with the formation of the creative economy. The spreading of technology has given an increasingly broader group of individuals equal access to the development of their own music, books, graphic designs, clothing, automobiles, and homes all customized to their liking. Similarly, a city that can support such a metropolitan movement of self-determination and self-creation by supporting relatively easy access to capital, ideas, technology, goods and services will emerge and thrive in the future. Instead of a revolution from the city and the industrial complex, the sustainable city embraces these practices in creating a fully democratic society. Man no longer needs to toil in labor, but can pursue the path that best suits his or her abilities and desires. This is the near full realization of the machine age of man.

This creative economy is built around the mass production and the automation of many industrial processes. Removing the human element from construction of goods and services creates more need and opportunity for design, use, and efficiency of such items. History tells us that technology evolves with each generation and the market supports perfecting the production of goods. Demand has had a corresponding relationship to design, and the aesthetics as well as the efficiency, durability, and function of goods and services has increased.

Imagine a city where all goods and services are instantly provided. A world where travel is exact and as easy as thinking of and willing where to go. If everyone could be wherever they wanted to be, then what would attract certain people to certain places? In a world of instant gratification, you could be anywhere you pleased, but it is a sense of community that creates place. Community and quality of life attract citizens. With teleportation the world built around the automobile, the train, the airplane, and the sea vessel would become obsolete, and its infrastructure would be rendered excessive. A physical system built around this possibility would incite the return to a pedestrian city. There would be no need for traditional modes of transportation because the mere thought of accessing goods and services would be literally at your fingertips. With this shift in transportation naturally comes a spatial change in the city due to the exact interconnectedness of the city's transportation network and land uses, particularly its density and three dimensional relationships.

This new pedestrian city would be not to far off from the historical pedestrian city. Without the limitations of transportation to access goods and services, the city would become a vehicle for interacting, not living. Our proximity to one another would not be based on the need to work together to create goods and services, but in the need to be close to one another and experience these goods and services. Density would be subject to tradition and the desire for a particular level of social interaction. What emerges from this new paradigm is a city that is built around interaction.

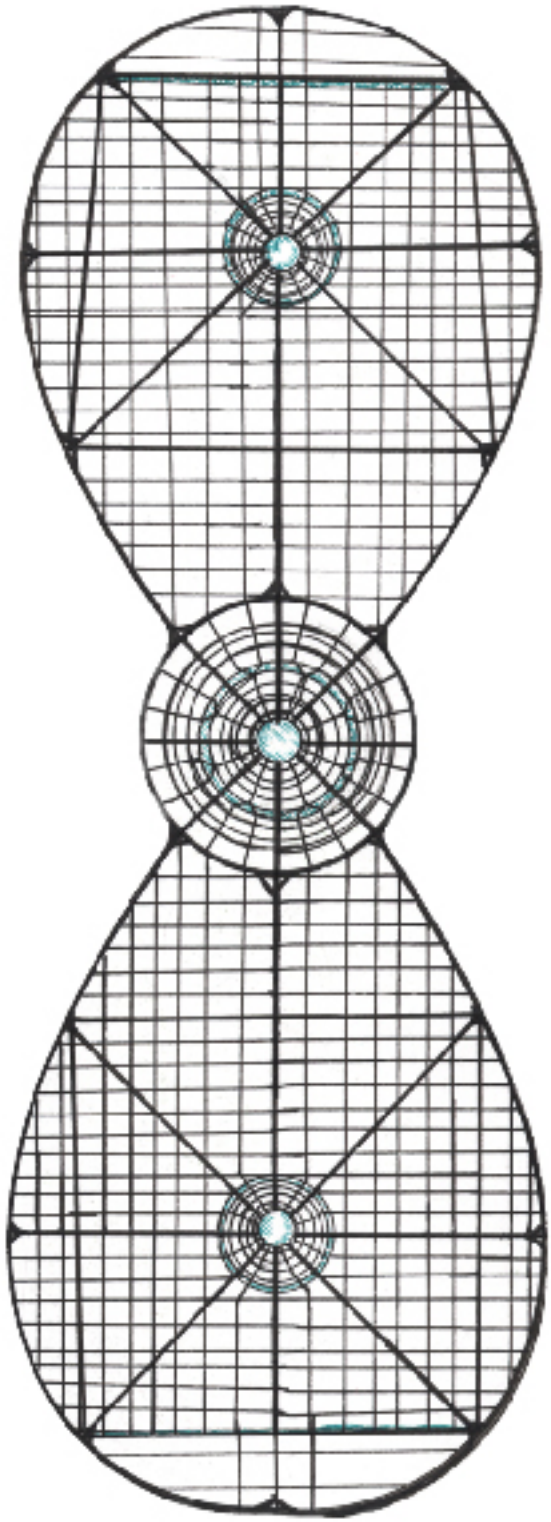
Envision a city where production is instantaneous and whose footprint could exist in one's own home. What effect does this have on street life? What is the city if goods and services are a mere thought? The city without the noise and congestion and waste of the automobile allows for a more personalized experience of the city. One that encourages interaction by the mere proximity and openness to the public. If the automobile is extracted from the plan of the city because it has been



A CONCEPTUAL CITY MODEL is an illustrative vision and form. The symmetry of the city reflects its need to contain and manage growth, in an environment without geographical constraints.

rendered futile, then the purpose of the city is altered. Teleportation removes the need for all delivery services. Commerce becomes instant. Once the entire function of the city becomes instantaneous, the purpose of the city becomes not functional but communal. Our experiences from shopping to eating become a leisure activity, and less of a function of survival.

Similar to how John Ruskin called for a return to the medieval vernacular at the end of the nineteenth century right before the progressive utopian visions of the city as seen in the Garden City, Broadacre City, and the Radiant City emerged, the rescinding of progressive thought embodied by New Urbanism today creates an impetus for the presentation of a new utopia - THE TELEPORTATION CITY.



TELEPORTATION CITY DIAGRAM 1. This plan view of the Teleportation City shows the street grid pattern with one primary and two secondary civic centers. The use of all major city building techniques are employed including an urban growth boundary, a hierarchy of place, the grid street pattern intersected by diagonal aertirals and symmetry.

CHAPTER IV: THE TELEPORTATION CITY

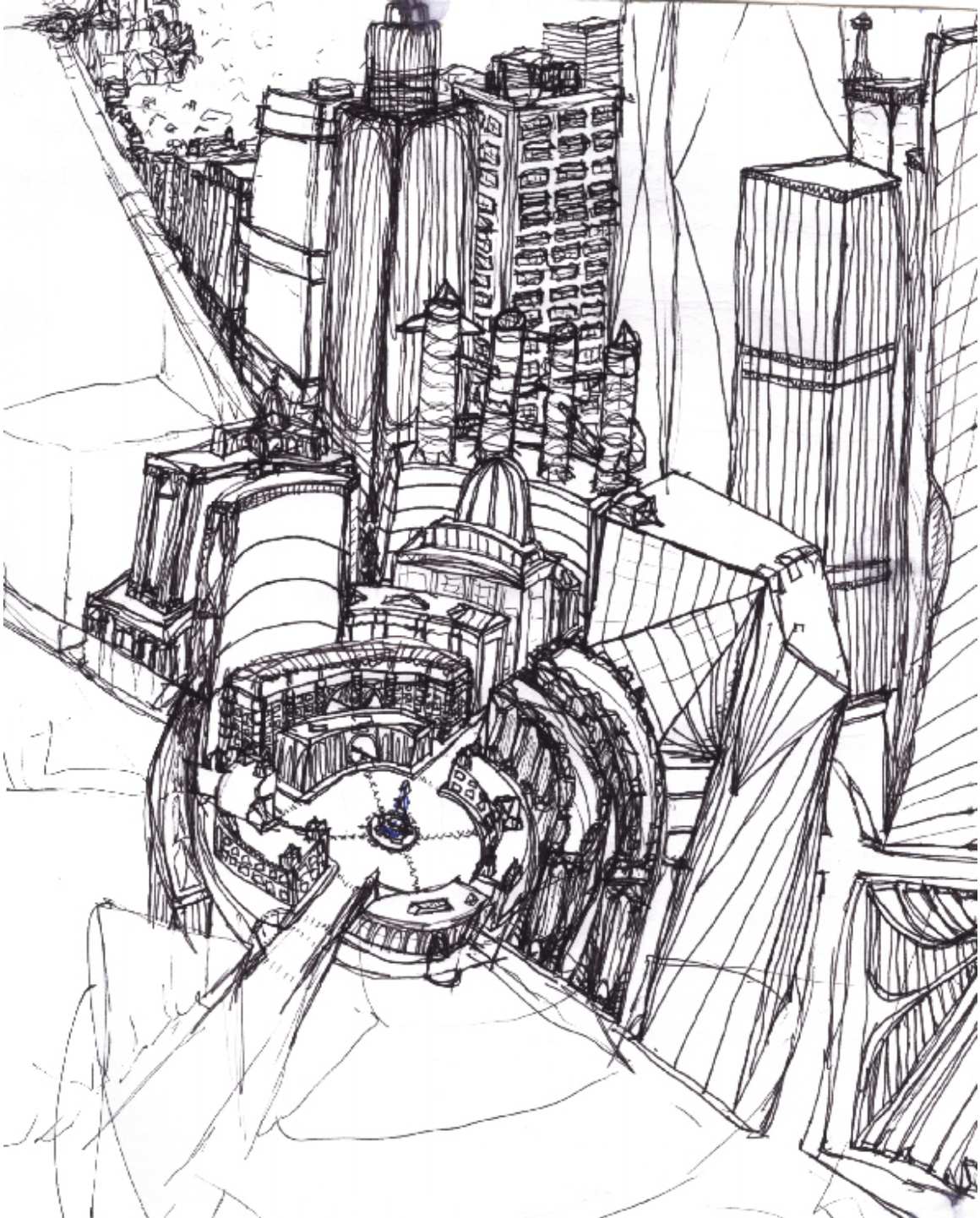
A. REGIONALISM

The lattice of cities in a metropolitan region must come together to recognize all its interrelationships and interdependencies as a function of our new paradigm. "The enormous increase in scale of the metropolitan region today requires an entirely new scale of image if the region is to hold together as an entity" (Bacon, 1967, p.240). Using the conceptual city model and increasing the size of the city by incorporating all settlements of a metropolitan region, the scale and organization of the city becomes regional. This region then becomes the city proper.

The metropolitan region currently acts as a unit, but the political, geographic, and class boundaries divide us both physically and physiologically. The teleportation city and the progression of society to this end creates a strict barrier between city and rural. The production and extraction of natural resources can occur without traditional transportation systems. When you remove the need to connect the rural to urban through teleportation technology, the city becomes a self-contained unit. Its relationship to the countryside is purely functional. The choice then becomes an either urban or rural existence.

The teleportation city, as a self-contained entity, must have a geographically defined boundary. This will ultimately lead to the complete development of the city. "A distinctive and legible environment not only offers security but also heightens the potential depth and intensity of human experience" (Lynch, 1960, p.5). This is why it is necessary to fully develop land use, transportation, open space and community facilities plans to accommodate the ever changing nature of a constrained city system. Applying limitations to a system forces a positive feedback loop that will increase adaptability and efficiency. Once all the land within the city boundary has been developed, redevelopment will constantly regenerate and reformulate the city for the immediate needs of the evolving political economy. Efficiency will spread to every corner of the city and maximize instant gratification and accessibility to goods and services. Revitalization will replace the consumption of open space and farmland. While this scenario could be forecasted into an increasingly dense and vertical city, instead the stabilization of the population, the increased efficiency of the city, its systems, and its citizens will occur. This city-state strategy will encourage the development of a network of sustainable cities through the example of its own success. A lattice of regional conceptual cities guided by the principles of sustainable development will forge their own identity, history, and development pattern into a global system of autonomous urban centers capable of forming their own unique comparative advantage in the global market instead of a sprawling mass of undecipherable communities dependent on outside cooperation and assistance.

This new regional dynamic will foster a society that is regional in nature. An economy that is supported regionally, but whose ideas, goods and services can be transmitted across the globe. Self-sufficiency will prevent further expansion and sprawl based on the value of surrounding rural and agricultural lands. By looking inward and relying on our own immediate citizenry, we can create an economy that grows not through expansion but through constant redevelopment and reconfiguration of the city



TELEPORTATION CITY DIAGRAM 2. This rendering shows a secondary civic center with a human scale at the central plaza, and the crescendo then decrescendo of the intensity of uses into and out of the civic center.

to meet its needs.

B. A NEW BALANCE

Balance in the Teleportation city is not the mean between two extremes, but the inclusion of all points along a spectrum. All forms of development, activities, design elements, and strategies should be contained in a holistic approach of city visioning. In this sense, the city is all forms of the built environment contained within nature. It is not that the rural lands exist outside of the city limits, but that the city exists within the natural environment.

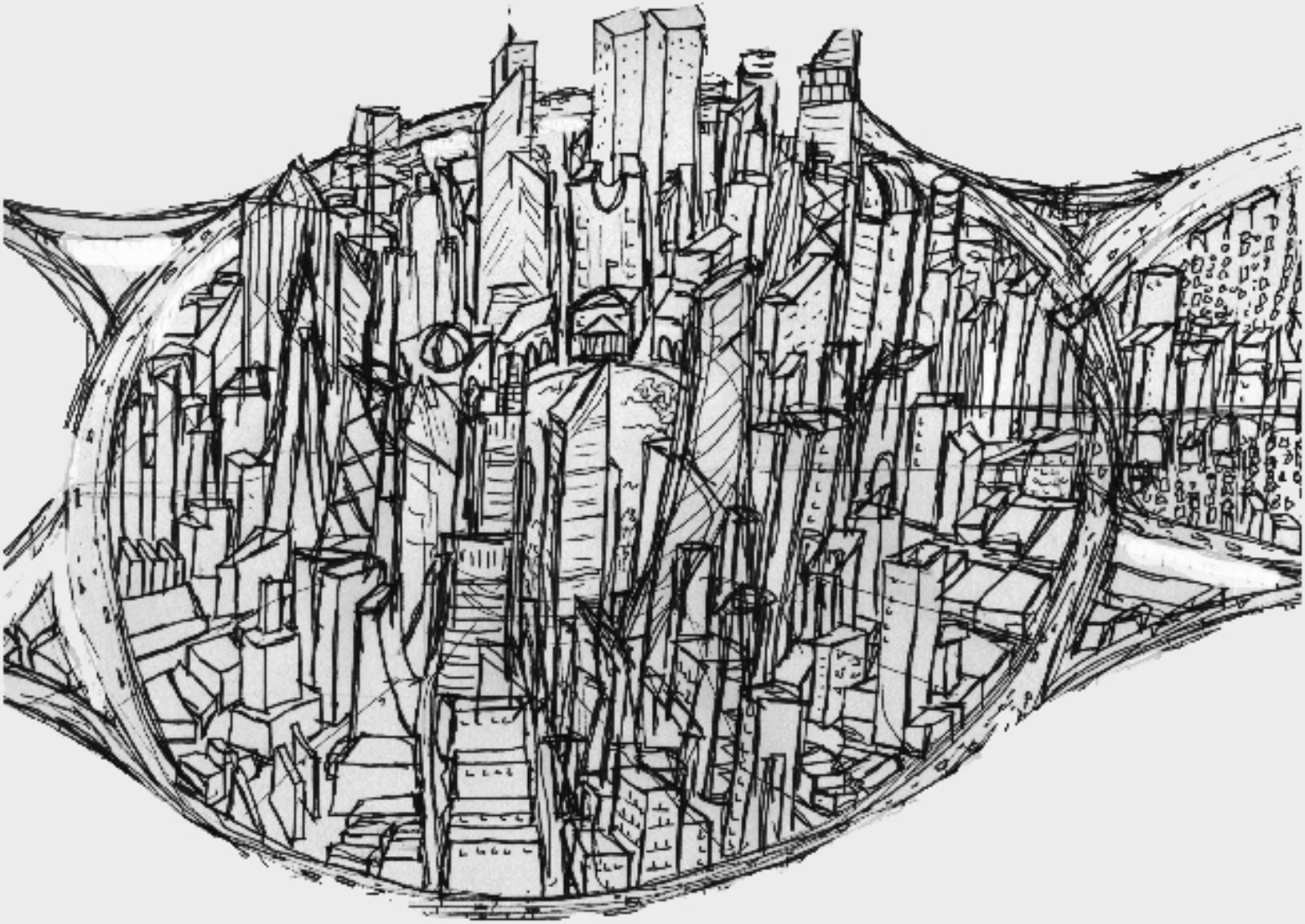
Balance in the teleportation city involves both the built environment and all its forms as well as nature and all of its organisms. While each conceptual city must be responsible to its particular ecological context, the division between man and nature will be fully integrated into a single ecosystem. The reconnection of the city to nature through the connection of the built environment's systems and the blending of city and open space boundaries through an urban pedestrian forest will return humanity to a balanced stance with the environment. Sustainability requires a tangible understanding of ecology as society is incapable of truly understanding an abstraction of the environment. By unifying nature with the built environment, "the city constantly redefines itself, operating under its own self-derived behaviors, not only ecologically but culturally, economically, and politically" (Civitas?/What is City?, Infrastructure in the Ecological City, Kathy Poole, 1998, p.141). By empowering society and the individual to understand this relationship through real strategies and mechanisms, ecology and sustainability become tangible and relevant objectives.

C. DIVERSITY

The diversity of building types and densities is not representative of a certain need based on land value, but a sign of a culmination of activity in the city as well as the choice of the citizenry to exist in any and all varieties of city life.

One of the primary causes of poverty is the unequal distribution of goods, services, development, and opportunity. With teleportation, any good, service, or piece of information is automatic. This equal access among all citizens creates a truly level playing field for advancement, education and the attainment of basic human needs. The form of the city, one that is symmetrical and balanced furthers the selection of one's home not based on location, but preference of type. Teleportation furthers diversity by expediting awareness and access to the teleportation city by anyone in the world who agrees, appreciates or wants the community represented by the city, its comprehensive plan, and its conceptual city model.

There is no optimum density or population because these figures have consistently changed throughout time. "[Population densities] cannot be based on abstractions about the quantities of land that ideally should be allotted for so–and–so many people. Densities are too low, or too high, when they frustrate city diversity instead of abetting it" (Jacobs, 1961, p.209). Technological advances have consistently made higher densities and greater populations more attainable and livable. Similar to Ebenezer Howard's Garden City, the final development and implementation of this sustainable vision once built is to be left in the hands of the citizens who will occupy it with critical attention placed on the balance of cooperation and individual freedom. "The problem is rooted in a basic



TELEPORTATION CITY DIAGRAM 3. No development would occur outside of the intercity loop and infinity helix transportation corridors, which act as a buffer, gateway, and demarcation of urban and rural uses.

attitude toward individual rights as against the public good, and the difficulty of finding legal and administrative procedures for holding the balance between them" (Bacon, 1967, p.201). This utopian vision of the city is intended to be one vision to guide the efforts of the many with the belief that the transformation of the built environment is central in the creation of a new, sustainable civilization.

D. TOLERANCE

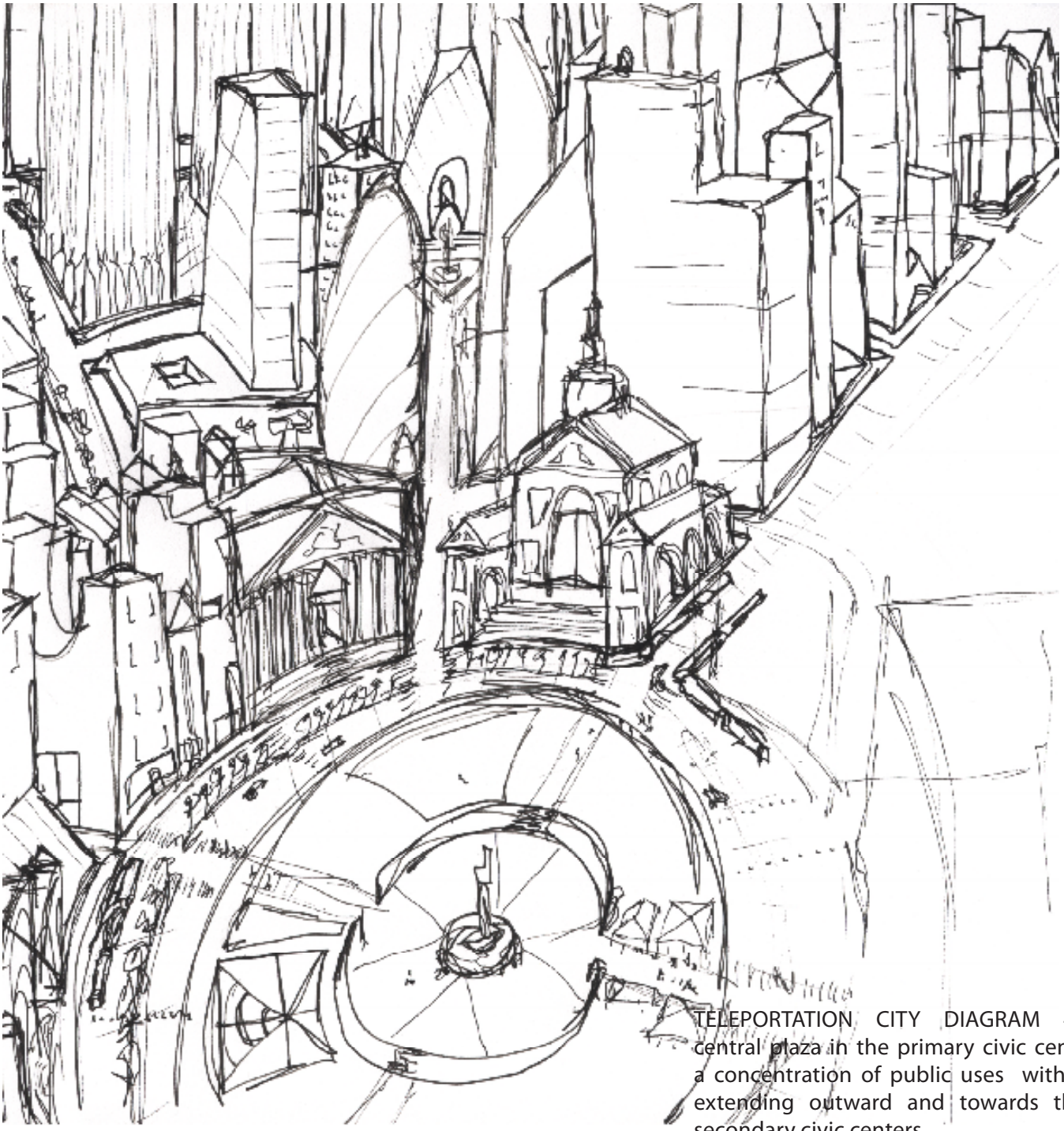
This heightened interaction amongst the citizenry ultimately has a profound effect on society. Increased interaction caused by the proximity to one another, and the need for social interaction based on the collaborative and creative economy creates a city that is fully engaged with one another. This increased interaction leads to increased communication. Ultimately, this leads to increased understanding of all peoples and their contributions to society. The city is a tool to generate a cohesive society.

E. SUSTAINABILITY

Throughout the course of urbanization, the manifestation of certain forms of development indicates a shift between man's organic relationship with nature to one of dominance over nature. Greek architecture chose a site location and axis that embraces the landscape. The Roman logic segregated functions into separate structures forming tight knit internal clusters that focused on the individual, but created chaos citywide. During the Renaissance, cities emerged with rigid urban boundaries, clustered building and carefully located open spaces in the interest of security, self-preservation, and civic governance. The Baroque period saw the breaking down of these city walls and the extrusion of an axis into the landscape. Modernism was the complete rejection of these ideals, viewing the built environment as an entity floating above nature. The contemporary ethos is shifting towards a city designed to be one with nature. We once fled the cities for the comfort of the pastoral, and now we are witness to a migration back into the city. With the suburban demographic returning, the middle class ideas of nature and the political will to reinvest public open space into the heart of the post-industrial city will also come.

"Man achieves the height of wisdom when all that he does is as self-evident as what nature does" (I Ching, 1950 edition, p.14). Sustainability in the city transcends the human and the natural environments. It implies the symbiotic relationship with man and nature. To transform the built environment into something sustainable involves altering the environmental, social, and economic structure of the entire city. Sustainability is a long-term process that integrated all short-term actions into one unified vision. Sustainability is a return from a linear understanding of the universe to a cyclical one.

The Brundtland Report of 1987 defines sustainability as, "Meeting the needs of the present generation without compromising the ability of future generations to meet their needs." More precisely, sustainability relates to every aspect of society: economic, social, institutional, environmental, and its enhancement in perpetuity. It is a systemic concept, like the city itself, which involves the development of civilization and human activity so that everyone can meet their greatest potential in the present while preserving and enhancing the world indefinitely. Sustainability is relevant to every single level of organization, both public and private, from the individual and the local neighborhood to the entire world order. It equates to an overwhelming demand for equity in the distribution of



TELEPORTATION CITY DIAGRAM 4. The central plaza in the primary civic center has a concentration of public uses with radials extending outward and towards the two secondary civic centers.

goods, services, and energy. Sustainability in the physical city is relevant in every action, policy, and decision, and must be understood in the same all-encompassing manner that planners view cities. "The main responsibility of city planning and design should be to develop cities that are congenial places for the great range of unofficial plans, ideas, and opportunities to flourish, along with the flourishing of the public enterprises" (Jacobs, 1961, p.141). The logic inherent in sustainability extends to all things.

By employing the ideas of sustainability, the design of this utopian city goes beyond a pure form, and into an economic and social generator. By factoring in all of the critiques of utopia and the foundations of the city into the equation of this sustainable city, form and function will be united on a metropolitan scale. "A city can be restructured on a large scale, and the leaders and the citizens are not only receptive but hungry for the new vision it provides" (Bacon, p. 265, 1967). The teleportation city is a self-contained entity that is connected to the regional, national, and global order via information, transportation, and telecommunication networks. This connection suggests a new understanding of balance, not as the mid-point between two opposites, but rather the sum of all things within the spectrum of city life. Balance and sustainability encourage if not facilitate diversity in all aspects of life. Considering the relativity of individual desires, a large group of individuals must accommodate each and every desire, and each and every need to be met. A utopian city will therefore contain every density, use, transportation mode, community facility, infrastructure, ecology, architecture, and demographic relative to its location and size. Every one of these characteristics is a result of demand, and while the sustainable city will shape demand, it must align them into a coherent whole, eliminating piecemeal and incoherent development.

TELEPORTATION CITY DIAGRAM 5. A gradient of development shifts within the city emerges from the most suburban plots to the most dense urban towers. Along the main arterial that divides the city in half lies the secondary civic center with the central city rising in the background.

CHAPTER VI: SOCIAL AND GOVERNMENTAL SYSTEMS OF THE TELEPORTATION CITY

A. SOCIETY

The introduction of teleportation in the city engenders a unique social utopia. With the freedoms allowed through teleportation society becomes a choice, not a necessity. If you could essentially be anywhere you wanted in the entire world at any moment, to choose to be in the teleportation city over another means there are specific factors that attract the population to each metropolitan area. These shared factors become much more apparent, and it is this communal understanding that further binds the society of the teleportation city together.

The unlimited access provided by teleportation allows every individual to become worldly and cognizant. Before teleportation, geographic, monetary, familial, and social restrictions inhibited experience. The education of experience and interaction with the entire world creates a society that is aware of itself as a member of a larger and interconnected society. Again, this intensifies the individual's connection back to the teleportation city and its citizens.

The teleportation society would reflect the hyper accessibility of the city. As the final stage of capitalism, a hyper-capitalism exists, perhaps even created from teleportation technology. Hyper accessibility to goods and services coupled with the form of the city and its equitable distribution of public service facilities, its programmed density, its flexible use, and its pedestrian emphasis all expand opportunity. Equality in land use distribution equates to equal opportunity in the city.

The density and guided, apparent interconnectedness heightens interaction. With virtually zero commute times, the function of roads becomes more communal than functional. The circulation system of the city is its most used public open space. The street network returns to a complete public/pedestrian use because the automobile has been rendered obsolete by teleportation.

B. GOVERNMENT

With a long-range comprehensive plan supported by a conceptual city model in place, the primary function of the government is to facilitate the implementation of the plan. In a city of constant flux and regeneration, the government becomes the facilitator of this change, and smoothes the transitions of change. As an end state in the built environment that represents constant change, this utopian government does not build so much as it reprograms the existing spaces. Without the noxious uses of the traditional city, and without the need for future growth and expansion, zoning in the teleportation city is obsolete. The set forms and typologies of the teleportation city naturally governs the use of these structures. Whatever use is needed at that time occurs, and it is the governments responsibility to administer this change.

The government must also control the location and egress of teleportation zones. While most instances of teleportation can occur anywhere, there are specific areas that will be protected from teleportation for reasons of security and privacy. Private property will be protected from teleportation

except for designated persons. For general teleportations, specific areas will be designated. For instance, if someone from outside the country wants to teleport to the city, but does not know where in the city to transport to, they will automatically teleport into a general teleportation zone.

"We need a definition of the modern consciousness. Without it we cannot keep any clear image before us of the man for whom we are building the modern home; we cannot form any clear idea of the social obligations that must form the basis of the city's official regulations and statutes; we cannot demand of the authorities, in the name of this modern consciousness that has determined the form of the modern home and defined the city, that they issue the decree, the law, the act that will set the great work of construction in motion and raise the contemporary city that we need."

- Le Corbusier.

CHAPTER VII: PHYSICAL SYSTEMS OF THE TELEPORTATION CITY

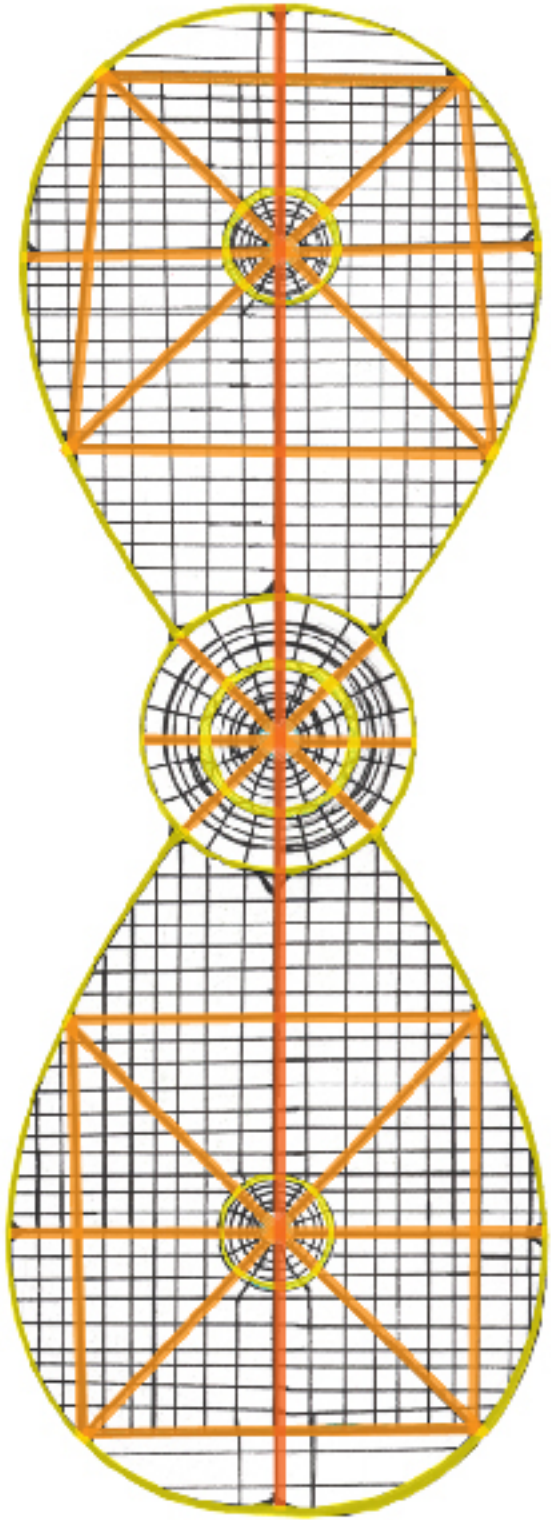
The teleportation city is a closed loop system that transcends rural and urban distinctions. Sustainability is the central theme around which all initiatives create a unifying policy in the city. Equity and access are the organizing ideas that tie all independent endeavors together. These concepts are reflected in the design of the plan of the teleportation city. Likewise, they are the most essential parts of the form that must be included in the plan for it to function.

"There are fundamental functions of which the city forms may be expressive: circulation, major land-uses, key focal points" (Lynch, 1960, p.91). The following sections are descriptions of the guiding forces that shape the overall plan (SEE teleportation city diagrams) of the teleportation city because "The plan is the generator. Without a plan, you have lack of order, and willfulness" (Le Corbusier, 1931, p.2).

While the teleportation city does not address architecture, it does envision an aesthetic that blends nature with design. The art of place-making, identified in the research presented earlier applies to the creation of a human scale within the city. The teleportation city also creates the entire spectrum of urban, suburban, and rural character – a gradient within the city. Instead of a utopia that disregards the past built forms of the city, the teleportation city takes these forms, reorganizes then on a regional scale, and redefines their use and purpose in the city. The gradient from suburb to central city (urban) exists today for its own reasons, but in the teleportation city it exists to maximize the options for living. The transportation network also seeks to differentiate land uses and form development parcels accordingly.

This description of a utopian vision of the city is inherently faulty. To design a utopia is impossible. However, we can imagine the characteristics of our own personal utopias, and then generate new ideas and conflicts of our future civilization. Our individual experiences create a relative perception and interpretation of the built environment. This utopian vision represents a moment in the city where change is instantaneous and its form and programming respond to direct social, cultural, physical, and psychological needs. Using the logical progression of capitalism as a base projection plane, the end distribution system is an instantaneous satisfaction for every individual need. The teleportation city produces a seamless and efficient flow of goods and services to every individual citizen. Sustainability and relativity are in constant tumult, and a city that moves the individual and morphs the desired land uses requires a consistency. This consistency is a fluid street grid pattern and subsequent development plots.

The genesis of the underlying concepts of the teleportation city into a physical form utilizes the universal symbols of least resistance and continuity - the infinity and the circle. The infinity helix is the basis of the plan. To add intensity and prominence to the central city, at the overlapping joint of the helix, a circular system is overlaid. "Identity centralizes; it insists on an essence, a point. Its tragedy is given in simple geometric terms (Koolhaas, p.1248)". The symmetry and balance imbued in the circle and the helix as guiding forms in the city's plan extend its inherent connection to the universe and nature. These forms embody the concept of sustainability, and are therefore the foundations for



arterials

feeders

residential

trails

TRANSPORTATION. The Transportation Plan shows the hierarchy of streets in the Teleportation City. While teleportation would remove the need for any major transportation facilities, this same paradigm would create a renewed vigor in community building and the desire for pedestrian-oriented interaction.

the teleportation city. They are an allegory of the complete purpose of the city, and as such they act as a means to comprehend the city and its development. The overlapping of these harmonic forms creates a seamless flow of synergies in that it provides easy access to the entire city in a manner that guides the flow of movement, balances it equally among users, and controls capacity through its symmetry and inherent balance.

TRANSPORTATION

The transportation network of the teleportation city is primarily concerned with the arrangement of streets as the core element of urbanism. "A clearly expressed movement system is a powerful influence, capable of seizing men's minds and developing loyalties around it" (Bacon, 1967, p.28). The plan of the city is shaped by the transportation network. This transportation scheme is oriented to maximize solar insulation throughout the year, and reduce the wind tunnel effect. Outside the edge of the circumventing trailway system lays the open spaces that breathe life into the city. The trailway will be activated by open space uses, and serve as the transition space between urban and rural. This trail network around the periphery of the city will act as a gateway to the open spaces outside of the urban boundary. Its ubiquity creates the opportunity to develop continuity in the city facilitating access in and out of the city limits. The circumventing trail is a path that traverses the city as well as the edge of the city district making it a citywide landmark that delineates the gateway to the rural lands.

I posit that the automobile will never be usurped by the introduction of teleportation technology. The automobile culture will not die. The automobile will move from a utilitarian function to a solely leisure and performance machine. The teleportation city's road network will change the status quo to a narrow road bed that caters to leisure, recreation and exercise. The use of alternative modes of transportation will become more prevalent due to the reduction of automobiles and the increased desire for interaction.

In the teleportation city, the main arterial roadways will serve as multi-modal corridors. By having as many modes of transportation at slightly different grades on the same street, it makes these preferred alternatives apparent to the public. Also, in concentrating the flows of traffic down major corridors, the density, quality, and activity along these paths are enhanced, becoming thoroughfares not only of traffic, but of commerce and social interaction. This concentration of modes on the arterial roads frees up space on the predominately residential and non-arterial streets resulting in a reduction of traffic in residential neighborhoods. These streets are designed with elongated sidewalks, bike lanes, and an extensive pedestrian street network. The less frequently used residential streets and back alleys can develop into more public open space in the form of highly controlled traffic areas known in Europe as woonerfs. The pedestrian street is not the typical commercial strip as seen in America, but a structural concept that will form a network throughout the entire city. This restriction of the car makes it harder to navigate the city via the automobile, and promotes a city that is pedestrian friendly and bike friendly.

The two districts of the infinity create a balance of development north and south of the central city, acting as extensions of the symmetry of the circle. A second trailway system circumvents the central city distinguishing it from the two other major districts. This central trailway acts as the route for circulating traffic from both infinity district highways into the central city, the downtown area,

and the central market place. The intensification of development within and along the routes to these three nodes reduces congestion by concentrating destination points and providing a multiple number of paths to these places.

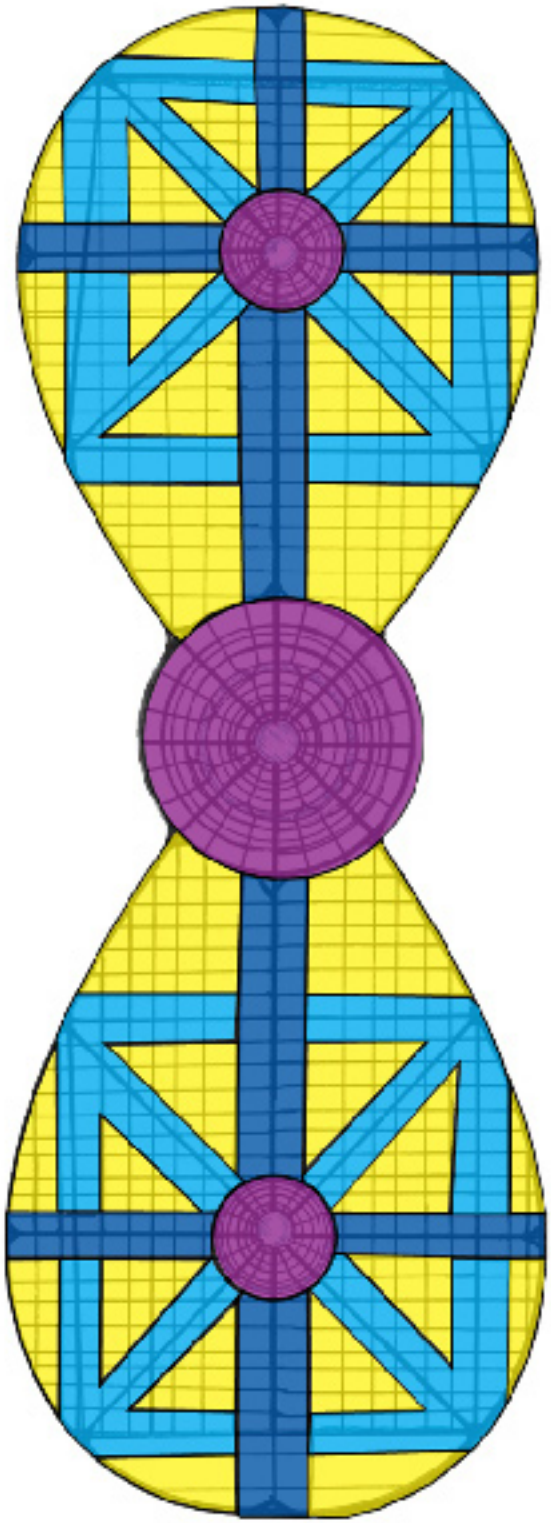
Congestion in the city is caused by an imbalance between intensity of land uses and the capacity of the transportation network. These bottlenecks occur when an excessive amount of users lie outside of a specific area of use. If the intensity of users is proportional to transportation access in capacity and direction, then congestion is balanced in the city. The transportation network of the teleportation city is a hierarchy of roads that correspond to the entire city, its major nodes, and its peripheral uses.

Dividing the entire circulation system in half, straight down the middle is the main central artery. The artery moves around the three major traffic circles in the city, one in the central city and one at the center of each infinity district. This "Main Street" creates an east-west symmetry to the north-south symmetry of the trailway network effectively creating north, south, east and west districts for the entire circulation system. For instance, one could live in the east central city, the west side of the south district, or the northwest section of the north district. This central artery is a multi-modal, high capacity boulevard. It provides pedestrian, bicycle, and auto traffic, fed by east-west arterials, connecting the very tips of the city to the central core. Through this corridor the entire scale gradient from suburban to urban can be experienced as a crescendo.

In the central city, the road network reflects the circular nature of the urban core. A series of radials emanate out from the Central Park. The central business and governmental district is created by these radiating roadways out from the strong, central node (See Lynch, 1960, p.70). Each radial is met by a series of concentric roadways that emanate out from the Central Park towards its eventual end and climax at the circular trailway. At the second or third concentric avenue, a break in the radial creates a series of plazas outside the primary public square in the Central Park for place making opportunities and the location of significant landmarks or structures.

Once the radials move past the central trailways, they transition into the north-south avenues of the infinity districts. This transition works to feed the central city from every neighborhood of the metropolis. All roads lead to the central square in the central city, where the primary commercial, governmental, and business districts are all located. "If one can establish a track through space which becomes the actual path of movement of large numbers of people, and can design the area adjacent to it to produce a continuous flow of harmonic experience as one moves over that track in space, a successful design in cities will be created" (Bacon, p. 34, 1967). From this concentric and radial central city the two districts of the infinity are arranged in the standard grid pattern. Beginning outside of the central city, east-west streets cross the north-south avenues at regular intervals.

At the middle of the two infinity districts, where the central artery meets the longest distance between the two sides of the infinity curve, an east-west corridor is established. These sub-centers create the intersection where the secondary sub-centers are formed to reflect the centrality of the central park in the central city. From these nodes, radials extend out into the city in northwest, northeast, southwest and southeast directions in order to cut through the monotony of the gird system and give direction to the infinity districts. These axials feed into the regional sub-centers, drawing traffic from the residential districts. Each radial path is supported and primarily used by its



high density mixed use

medium density mixed use

low density mixed use

residential

LAND USE. The Land Use map shows the distribution of land uses and intensities throughout the city. A central spine of mixed uses line the main north south arterial and medium densities extend along diagonals from these centers. What is left is the gradient from urban to suburban residential living with the least dense at the perimeter and the higher densities around the civic centers.

adjacent residential districts.

At the Central Square, the international teleportation zone will be established. In this zone, teleportation from outside the region and the country will be delivered directly into the heart of the city. This central location is the most suitable because of its access to all modes of transportation and its equidistance to every location in the city. As the center of the city, it is the location of most uses and amenities. This makes it the best choice for general teleportations in to and out of the city.

"A large number of paths may be seen as a total network, when repeating relationships are sufficiently regular and predictable" (Lynch, 1960, p.60). A naming system to differentiate the various road typologies will aid in the navigation of the city. The concentric streets are named 1st, 2nd 3rd, and so on Avenues, the radials that transition to north-south Avenues bear the names of the city's founders and those who had influence in its development, and the grid streets perpendicular to the Main Street will be numbered. The east-west grid streets begin at 1 closest to the central city limits and growing in number as they move away from the central city. Depending on the 1st, 2nd, 3rd and so on Streets location in the south or north infinity district, they will be given the adjunct title south or north. The named streets will not be the same on the north and south districts because each one intersects the circular trailway independently. For example, you could live on Jefferson and North 29th Street, or Madison and South 3rd Street and know exactly what district you live in. The identification of street names creates an association of paths throughout the city.

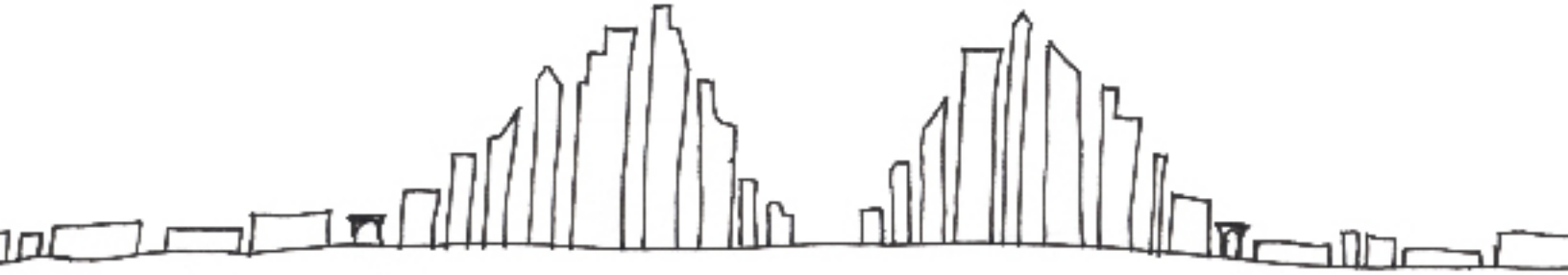
LAND USE

Facilitating the fluidity of economic processes and institutional regulations will create cohesion in society. The theories that govern and shape our political economy unavoidably effect the individual's actions and thought processes (Corbusier, 1931). With this in mind, the plan of the teleportation city must not respond to our political economy, but be pro-active in its development to ensure quality and fairness.

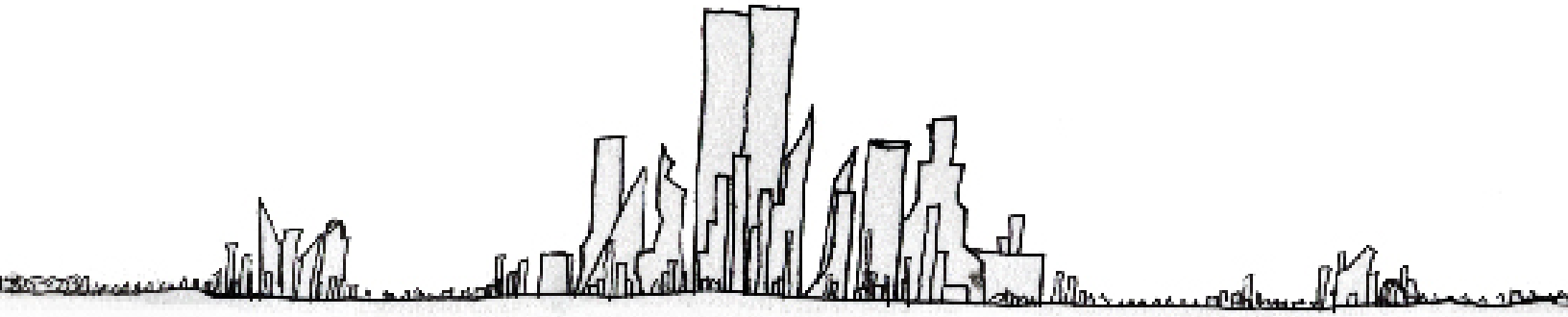
The teleportation city contains three primary areas; the central city, the north infinity district, and the south infinity district. "Establishing a primary center of the city and a system of sub centers which recall the dominant center connects the citizens to the total civic life of his city and with his daily life centering around the local square where he feels a reflection of total civic magnificence in his own neighborhood" (Bacon, 1967, p.87).

The largest public open space in the city lies outside of the trailway system. While the open spaces within the city will be characteristically urban, those outside of the city will be distinctly rural and pastoral in nature. Hiking trails, biking trails, nature walks, reservoirs, and campgrounds will dominate these spaces. "By finding our common bonds in the land, we are given a civic realm in which we may once again relate to one another" (Poole, 1998, p.139).

The central city, that which is enclosed by the Central City Trailway, is predominately the business, financial, commercial, government, and retail center of the city. "Without a strong and inclusive central heart, a city tends to become a collection of interests isolated from one another. It falters at producing something greater socially, culturally, and economically than the sum of its separated parts" (Jacobs, 1961, p.165). Around the Central Park, the government buildings will be scattered not clustered around its periphery in order to distribute access to the public process throughout



BULK WEDGE DIAGRAM. This section of the Central City or either secondary civic centers illustrates the rise of height and bulk as you approach the civic cities, as well as the immediate decrescendo of density around each civic square to provide a human scale and maximize air, light, and views. The city embraces and protects its civic square by surrounding it with civic functions.



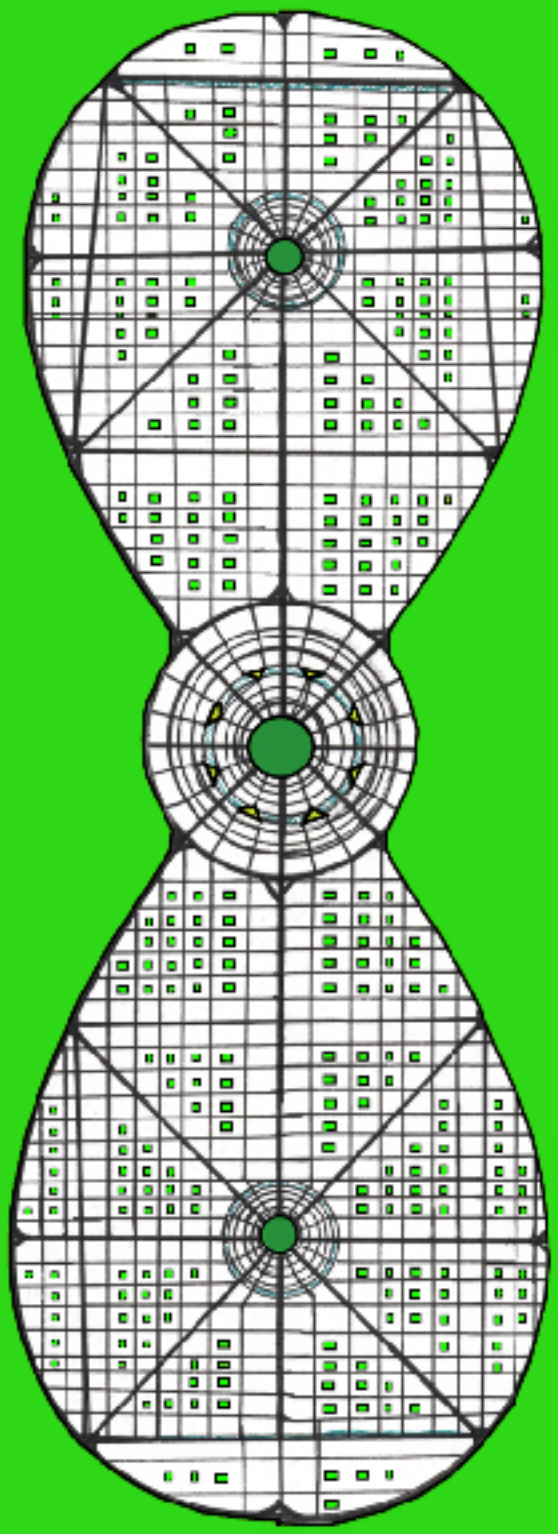
SECTION AND ELEVATION DIAGRAMS. The elevation above of the entire length of the city shows a potential density scenario along the development timeline towards maximum build out. The main civic center is flanked on both sides by smaller civic centers that mimic the scale and function of the primary core. The elevation below shows a build out scenario of the Central City.

the central city. Where the central city radials split into two radials at the second concentric avenue, government institutions, churches, and/or major commercial landmarks will be placed. Starting from the central park, the first and second ring of blocks will be governmental and residential/retail mixed use. This will activate the park and the streets night and day. It will also create cross street relationships with the park to make it a more active and diverse experience. The third and fourth major ring of blocks will be predominantly commercial with a residential/retail mix. This commercial ring will be of the highest density with the largest height limits in the entire city. The following concentric rings are a mix of commercial, residential, and retail uses, mostly high density. The central city is the densest neighborhood in the teleportation city not only to create a critical mass and true center of the city, but to provide the most urban experience possible for those who choose city life. The height and bulk of the central city starts at lower heights and densities directly adjacent to the Central Park, growing in height and bulk until reaching the center most row of blocks in the central city where it then decreases towards the circular trailway. The wedge bulk and height scheme will occur in the sub-centers as well (see BULK WEDGE DIAGRAM). This provides a human scale for all the large public open spaces of the city. This bowl like effect also gives the maximum amount of sunlight and views into the Central Park maximizing the public's sensory relationships to it. Connecting the central city to the outer districts is the central corridor, Main Street, which is the retail and service corridor of the entire city. The central artery is a district that stretches the entire city providing access for all citizens. The density of this strip increases around the primary and secondary nodes as well as at prominent intersections. In section, the street wall will increase up to the secondary node, decrease throughout the infinity district, and then steadily increase to climax in the central city, declining into the Central Park, increase again to the densest urban ring, and lowering as it moves out to the infinity district only to climax once again at the opposite secondary node (see SECTION AND ELEVATION DIAGRAMS).

To facilitate the constant change in the city, the arrangement of uses within the central city will be determined vertically. Depending on need and the public conscience, the commercial zones can begin to adapt and take whatever mix of uses desired or required. A stratification of uses, one that puts residential on the upper floors, commercial on the lower halves of buildings and retail on all the ground levels will occur at any needed ratio.

The infinity districts are identical and symmetric features that radiate out from the central city. These areas are predominantly residential in nature. These residential and increasingly suburban neighborhoods reflect the opposite end of the urban-suburban spectrum, and encapsulate the urban core. The density, setbacks, and square footages of homes and residences in these districts vary from the most urban to the most suburban (from row house to detached home). This is a transitional space from the central city out into the rural open spaces beyond the circumventing trailway. Along the main east-west cross axis emanating from the secondary nodes are local retail and commercial uses. While the central artery is mixed use, residential buildings along the central artery will become less and less dense the closer to the trailways at the periphery they are situated.

The housing typologies are developed on a gradient that recognizes the primary and secondary centers as well as the function of the arterial and radial streets. While mixed-income developments will be mandatory in housing policy, the different housing typologies themselves reflect a difference in choice and affordability for the many different household types.



civic squares

neighborhood parks

open space

OPEN SPACE. The plan shows the city within an expanse of open spaces and rural uses. WIthin the city are major civic plazas at each node, and neighborhood parks provide urban open space opportunities.

All industrial uses are integrated into the commercial districts. The advent of teleportation will decentralize production and manufacturing by speeding innovation through negligible transportation costs and distances. While this thesis extrapolates transportation technology to teleportation, similarly, manufacturing in the end state of capitalism will maximize the current trend of miniaturization and mechanization fostering individualized design and production businesses that fit within a studio. There will no longer be factories mass producing goods, but the masses producing individualized goods.

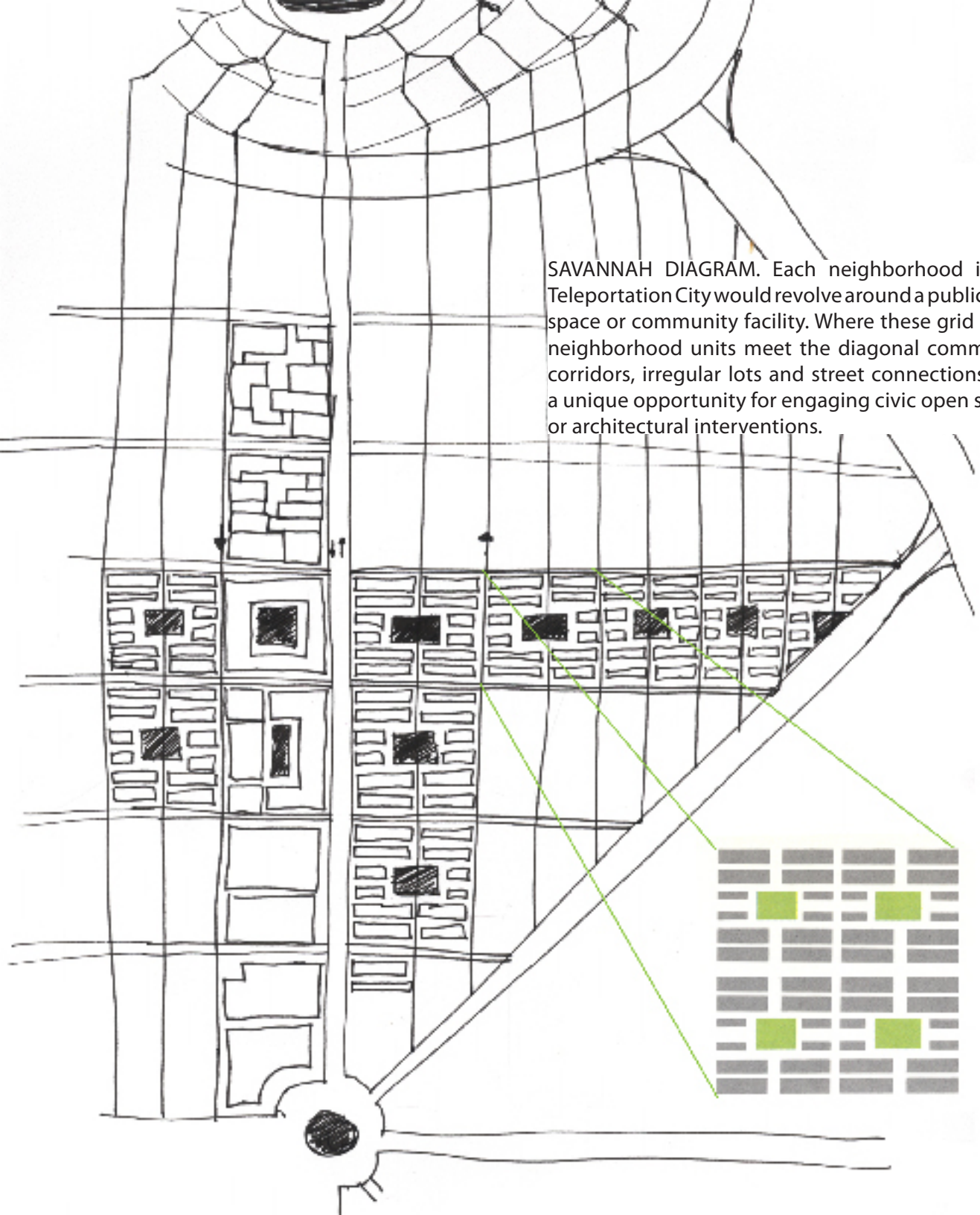
OPEN SPACE

"Human society and the beauty of nature are meant to be enjoyed together" (Howard, 1898, p.48). The open space plan of the teleportation city brings together nature and the built environment by creating a green belt around the city, providing urban squares for social and cultural gatherings, and distributing small parks and playgrounds throughout the residential districts.

The open space in the central city will be a circular space that is occupied by a large market and gathering place including both active and passive recreation uses. This space is reminiscent of the ancient forums and agoras in that it is a central place for the community to gather with all major civic and social institutions adjacent to the site. Ideally, a monument at the center of the space would create a vertical plane in the park thereby giving it a landmark status, projecting its visual relationship to the surrounding view corridors. On the fringe of this space, uses should seek to draw in the public while simultaneously acting as a route for pedestrians throughout downtown. Instead of traversing the circumference of this space, people will feel encouraged to walk through the park as a transportation route. The sub-centers are smaller versions of this larger forum. As the centers of the infinity wing districts, these sub-central parks are the center of the regional wing districts. The function is identical to the Central Park, but on a reduced scale that reflects the reduced density and intensity of use in the infinity districts.

Around the periphery of the sub-centers, an additional trailway will serve as an urban ring park. Throughout the city, street trees, squares, plazas, front and back yards, and community gardens will be distributed throughout the city in order to encourage interaction with nature and further blend the lines between the built and natural environment. In the predominately residential infinity wing districts, single family detached homes will have front and back yards. Along the radials from the Central Park and the sub-center park, where the grid meets the diagonal, many public open spaces and squares will be created at these junctions. These diagonals support the unique character and vibrancy of the streets and commercial districts.

Within the two infinity districts, the predominantly residential neighborhoods will be grouped together several blocks at a time in a structure that centers on the community square. A prototype of such a neighborhood arrangement can be seen in Savannah, Georgia. These small pocket parks are the focal points of this community based organization of streets. The idea is to create a nexus of energy, created from residential living, around an open space that can be activated as a park, playground, library, or community center. This sub level of neighborhood organization creates clusters of neighborhoods within the larger infinity residential community. It is a microcosm of identity that is created by the coming together of the neighborhood at this central square (see SAVANNAH DIAGRAM).



SAVANNAH DIAGRAM. Each neighborhood in the Teleportation City would revolve around a public open space or community facility. Where these grid based neighborhood units meet the diagonal commercial corridors, irregular lots and street connections offer a unique opportunity for engaging civic open spaces or architectural interventions.

The largest public open space in the entire city is the green belt surrounding the city. Not a green belt per se, but the end of urban and suburban development. Outside the city's circumventing trailway lie the open spaces, farmlands, valleys, forests, meadows, and streams that support the city. They support the city with organic food stuffs, but also with an active engagement with nature. This outer ring of non-urban development and only necessary rural development will almost entirely provide the natural resources of the city. This land will provide subsistence on which the city can maintain itself without reliance on burdensome external assistance. Agricultural production will move away from corporate farming of single crops to the production of a more diverse array of goods because the land is committed to the diverse needs of the regional economy.

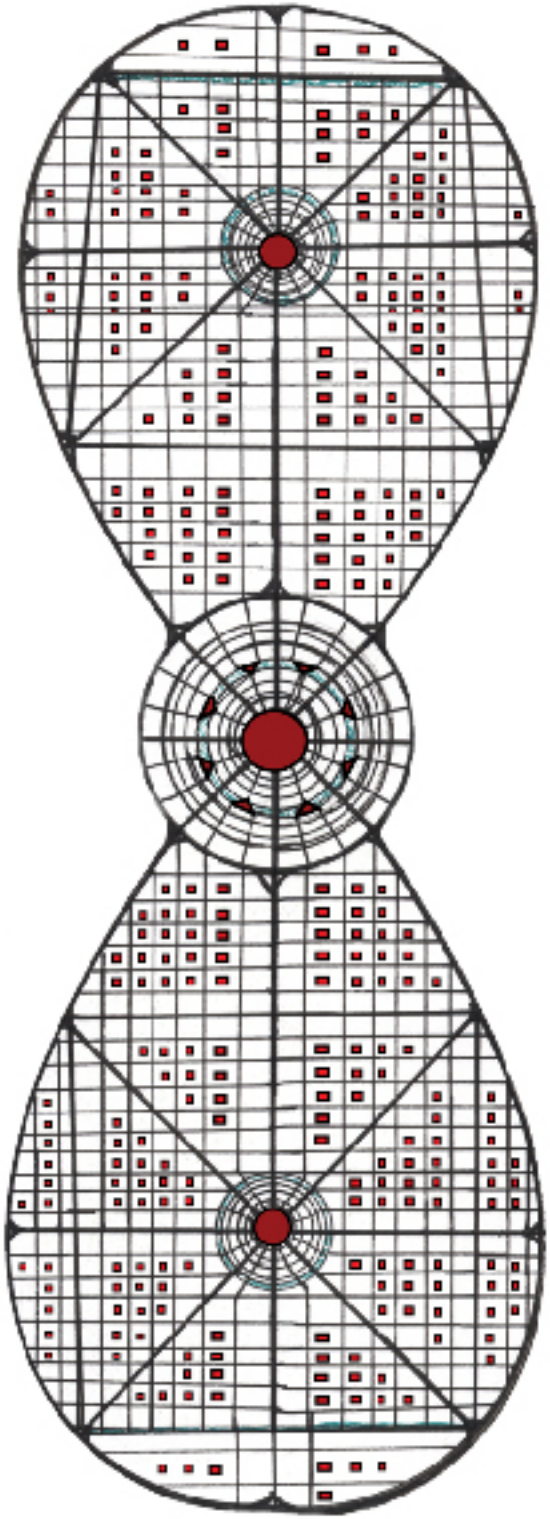
This open space, accessible from all edges of the city will provide the respite and relief from city life inside the trailways system. At the terminus of each street and path at the trailway there will be a trailhead that marks the beginning of recreational activity. This open space will proceed uninhibited until reaching the threshold of the next metropolitan area. While rural towns serve as necessary and functional arbitrators of rural life, resources, and products, their existence is purely a function of administering the rural lands.

COMMUNITY FACILITIES

The community facilities of the teleportation city are to be evenly and proportionally placed in accordance with the development of the city. While there is an optimal placement of each facility, and these facilities should be placed in relation to the populations they serve and the areas of their influence, the key feature is that the community facilities minimize cost and the use of otherwise developable land by serving several functions at once. All community facilities will be placed and designed to distinguish them as providing civic functions. Additionally, the public buildings will embody the institutions housed within them, and provide amenities for the public.

While it does make sense that a grouping of community facilities should occur in the major nodes of the sustainable city for convenience, this same mentality cannot occur in regards to community facilities that are considered the "underbelly" of society. For example, waste transfer stations, sewage treatment plants, maintenance facilities, and even recycling stations should not be concentrated in a single area, but proportionately and equitably distributed throughout the entire city. To place a disproportionate amount of these more noxious uses in one area exacerbates the "out of site out of mind" mentality. These facilities should be located in the communities that create the waste in order for them to be aware of their excess, thereby providing the impetus to reduce their waste stream. Social justice plays a pivotal role in the placement of all community facilities in that a disproportionate amount of noxious uses must not cluster adjacent to any residential community for any reason be it logistical, economical, social, or racial. The logistical apportionment of community facilities throughout the city emphasizes transparency, efficiency, environmental quality, and the impetus for the ultimate elimination of physical, economic, and social waste.

Schools will play a double role as places of learning during the day and meeting spaces for the community at night. The outdoor play areas for school children will serve as parks and open spaces for the surrounding community. As an institution of the local community, school design will integrate the education of the youth an active engagement to the greater community, thereby promoting citizenship. Again, the design of such buildings can influence the participation of the community



major public facilities

community facilities

COMMUNITY FACILITIES. The Community Facilities map shows the location of such facilities throughout the city. A concentration of public institutions surround the civic squares, and more neighborhood level community facilities such as schools, parks, and libraries are evenly distributed throughout the city following a similar concept as the neighborhood unit or the plan for Savannah, Georgia.

with the school and vice versa.

Police and fire stations are to be positioned in a manner that decentralizes the policing and fire protection efforts of the city. This will minimize response times. Police stations should reflect the role that they play within the community as instruments of protection and service, with a heightened role in service. The density of the teleportation city will allow for police officers to utilize more than automobiles to patrol the streets thereby creating direct connections between officers and the community. By integrating into the close-knit communities they serve, the police officers and fire fighters become members of the neighborhood instead of being perceived as elements of authority in the community.

The districts of fire and police stations should become coterminous. The relative balance of population densities reflected in the city's transportation and land use plans will allow for this heightened level of communication and cooperation of protection and service. This will eliminate bureaucracy, and further decrease response times. While these two institutions will remain autonomous, there increased responsibilities of protecting the same district and its inhabitants will ensure a more efficient stewardship of each service area. On a city wide scale, the organization of the two most established and influential public service instruments will become aligned by the infrastructure and form of the city.

Hospitals are instrumental to the city and its health. Hospitals are placed in a manner similar to the fire and police stations that minimizes response times. However, these large institutions will be located to maximize accessibility for all residents. Hospitals are to be planned based on population density, and not on any other demographic information. This will deter the movement of hospitals to wealthier neighborhoods and create an incentive for them to become permanent members of their surrounding communities. While this approach confronts the effect of a structurally inadequate health care system, the city itself will create a demographic balance throughout the city so that no neighborhood will be disproportionately richer or poorer.

Hospitals should actively promote preventative health care including a healthy diet and exercise. This will effectively turn hospitals and their staff into a responsive institution that deals with emergency injury and illness instead of treating an increasingly unhealthy society. Hospitals will become engaged in preventative health care instead of reactionary medicine. Accordingly, hospitals will be less likely to expand the number of beds and facilities in their buildings. By creating a healthier society instead of constantly treating an unhealthy society, hospitals will be able to decentralize into regular office spaces where they act as routine stops in health care. This will free up the limited parcels in the teleportation city for taxable uses.

Social services will operate in a similar decentralized fashion. Social work is a very expansive term, and its many emphases should be grouped together in a manner that clarifies and streamlines the entire process. For instance, all social health care services will be located within the hospitals. Similarly, all services concerning employment should be grouped together including job placement, unemployment relief, and job training.

As stated previously, all major government buildings will be centrally located around the Central Park and secondary nodes. While the headquarters of these institutions will be located around the Central

Park in the central city, their regional offices will be located in the secondary nodes around the sub-center parks. This will create a synergy of public agencies within the node while forming an obvious location for any and all government offices. Citizens will know where their government institutions are at work, and this increased transparency and prominence in the built environment will encourage citizens to actively participate in social programs and ultimately the political process.

Libraries should be located in schools wherever possible. When no space is allocated or available in existing schools, libraries will be built as independent civic institutions. They will also have community meeting space to serve secondary functions. Libraries are centers for learning and as such should be equally distributed throughout residential areas to serve every citizen in the pursuit of knowledge. If an agglomeration of interests occurs within the city, the library will be altered to facilitate the interest of that particular area while retaining its utility for all citizens. For example, if a library is built near a courthouse and there is a grouping of law offices and schools nearby, the library would include a law library in conjunction with standard volumes and texts. Specificity of content should not discourage the entire range of services and texts provided by these specialty libraries in line with the all-encompassing understanding of balance in the city.

Entertainment facilities, such as theatres, opera houses, concert halls, stadiums, and arenas should be placed in and around either the central city, where a synergy of these amenities could create a theatre district, or at the sub-center nodes. These entertainment venues are only those administered by the government. This does not include private play houses and theatres. Private entrainment should be allowed to prosper wherever it occurs naturally, and provisions to mitigate noise and other disturbances should be developed accordingly.

The city plays a large role in the subsidy of the arts and culture in the city, and as a monument to its history, prosperity, and continued greatness, cities should develop a vibrant philanthropic endowment for the arts and culture sectors. The stimulation and production of ideas embodied within such creative industries is crucial in creating a culture and identity unique to the teleportation city. Simultaneously, the cultivation of private endowments and cultural charities should be encouraged through appropriate public policy and incentives.

The larger entertainment venues, such as arenas and stadiums, which generally require massive public subsidy, should be placed to most benefit the city's taxpayers. The facilities will be located within the central city so that they are centrally located and accessible to every citizen of the region. The national sports franchises that will be housed within these stadiums are good for creating regional identity and pride. The large sports venues will be placed on the outskirts of the central city district near the circular trailway network for good access as well as to not infringe on the density and height of the inner rings of the central city. These structures will fully integrate into the street wall of the existing context and provide ancillary uses including sports museums, conference space, and retail where economical.

Wherever possible the infrastructure of the teleportation city will be exposed and fully integrated into the natural and built environments. The transparency of such infrastructure will create a city that is aware and involved in its physical systems. This heightened awareness presented by the revealed, hyper-proximity of the city's physical and mechanical systems will create a more conscience society. The role of community facilities is to provide basic human needs and social services to the public.

As such, the placement and architecture of these buildings should respond to their role in society. Without a designed sense of closeness and transparency, community facilities will be prone to neglect, waste, and inequity.

CHAPTER VII: CONCLUSION

In conclusion, as a society we have not developed a utopian vision of the city that has influenced our urban growth patterns since the Radiant City. Like all utopian visions, the teleportation city is a product of its time and context, and our current context is one that is increasingly globalized, urban, and consumption based. In order to react to our growing limitations, we must realize a shift of development and population back into the city. The central city is no longer a place of just commerce, but will play an active role in promoting sustainability. By returning the emphasis on the city and away from its fringes, we can create a more efficient, sustainable, and cohesive societal unit. We can bring together all aspects of the city and contain within it all aspects of its rural surroundings. The teleportation city is the next utopian vision of the city, and conceptual city modeling makes it possible to have a utopian vision for every city. In this way, each community can develop their own specialized utopian vision geared toward their specific interests as seen in documents such as the comprehensive plan. Conceptual city modeling creates a symbol of the future form of a city. Its simplicity can grab the attention of every stakeholder in the city. As a symbol of something greater than itself, the infinity helix and circle of the teleportation city inform a long-term process of development for the city.

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