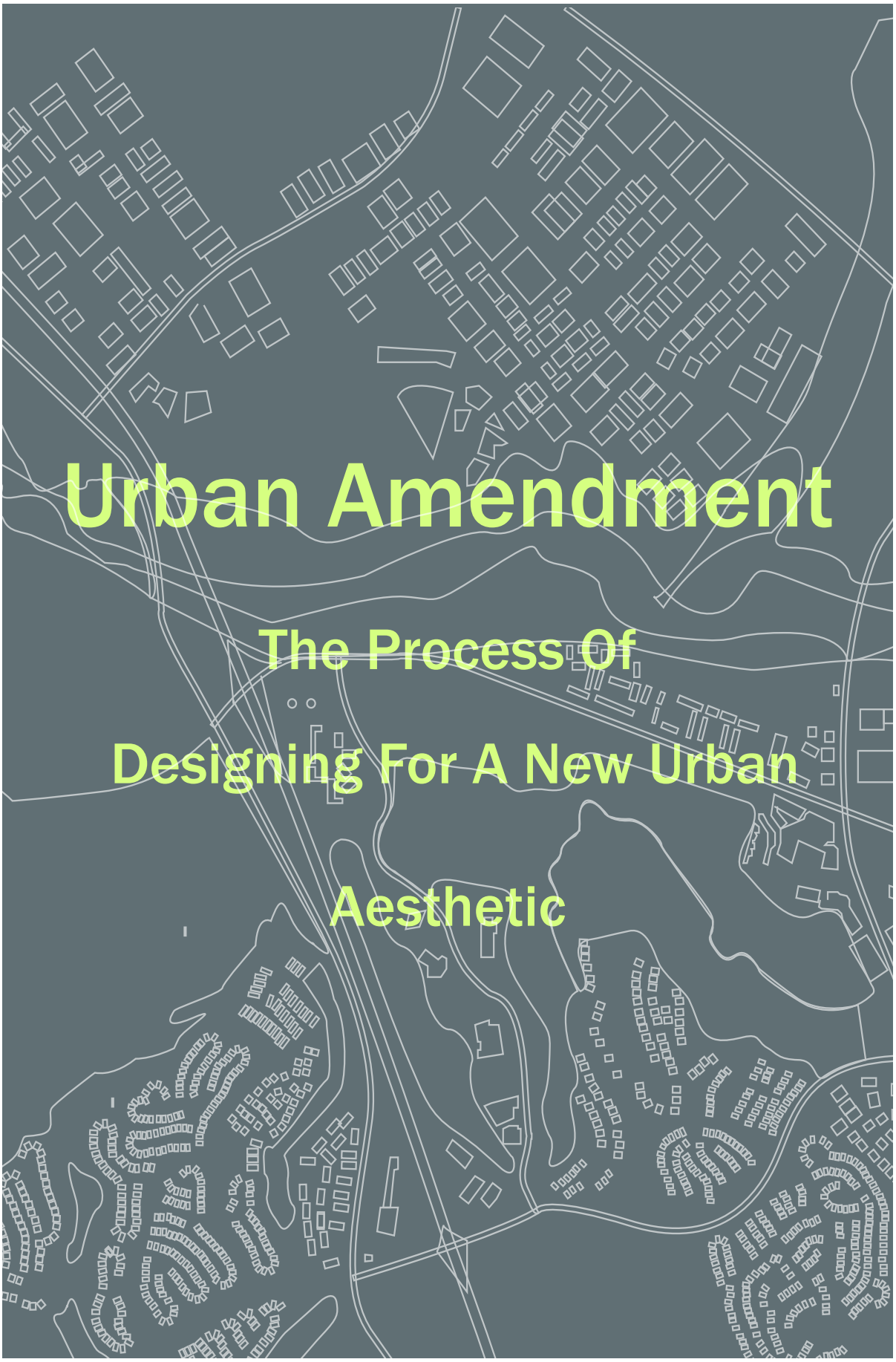

Urban Amendment

The Process Of Designing For A New Urban Aesthetic

Abstract

Sprawl, to spread out in a straggling or disordered fashion, has become a major focus in the urban regions of the United States. In conjunction with this dilemma, is the issue of carbon footprints, the measure of the impact our activities have on the environment, relating to the amount of greenhouse gases produced in the day-to-day lives of individuals, through the burning of fossil fuels for electricity, heating and most notably, transportation. Sprawling suburban communities have some of the greatest footprints, with a focus on family residences outside of the city, where employment is provided within larger cities. This focus has created a situation in which residents must commute for jobs. Los Angeles in particular has had one of the greatest experiences with both issues, with very high demands for single family residences, from a population seeking healthy living environments outside city limits. While this demand for new, large, affordable residences has created an extremely high degradation of the mountainous and valley landscapes of Southern California, the larger issues of high carbon footprints from increased distances to jobs and other amenities, has created an environment where automobiles are dominant, operating costs are high from infrastructure degradation, and footprints continue to expand with greater resource depletion. These issues have presented the opportunity to find solutions for reducing such impacts and determining design opportunities for developments that allow for livable communities, which provide the infrastructure and economic needs of its inhabitants.

My research focuses on mapping the current conditions which are present within the greater Los Angeles region, understanding the impacts of suburban commuters and the impressions they leave on the resources within these suburban communities. Additionally, in conjunction with such mapping, a site within the community of Valencia, is examined and designed as a model of development that strives to reduce the carbon footprint of its inhabitants, restore its current degraded landscape, promote self-sustaining infrastructure and create a model for the future developments planned within the area. If this model can be achieved, the opportunities for limiting such issues might take a prominent step towards becoming reality.

Acknowledgements

I would like to take this opportunity to thank those who have guided me through this process as well as those who have provided me with the inspiration and foundation to reach this point in my academic career.

I would like to specially thank my Mom, Dad, and two sisters who have supported me in this journey and have provided the assistance to bring my crazy ideas to reality.

In addition, I would like to thank Professors Steve Mcneil, Claire Napawan, and Heath Schenker who have not only inspired me, but have always pushed me to be better at both design and representation.

Thank you to my advisors, Brennan Cox and Jeff Loux, who have helped bring my project into focus, as well as Gary Lai, who has become a strong mentor and good friend in the profession.

Finally I would like to thank God for the direction and opportunities given to me as well as all of my extended family, who have always believed in me and persuaded me to keep pushing forward.

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Preface

Sometimes frustrated, other times excited, landscape architecture can seem like a roller coaster ride, at times never ending and other times not lasting long enough. These last two quarters have provided both extremes and have occasionally left me wondering where this would lead me and how I could continue. However, as each challenge was conquered, the thrill and enjoyment gained from such experiences kept me focused on the reasons why I have continued to seek such contests.

This project has provided me with a very unique opportunity and one of the biggest challenges I have faced in my educational career at Davis. The opportunity for analyzing the implications of Los Angeles commuters on the landscape, the infrastructure, and the sociological and physiological difficulties associated with such commutes, while also developing an urban design plan that incorporated entertainment, living, hospitality, and most importantly jobs, for a site adjacent to the Magic Mountain theme park in Southern California, was not only beneficial to develop but very complex. My inexperience in this direction of design and the scale for which I wanted to work at, within the limited time span, became a very difficult task to achieve. In addition, my original design intent, focusing on accommodating theme park patrons, became more focused on creating a self-sustaining community which provided residents with jobs, shopping, and entertainment, deterring outside travel, ultimately reducing the carbon footprint of the area.

Unfortunately, this realization only became fully understood during the fifth week of the quarter and would lead me to frantically develop the research and design, leaving me only six weeks to complete a project which should normally take two quarters if not longer, to fully develop.

This document, will allow me to share my findings and design directions with you and hopefully provide you with the enjoyment it has given me, helping you move forward wherever you may be on your own roller coaster ride.

Introduction

Stemming from the concept of beginning and end, the focus of this project is to examine the opportunities for a carbon neutral community within suburban Los Angeles neighborhood of Valencia, Ca. The concept, reinforced by the site, which has been landmark for attracting residents to Valencia, will strive to end the sprawling developments, which have spread out and overtaken the rolling hills and valleys of the area. The concept, will also strive to reduce carbon footprints, through a compact design, which provides residents with the jobs and lifestyle amenities they require. This will be achieved through a plan that offers multi story residential units, combined with corporate offices, entertainment, and self-sustaining infrastructure. Furthermore, the development will serve as a model for future developments and inspire new directions in planning and development of other cities within the greater Los Angeles region.

The following story published by the Los Angeles Daily News helps reinforce the need for such development. Titled "Car-maggedon, possible with 405 closure" the article discusses the major issues created with closing the 405 freeway for infrastructure repairs, stating, "only in Los Angeles could a weekend freeway closure be compared to the end of the world. "(Nguyen, 2011) Authorities will close Interstate 405 to do road work in July, and they took the step Monday of issuing a dire warning a full month ahead of time because of the potential traffic nightmare it could cause on one of the nation's busiest freeways. (Nguyen, 2011) "This doesn't need to be a car-mageddon," county Supervisor Zev Yaroslovsky said at a news conference. "The best alternative route is to totally avoid the 405 area, completely avoid it, don't come anywhere near it, don't even think about coming to it. Stay the heck out of here." (Nguyen, 2011) Mayor Antonio Villaraigosa inadvertently made a point about the congestion, showing up a half-hour late because, you guessed it, there was heavy traffic on the freeway. (Nguyen, 2011) "If you think it's bad now, let me just make something absolutely clear: On July 16th and 17th, it will be an absolute nightmare," Villaraigosa said in a parking lot overlooking the freeway, where morning traffic

sounded like a rushing river. (Nguyen, 2011) On a typical July weekend, about 500,000 vehicles use that section of freeway to get to major destinations such as the airport, beaches and interchanges to other major highways. (Nguyen, 2011) Jessica Ayres, who commutes on the freeway to get to her job at a hotel, plans to stay close to home in Playa del Rey that weekend. “I’m going to walk to the grocery store, go get stuff, have a bonfire by the beach and not use my car,” Ayres said. “You don’t have to go on the 405 to have a good weekend.” (Nguyen, 2011)

A firm believer in the idea of creating a model of new development, is Dutch architect Raoul Bunschoten, who believes that it is an urban prototype that is needed to change the overall dynamics of a city. He states that an urban prototype is the form that specifically belongs to urban complexity, which links processes within this complexity, to create a new connection, a new network, a new function. Furthermore, it is these prototypes that are both machines and models, connecting processes and creating pilot projects. They contain systems that create an output that changes an environment and they enable us to study the effect of that output. They are engines of change and as well as didactic tools about the benchmarks of that change.

By utilizing such prototypes, we not only have the opportunity to produce ideas for such new directions, but utilize them as an example for future implementation, allowing society to become acquainted with this new aesthetic.

This project will hopefully create such opportunities and provide inspiration into the ways in which these directions can be accomplished, enabling residents to better understand their energy, transport, food and consumer goods consumptions in a transparent, engaging, and cost effective way. Ultimately, the project will strive to end the major difficulties associated with the previous article, helping create mind sets similar to Ms. Ayres, “You don’t have to go on the 405 to have a good weekend.” (Nguyen, 2011)

Chapter One - Precedent Study

European cities have long been regarded as sustainable cities, coupling walkable streets with compact developments, creating an environment where the automobile and its associated environmental and cultural implications are not heavily emphasized. Consequently, mass transit systems and biking have taken priority. As we have moved into the 21st century, efforts have been made to address the implications for which suburban and urban sprawl have created a reliance on the automobile. Issues such as ecological degradation, global warming, and energy and resource depletion have created opportunities for investors and architects to develop solutions and design ideas that aim to solve many of these issues and cluster inhabitants with their resources. The following urban design competition is one of the few new approaches that examines the opportunities and constraints associated with development that seeks to be carbon negative. Each proposal is described to illustrate proposed concepts and illustrations provide visual assessments of design elements.

SITRA, a Finnish Innovation Fund created the competition to address the need for sustainable building practices. The goal was to recognize the opportunity for a reclaimed harbor in the city of Helinski, Finland, where a large building complex would house the company's operations. The development would also determine ways in which a transition could occur from carbon neutral to carbon negative.

According to Sitra, "Given that the repertoire of sustainable urban development models is still in its infancy, the question of "who & how" is our question of first order. (SITRA, 2009)

WHO: We believe that identifying the best team and approach is the key factor impacting the robustness of the final solution.

HOW: Our competition is designed to seek approaches for four central objectives applied at the scale of a city block:

1. Low- and one day no- carbon emissions
2. Energy efficiency
3. High architectural, spatial and social value

Sustainable materials and methods" (SITRA, 2009)

The three part challenge was to design a strategy, or a model, of the dynamics which support the architectural features, design an indicator of sustainability for which the development and future developments could be measured, and design an overall vision for the project. (SITRA, 2009)

Solutions for the above outcomes addressed the following questions: What is a sustainable development framework that is both replicable and adaptable to our site? What is a robust indicator useful for evaluating the sustainability performance of our solution? How can it have large-scale applicability? What kind of change can it trigger? More than a design, we are looking for a credible strategic framework for change, and the principals upon which the framework was built.
(Marco Steinberg; from the Stroke Pathways Project, Harvard Design School)

Each concept and its associated illustrated proposals are presented in subsequent pages, which have been provided by the competition website www.low2no.org.

City as a living factory of ecology- ARUP – Sauerbruch Hutton – Experientia – Galley Eco Capital. C_life (City as Living Factory of Ecology) is a real time and real space demonstration of how to live, work, play and learn, producing innovation that benefits people, the environment and the economy. (SITRA, 2009)

Figure 1.1

c_life attracts Living, Leisure, Innovation + Entrepreneurship creating an environment that will bring people and families to live and work in the new centre of Helsinki, demonstrating that moving into a well designed and sus-

tainable city block is an affirmative action leading to a healthier, more productive and creative lifestyle. (SITRA, 2009)

c_life is a living factory of ecology, enabling SITRA to attract start ups and other companies by creating a stimulating environment for entrepreneurship, where prototyping of built environment policies, technologies and services can be showcased. c_life is a carbon negative initiative. People living in community will see their carbon footprint reduced by 37% in 2012 and by 43% in 2037, compared to living elsewhere in Helsinki. Furthermore, an offsite wind farm, funded by the development, will offset the remainder of the carbon, making c_life carbon negative by 2021. (SITRA, 2009)

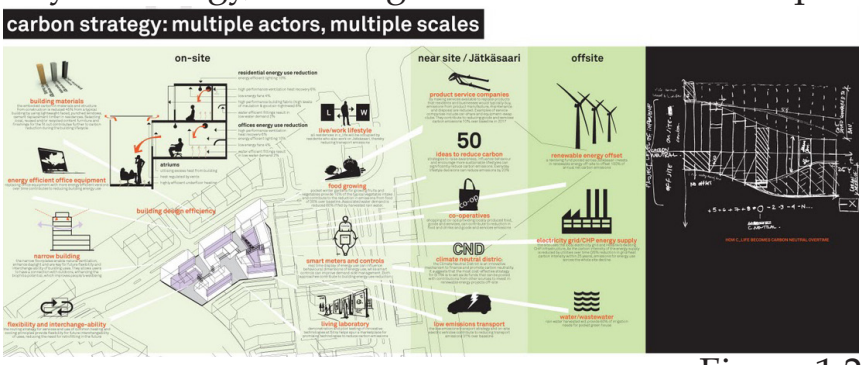


Figure 1.2

c_life's 50 ideas to reduce carbon emissions will enable people to understand choices about their energy, transport, food and consumer goods, to impact their carbon and ecological footprints in a transparent, engaging, fun and cost effective way. (SITRA, 2009)

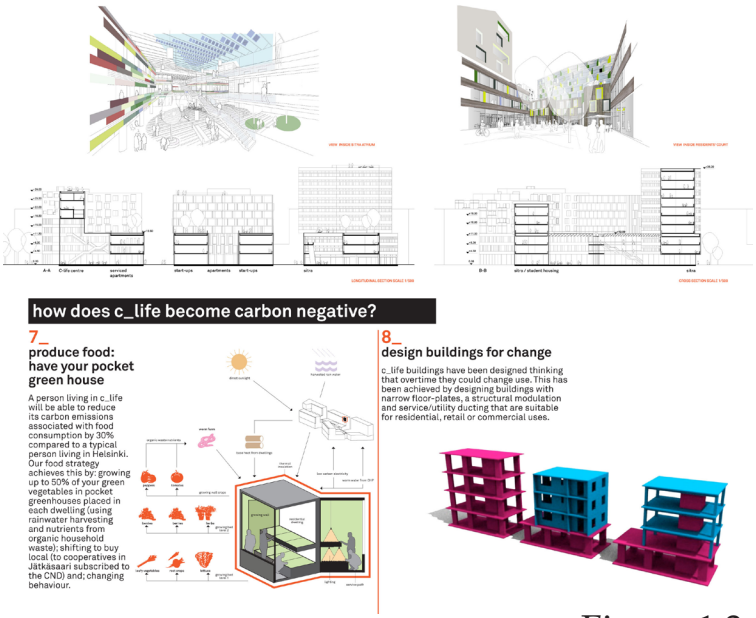


Figure 1.3

c_life is the first to benefit from the Climate Neutral District, a governance and economic framework that ensures a cost effective and holistic delivery of Jätkäsaari, as a carbon negative proposition. (SITRA, 2009)

Cradle of Innovation- WSP Group – Heatherwick Studios – B&M Architects – JK MM Architects – Space Syntax – Helsinki University – AA Palmberg Ltd – Pekka Himanen – Pauli Aalto-Setälä

Cradle of Innovation has 3 main objectives:

Figure 1.4

1. Create the replicable 'DNA' of a new Low2No carbon urbanism based on our 'Helsinki Principles'. (SITRA, 2009)

2. Create an iconic architecture that has the power to excite and transform. (SITRA, 2009)

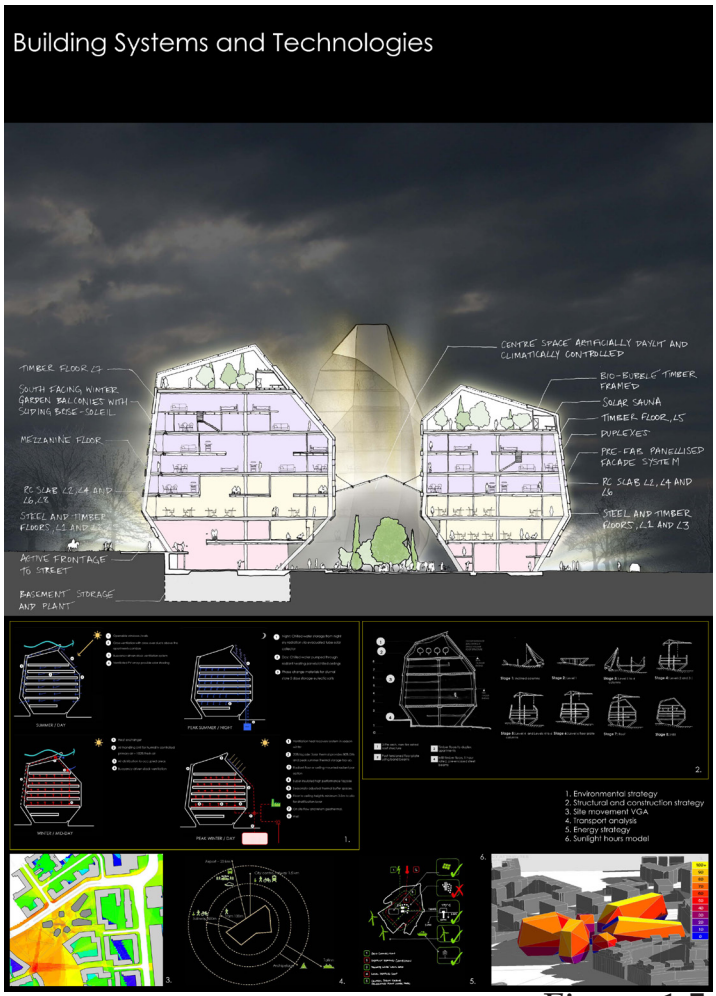


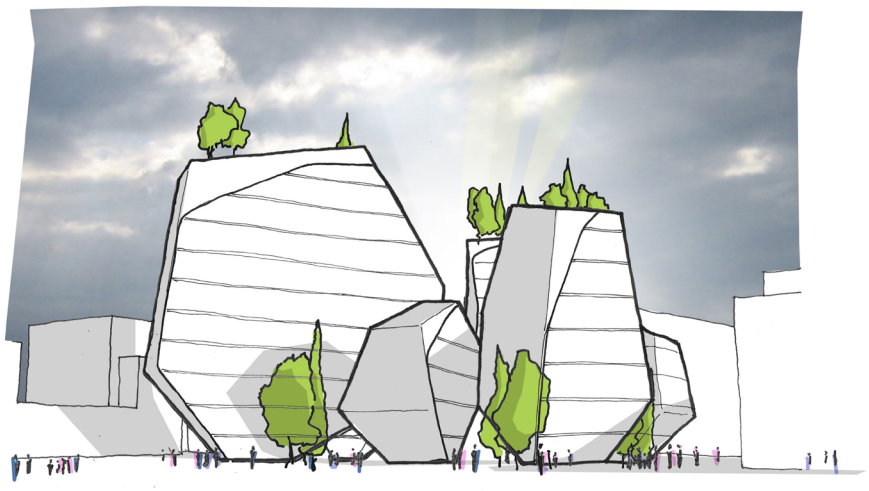
Figure 1.5

3. Promote 'carbon positive' citizens. (SITRA, 2009)

The 'Low2No cradle' looks and feels different, creating a new kind of public space in Helsinki. The design is centered on the 'market of ideas'; a vibrant urban foyer located at the heart of the family of buildings that comprise the development: seamlessly connected to Helsinki and the world. (SITRA, 2009)

The building is to be iconic and exciting to help transition Helsinki and Finland towards a carbon-free society. It is a new approach to sustaining carbon-free communities and lifestyles at the heart of the city; ranging from experimental roof-top urban farms to personalized web-accessed carbon portals, to IT smart communication and control systems, communal solar saunas and flexible and adaptable living working spaces. (SITRA, 2009)

The building shows how solar technologies can be used in Nordic regions to generate all the electricity requirements from building integrated systems as well as using waste heat from Helsinki's power stations, storing it underground in the summer and re-using it for space heating in the winter. (SITRA, 2009)



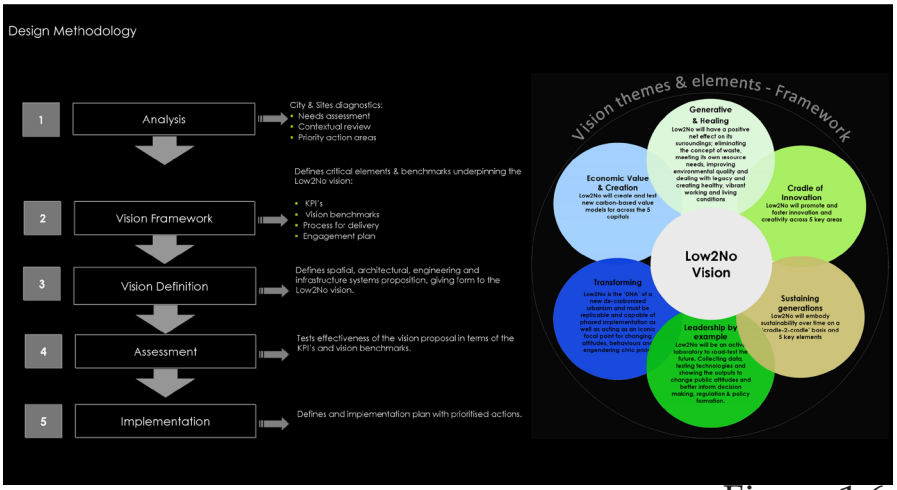


Figure 1.6

Low Carbon-High Urban Peter Rose & Partners – Michael Van Valkenburgh Associates – Guy Nordenson and Associates – Matthias Schuler, Transsolar Climate Engineering – Mobility in Chain – ARO Architectural Research Office. (SITRA, 2009)

Conceived as an urban generator for Jätkäsaari, the project is located on the most visible and prominent site on Jätkäsaari. It will be the first building that comes into view as one approaches Jätkäsaari from downtown Helsinki. The first building to be constructed, is designed to be the harbinger of the sustainable future, and witness to its unfolding over time. (SITRA, 2009)

The strategies of sustainability employed in this building complex prefigure those of the larger project. These strategies include:

- The use of wood gas as a fuel for an on-site micro electrical and heat generator
- Solar panels on the roof and south facing walls to produce electricity
- Construction that privileges the use of wood, both for its cultural/economic value as a native material, and to embed carbon within it, avoiding the emission of carbon by reducing the amount of concrete used
- Ready access to public transport by both tram and boat. (SITRA, 2009)

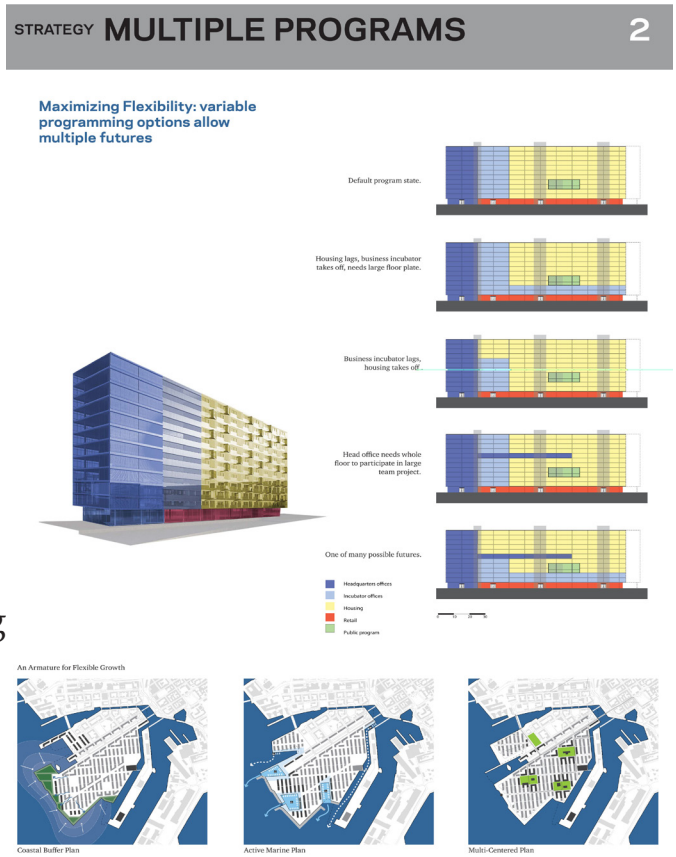


Figure 1.7

One of the most important aspects, and a key sustainability strategy of this structure is the high level of programmatic flexibility of the building. (SITRA, 2009)

In addition to containing multiple programs, the design and location of the cores allow the programmatic contents of the building to be adjusted not only in terms of location, but also proportionally – in relation to one another – without disrupting the basic legibility and civilized use of the building. (SITRA, 2009)

Figure 1.8

Figure 1.9

Rebuilding 2.0- REX/Croxton Collaborative/NOW – Transsolar Energietechnik – Magnusson Klemencic Associates – Bureau Bas Smets – 2×4 – Arup New York – Front – Jonathan Rose Companies (SITRA, 2009)

Sustainability mandates systemic change. Systemic change requires doing more. Sustainability requires impacting less. REBUILDING 2.0 is a strategy for Finland to impact less by doing more. Finland has a history of surmounting collective challenges with nation-wide rebuilding projects. Currently, Finland has one of the world's largest per capita ecological footprints, and faces an extraordinary challenge in overcoming its environmental deficit.
Energy efficient buildings alone are not enough to meet this challenge. Only by changing behavior— particularly mass migration to the suburbs and its accompanying carbon-intensive lifestyle—can Finland reach ecological balance. (SITRA, 2009)

Figure 1.10

Finland must initiate REBUILDING 2.0, a new national project to make more Nature, more City and less Sprawl. (SITRA, 2009)

Built on Jätkäsaari, but learning from Helsinki's core, THE REBUILDING is a tool for generating more density, more diversity, more City at the building scale. Two Residential Towers, repurposing Finland's steel capabilities for sustainable and adaptable construction, provide light, air and views to its inhabitants. Its Head-


Figure 1.11

quarters unites the need for community-building with the seemingly contradictory demand for flexibility. Its Urban Infill offers 50.000 m3 of potential, capable of being "tuned" to meet the specific and changing needs of its neighborhood, while affording greater stakeholder participation. Although it reduces energy consumption by 39% and carbon emissions by 50% relative to a comparable code compliant project, THE REBUILDING recognizes that urbanity itself is the embodiment of sustainability. It is dense, diverse, evolving and full of people—living and working, meeting and sleeping, growing up and making things. (SITRA, 2009)

Figure 1.12

ReciproCity- Bjarke Ingels Group, BIG – Vahanen – ARUP Foresight Innovation – Transsolar Energietechnik – Anttinen Oiva Arkkitehdit AoA – Masu Planning – Passiivitalo.fi – Pasi Mäenpää – Mikko Jalas (SITRA, 2009

The last of the four concepts, ReciproCity is an architectural principle applicable to any given master plan, land use map or urban matrix. ReciproCity optimizes the potential benefits of natural daylight, sky exposure as well as passive and active solar heat gain. (SITRA, 2009)

Figure 1.13

Rather than focusing selfishly on the singular project, it is a principle that offers mutual exchange for mutual benefit. By applying design parameters to the individual block, guided towards optimizing the conditions for its neighbors, letting the neighbors reciprocate the courtesy; an urban volumetric logic that creates optimal conditions is created, ensuring a spatially varied and visually stimulating townscape. (SITRA, 2009)

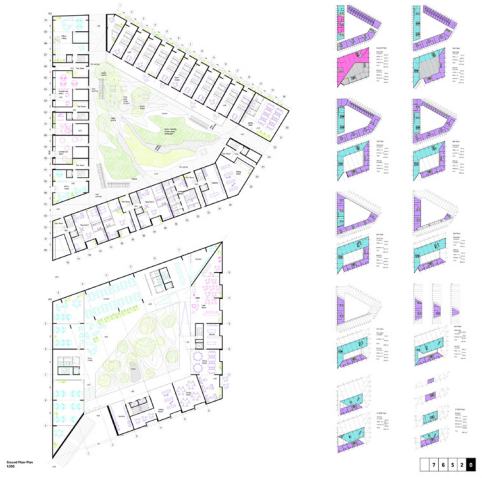


Figure 1.14

In addition to the principles of ReciproCity, a whole palette of ideas operating at various scales is created: from the scale of the inter city network of ferries to the scale of the individual living and working unit. The ideas include the active use of geothermal heat storage and earth cooling as well as cleaning the air and water using the natural properties of selected plants. (SITRA,

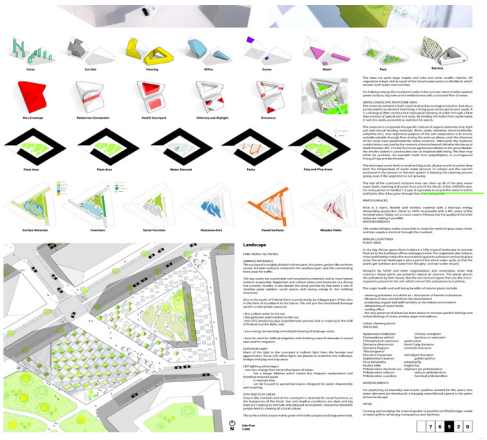


Figure 1.15

2009)
These ideas are driven by technical capabilities and functional demands and are free to improve and evolve as habits change and technologies improve during Jätkäsaari's gradual completion over the next decades. (SITRA, 2009)

This proposal for Sitra's site in Jätkäsaari looks at flows of resources at 4 different scales.

1. The Ecosystem of Jätkäsaari in the context of the Gulf of Finland
2. The ecosystem of the neighborhood
3.The ecosystem of the building
4. The ecosystem of the living/working unit
(SITRA, 2009)

Chapter Two - Design Theories

Many theories occur with regards to sustainable urban form and the ideas behind the elements that allow such form to be successful. The purpose of my research is the development of a model that not only transforms a site into one that is engaging and responsive to its context but one that works to incorporate the sustainability principles for which this new urban design direction strives to promote. As shown in the precedent study of Helinski, such elements, when working in conjunction with one another allow such directions to function properly. The following design concepts by Timothy Beatley and his colleagues provide strong directions related to form. These concepts are essential to understand, if such sustainable developments are to be successful in their efforts and carbon footprints are to be reduced.

According to Timothy Beatley, there are seven concepts, which work in conjunction with one another to promote sustainable urban form. The first includes the idea of compactness, which also refers to urban contiguity. When the concept is applied to existing rather than new urban fabric, it refers to the containment of further sprawl, rather than the reduction of the present sprawl (Hagan 2000). Compactness of urban space can minimize transport of energy, water, materials, products, and people (Elkin, McLaren, and Hillman 1991). Intensification, a major strategy for achieving compactness, uses urban land more efficiently by increasing the density of development and activity. The intensification of the built form includes development of previously undeveloped urban land, redevelopment of existing buildings or previously developed sites, subdivisions and conversions, and additions and extensions (Jenks 2000, 243). Following four major themes, the goal is to promote development that allows additional surrounding land uses to be preserved because of a decrease in footprint, increase in the quality of life through the opportunities for social interaction, conservation of energy through shared resources, and reduction of greenhouse gas emissions by promoting amenities from a local source. Compactness promotes enclosure and the opportunity for walkable streets and engaging activities through shared uses. As a result it denies commuting and recycles its outputs.

Figure 2.1

Density, the ratio of people or dwelling units to land area, celebrates this notion of compact design. The relationship between density and urban character is also based on the concept of viable thresholds: at certain densities (thresholds), the number of people within a given area becomes sufficient to generate the interactions needed to make urban functions or activities viable. Density and dwelling type affect sustainability through differences in the consumption of energy; materials; and land for housing, transportation, and urban infrastructure (Walker and Rees 1997). High density and integrated land use not only conserve resources but provide for compactness that encourages social interaction. While the concept is often well respected, others have argued otherwise for dispersed living patterns with reduced density. Clark, Burall, and Roberts (1993, 146) have argued that sustainable development implies a "self-support economy" and requires "more land for outbuildings and outdoor activities . . . and a general reduction in net residential densities." Similarly, Robertson (1990) has argued in favor of a decentralized future based upon a return to the countryside and a revival of rural values. Despite the differences, both viewpoints agree with the fourth concept of mixed land uses.

Figure 2.2

Mixed-use or heterogeneous zoning allows compatible land uses to locate in close proximity to one another and thereby decrease the travel distances between activities (Parker 1994). Mixed land use also indicates the diversity of functional land uses such as residential, commercial, industrial, institutional, and those related to transportation. Reducing the need for travel is on the agenda of achieving sustainable urban form, and mixed land use has a prominent role in achieving it. Mixed land use reduces the probability of using a car for commuting, shopping, and leisure trips, since jobs, shops, and leisure facilities are located nearby (Alberti 2000; Van and Senior 2000). For the past several decades, urban planning has been "unmixing" cities by the use of rigid zoning that separates single land uses into differently colored parts of the city plan. The result is a

Figure 2.3

city with less diversity in local areas and more traffic, as well as reduced safety and diminished attractiveness of local streets (Newman 1997). For a sustainable urban form, mixed uses should be encouraged in cities, and zoning discouraged (see Breheny 1992b, 22). The relationship between compactness and density and mixed land uses creates a pattern for which population needs are met within a compact setting, creating more opportunities for local investments and less opportunities for automobile use and its subsequent negative environmental impacts.

Additionally, diversity of urban spaces plays a large role in sustainable success. Jacobs writes, "In dense, diversified city areas, people still walk, an activity that is impractical in the suburbs and in most grey areas. The more intensely various and close-grained the diversity in an area, the more walking. Even people who come into a lively, diverse area from outside, whether by car or by public transportation, walk when they get there" (p. 230). For Jacobs, diversity is vital; without it, the urban system declines as a living place and a place to live. There are some similarities between diversity and mixed land uses; however, diversity is "a multidimensional phenomenon" (Turner, Robyne, and Murray 2001, 320) that promotes further desirable urban features, including greater variety of housing types, building densities, household sizes, ages, cultures, and incomes (see the Congress for the New Urbanism and U.S. Department of Housing and Urban Development 2000). Thus, diversity represents the social and cultural context of the urban form. It is what allows all of the concepts to work jointly with one another, because it promotes their integration. Diverse development contains a mixture of land uses, building and housing types, architectural styles, and rents. "If development is not diverse, then homogeneity of built forms often produces unattractive, monotonous urban landscapes, a lack of housing for all income groups, class and racial segregation, and job-housing imbalances that lead to increased driving, congestion, and air pollution" (Wheeler 2002, 328).The final two concepts focus on the elements that promote energy conservation and population health.

Passive solar design is central to achieving a sustainable urban form.
This design affects the form of the built environment through, for example, the orientation of buildings and urban densities (Thomas 2003). It is assumed that design, siting, orientation, layout, and landscaping can make the optimum use of solar gain and microclimatic conditions, to minimize the need

Figure 2.4

for space heating or cooling of buildings by conventional energy sources (Owens 1992). Yannas (1998, 43) summarizes some design parameters for improving urban microclimate and achieving environmentally sustainable cities:

1. Built form—density and type, to influence airflow, view of sun and sky, and exposed surface area Yannas (1998, 43)

2. Street canyon—width-to-height ratio and orientation, to influence warming and cooling processes, thermal and visual comfort conditions, and pollution dispersal Yannas (1998, 43)

3. Building design—to influence building heat gains and losses, albedo and thermal capacity of external surfaces, and use of transitional spaces;

4. Urban materials and surfaces finish—to influence absorption, heat storage, and emissivity Yannas (1998, 43)

5. Vegetation and bodies of water—to influence evaporative cooling processes on building surfaces and/or in open spaces Yannas (1998, 43)

6. Traffic— reduction, diversion, and rerouting to reduce air and noise pollution and heat discharge. Yannas (1998, 43)

Greening seeks to embrace nature as integral to the city itself and to bring nature into the life of city dwellers through a diversity of open landscapes (Elkin, McLaren, and Hillman 1991, 116). Greening of the city makes urban and suburban places appealing and pleasant (Van der Ryn and Cowan 1995; Nassauer 1997) and more sustainable (Dumreicher et al. 2000).
There are many other benefits from greening urban spaces (Swanwick, Dunnett, and Woolley 2003; Beer, Delshammar, and Schildwacht 2003):

1. Contributions to maintenance of biodiversity through the conservation and enhancement of the distinctive range of urban habitats (Gilbert 1991; Kendle and Forbes 1997; Niemela 1999)

2. Amelioration of the physical urban environment by reducing pollution, moderating the extremes of the urban climate, and contributing to cost-effective sustainable urban drainage systems (Von Stulpnagel, Horbert, and Sukopp 1990; Plummer and Shewan 1992; Hough

1995)

3. Contributions to sustainable development to improve the image of the urban area.

4. Improvement of the urban image and quality of life (DoE 1996)

5. Increasing the economic attractiveness of a city and fostering community pride (Beer, Delshammar, and Schildwacht 2003). Greening also has health benefits (Ulrich 1999) and an educational function as a symbol or representation of nature (Forman 2002). Finally, greening aims also to preserve and enhance the ecological diversity of the environment of urban places.

In Green Urbanism, Timothy Beatley (2000) emphasizes the important roles of cities and positive urbanism in shaping more sustainable places, communities, and lifestyles. He contends that our old approaches to urbanism are incomplete and must be expanded to incorporate more ecologically responsible forms of living and settlement. In Beatley's view, a city exemplifies green urbanism if it:

1. Strives to live within its ecological limits.

2. Is designed to function in ways analogous to nature.

3. Strives to achieve a circular rather than a linear metabolism.

4. Strives toward local and regional self-sufficiency.

5. Facilitates more sustainable lifestyles.

6. Emphasizes a high quality of neighborhood and community life (pp. 6-8).

Furthermore, In addition to these seven principles for design, Jeffrey Kenworthy a professor in Sustainable Cities at the Institute for Sustainability and Technology Policy at Murdoch University in Perth describes 10 dimensions that help to further promote the concept of an eco-city as follows.

- The city has a compact, mixed-use urban form that uses land ef-

ficiently and protects the natural environment, biodiversity and food-producing areas. (Kenworthy, 2010)

- The natural environment permeates the city's spaces and embraces the city, while the city and its hinterland provide a major proportion of its food needs. (Kenworthy, 2010)

- Freeway and road infrastructure are de-emphasized in favor of transit, walking and cycling infrastructure, with a special emphasis on rail. Car and motorcycle uses are minimized. (Kenworthy, 2010)

- There is extensive use of environmental technologies for water, energy and waste management – the city's life support systems become closed loop systems. (Kenworthy, 2010)

- The central city and sub-centers within the city are human centers that emphasize access and circulation by modes of transport other than the automobile, and absorb a high proportion of employment and residential growth.

- The city has a high-quality public realm throughout that expresses a public culture, community, and equity and good governance. The public realm includes the entire transit system and all the environments associated with it. (Kenworthy, 2010)

- The physical structure and urban design of the city, especially its public environments, are highly legible, permeable, robust, varied, rich, visually appropriate and personalized for human needs. (Kenworthy, 2010)

- The economic performance of the city and employment creation are maximized through innovation, creativity and the uniqueness of the local environment, culture and history, as well as the high environ- mental and social quality of the city's public environments. (Kenworthy, 2010)

Beatly argues, "Planning for the future of the city is a visionary "debate and decide" process, not a "predict and provide", computer-driven process. With the continuation and evolution of these ideas, designers must look to not only understand their prevalence but also understand their abilities to create opportunities that allow for their incorporation into facets of American culture where they can become popularized and accepted." (Beatley, 2000)

My goal is to use these principles as a basis for designing, allowing for infrastructure and institutional amenities while promoting lower impacts within the greater context of the urban fabric. With each succeeding chapter, an analysis of existing contextual conditions will permit an evolution of design within my specific site, ultimately creating an environment that promotes the health and well being of those inhabiting the space, while preventing a greater impact on the landscape within the greater context of the city of Los Angeles. The subsequent chapter focuses on analysis and preliminary ideas.

Chapter Three - Site Introduction

When exploration began a few months ago with regards to a site to be studied, the goal was to find an area that had potential for evolving into something vibrant, one that had high traffic flows and great potential. The site chosen in Valencia, Ca, adjacent to the Magic Mountain theme park, provided such parameters and offered an opportunity for a community of permanent residents who could live and work entirely within the space. Historical information and site analysis became imperative to understanding the opportunities for design and have come to play a vital role in determining the design direction.

Figure 3.1

Historical studies revealed that the development of this site began with the adjacent Magic Mountain theme park in 1968, when executives of Sea World, Inc., were looking for a place in Los Angeles County to build a new theme park. (Newhall 1992) Knowing that The Newhall Land and Farming Company had a large quantity of undeveloped land and that the company wanted to attract attention to its new town of Valencia, a county planner asked the Newhall Land and Farming president James F. Dickason, if he was interested in allowing for the building of a theme park and he was. (Newhall 1992) After intense negotiations, Sea World and Newhall Land formed a partnership and began construction on a 200-acre amusement park at the western edge of Valencia. (Newhall 1992) Seventy acres would be used for the park itself -- rides, theaters, games, food, landscaping -- and the rest for parking and ancillary services. (Newhall 1992) As a result, ground was broken in January 1970.

As technology improved, so did the tastes of park patrons. The thrills of the 1970s gave way to even bigger, faster rides. (Newhall 1992) With Magic Mountain and, subsequently, Valencia, now firmly on the map, The Newhall Land and Farming Company was ready to divest. (Newhall 1992) Newhall Land's final venture into theme park history was the Colossus roller coaster, which opened at the end of the 1978 season. (Newhall 1992) Newhall Land sold the park in 1979 for $51 million -- a profit of only $250,000 -- to Six Flags, a nationally renowned theme park company, which owned and operated five other amusement parks across the nation at the time. (Newhall 1992) Under Six Flags' ownership, the park blossomed into one of the biggest amusement parks in the world. Annual attendance quadrupled in the park's first quarter-century of operation, from 1 million in 1971 to roughly 4 million in 1996. (Newhall 1992) Even after the 1987 incorporation of the nearby City of Santa Clarita, whenever outsiders ask Valencian's where they live, the most common reply is, "near Magic Mountain." (Newhall 1992)

Figure 3.2

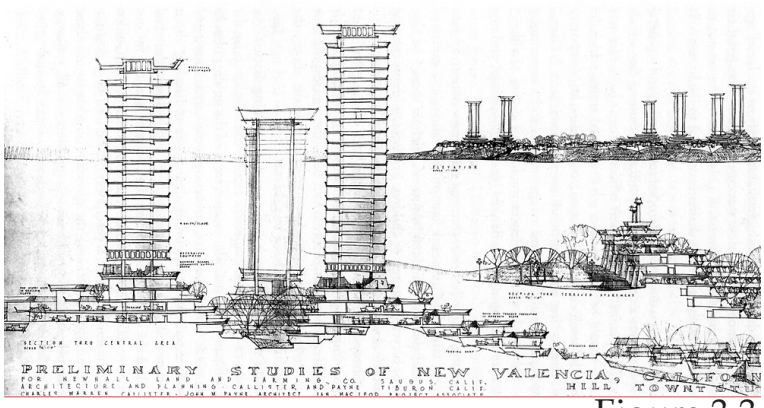


Figure 3.3

While Magic Mountain served as the first landmark to bring attention to the city of Valencia, the Newhall Land and Farming company's primary goal, was to use this identity to its advantage and create a new community, north of Los Angeles, that would provide residents a new destination outside of the city. In 1963, Newhall Land architect

Tom Sutton hired Bay Area architectural critic Warren Callister to design a concept for the New Town of Valencia. The original concept called for much more dense housing with a higher population than was actually built: high-rise apartments for some 200,000 people, surrounded by wide-open spaces.

According to Ruth Waldo Newhall, San Francisco planner and designer Warren Callister's plan was to preserve much of the flatland where cattle grazed for agriculture, grazing, and parks. His city would put people in compact units of hilltop towers, terraced hillside buildings, with a few valley complexes, all separated by stretches of open land. ... Callister described his idea: "A new city concept emerging out of the chaos of Los Angeles replaces the endless confusion of sameness with the heightened sense of a new and different place." However, despite these aspirations, Newhall Land moved more towards a community dominated by suburban homes of various sizes, where planned communities were developed with unique features, such as golf courses, lakes, and woodlands, separating them from the commercial and retail districts within the community. Planned industrial and corporate parks, were integrated within this framework and the community began to grow with great ambition.

Chapter Four - Regional Analysis

The research opportunities created through this project allowed for a regional analysis of the greater Southern California region, with emphasis placed on the issues of the automobile and its associated affects on the environmental and infrastructure networks within the area. Analysis concerning carbon emission output, travel distances and infrastructure impacts on the landscape, and sociological and physiological affects from automobile use were all analyzed and mapped, providing an argument for my proposal. In addition, resource usage concerning single family homes was analyzed, providing an argument for limiting such further development of single family home communities as a result of very high consumption and demands. The following graphical representations and associated descriptions illustrate my findings and help ground my design proposal.

Figure 4.1 illustrates the output of carbon in pounds per person for each mode of transportation utilized by Valencia commuters. The diagram reveals a pattern of higher carbon outputs with increased distances and less efficient modes of transportation.

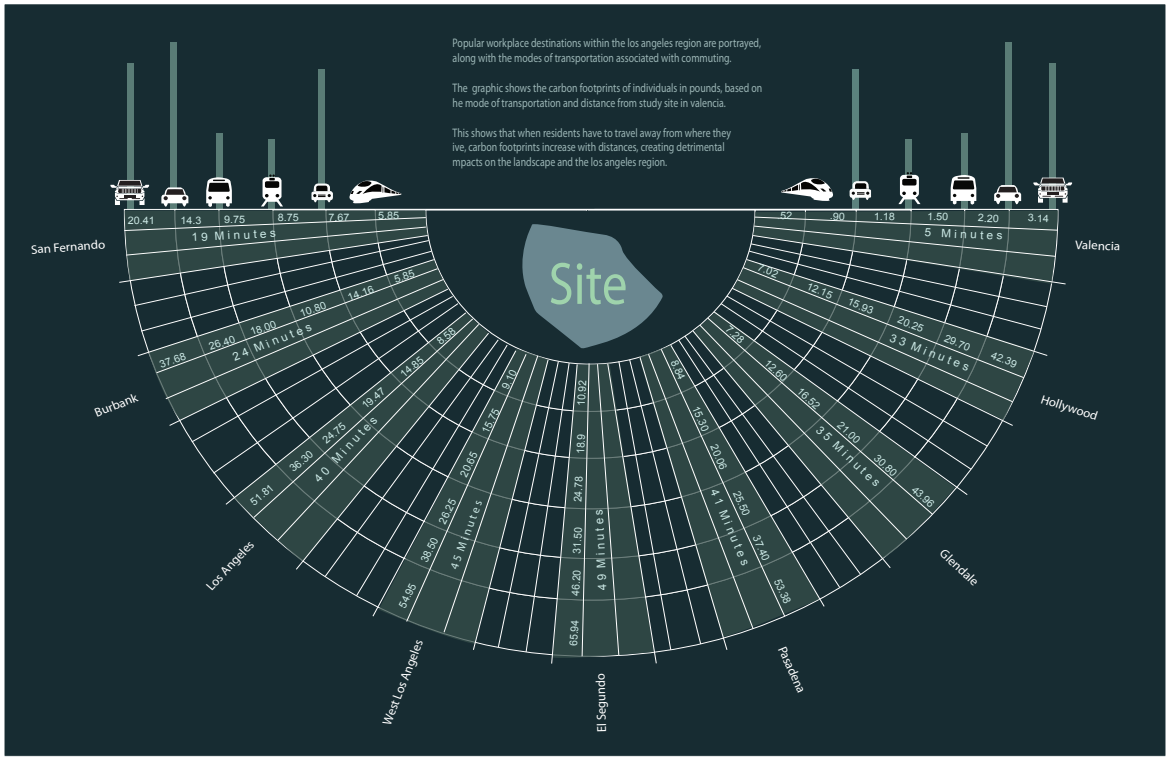


Figure 4.1 Carbon Emission Diagram

Figure 4.2 illustrates the freeways most frequented by commuters within the region and the cities providing the highest levels of jobs to residents of Valencia. The lineweights of the most heavily used freeways reveal the negative impacts commuters have on the landscape as well as the negative infrastructure impacts associated with such frequent usage.

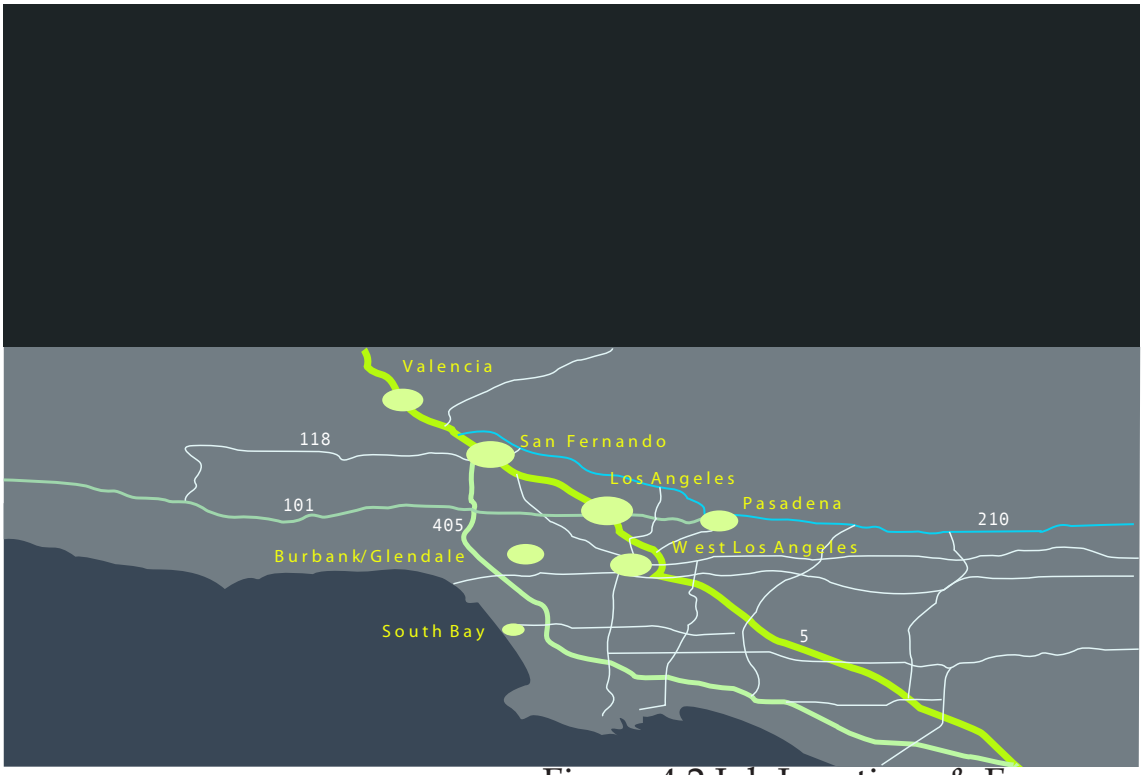


Figure 4.2 Job Locations & Freeway

Figure 4.3 reveals the patterns of commuter travel throughout the day from Valencia to the different cities within Los Angeles. The diagram reveals that traffic is heaviest in the early morning and late afternoon where congestion leads to increased delays and greater destruction of freeway networks. By clustering jobs and residential living, such impacts would be alleviated.

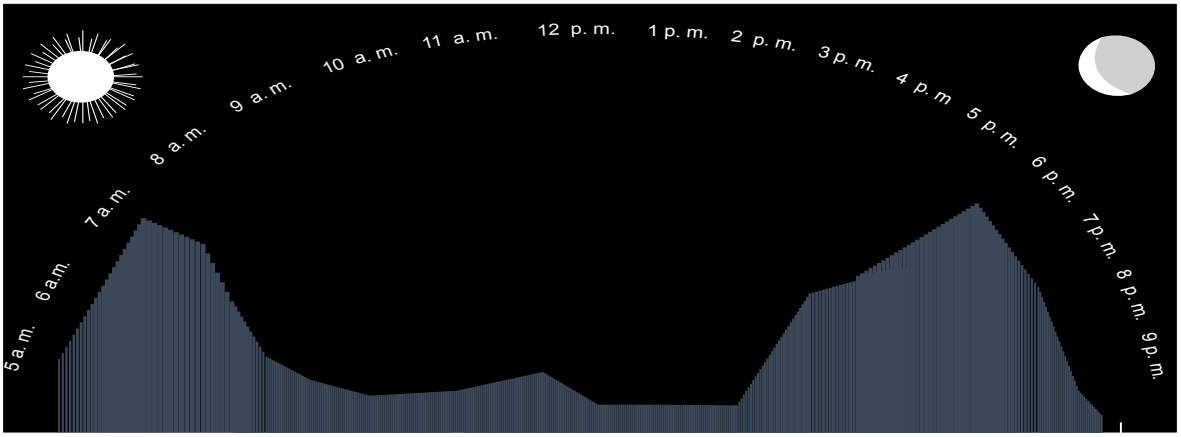


Figure 4.3 Travel Periods

Figure 4.4 displays the toll commuting plays on the individual. With heavy congestion and increased commuting periods from residents removed from their places of work delay and costs play a role on the physiological and psychological difficulties of commuters. Time and money are the two greatest losses associated with traveling and the diagram shows that the associated commuting issues of fuel, vehicle main

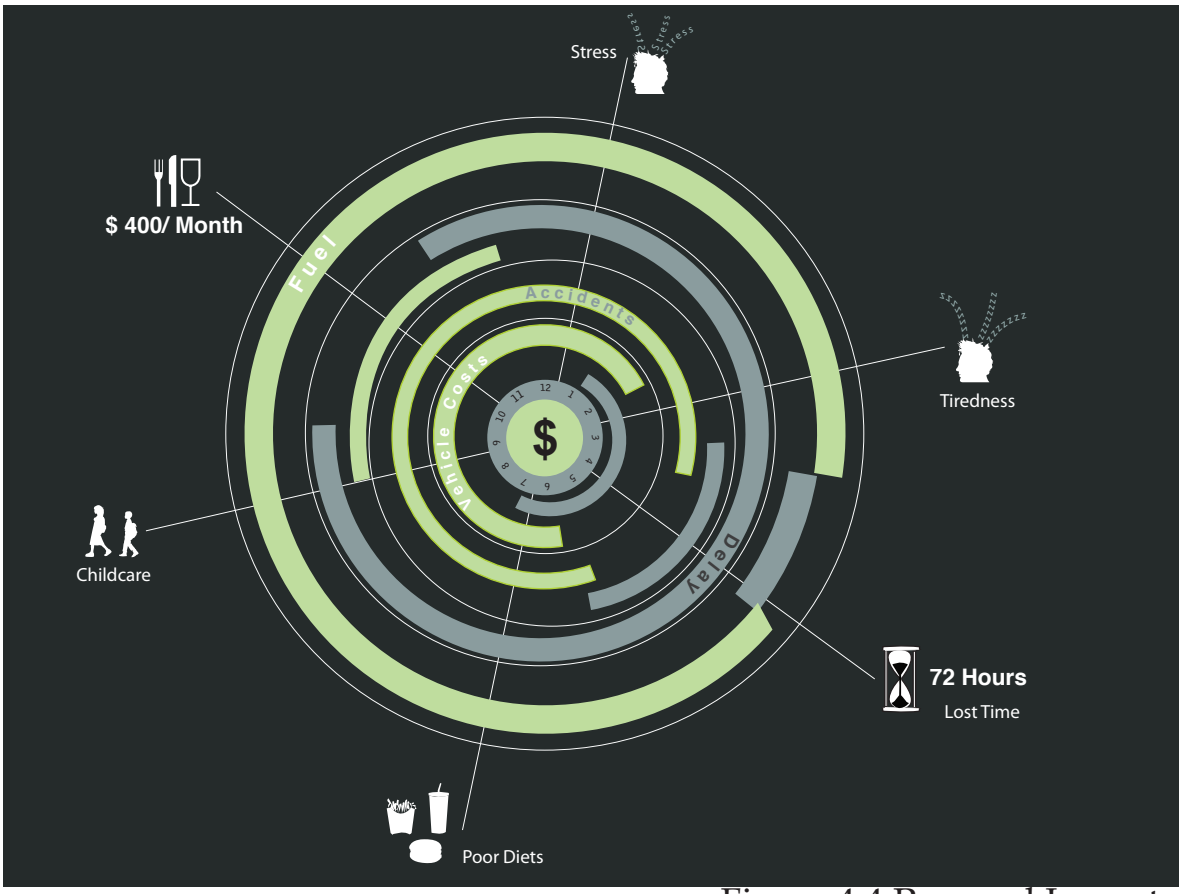


Figure 4.4 Personal Impacts

tenance, accidents, and delays cause issues related to personal losses. Each issue is separated with two different arcs, the green one representing the affects on the money and the gray arc representing affects on time. With different levels of time and money associated with each of the issues, losses can be assessed. Additionally, each radial line represents sociological issues related to the lost time and money associated with commuting. Increased childcare costs, poor diets, tiredness, stress, and lower budgets available for food, become associated with commuting.

Chapter Five- Context Analysis

In addition to the larger scale regional analysis that was done to provide a basis for carbon neutral design, a contextual analysis of the existing site conditions was provided to reveal proximities to amenities, such as food, education, public open space, and shopping and dining as well as important intersections, throughways, and barriers and physical landscape and environmental concerns. Additionally, demographic analysis was done to provide a basis for determining housing types and amenities required. Furthermore, current infrastructure demands of single family homes was analyzed to determine resource consumption of the areas most prominent housing types. This analysis would provide a basis for determining ways resource conservation would play within the development. The following diagrams begin with demographic and infrastructure analysis and move forward with analysis on distances to amenities and finally the site conditions themselves.

The following diagram reveals the most important demographic information necessary to determining the goals of development that should be emphasized, including income, household size, and transportation methods.

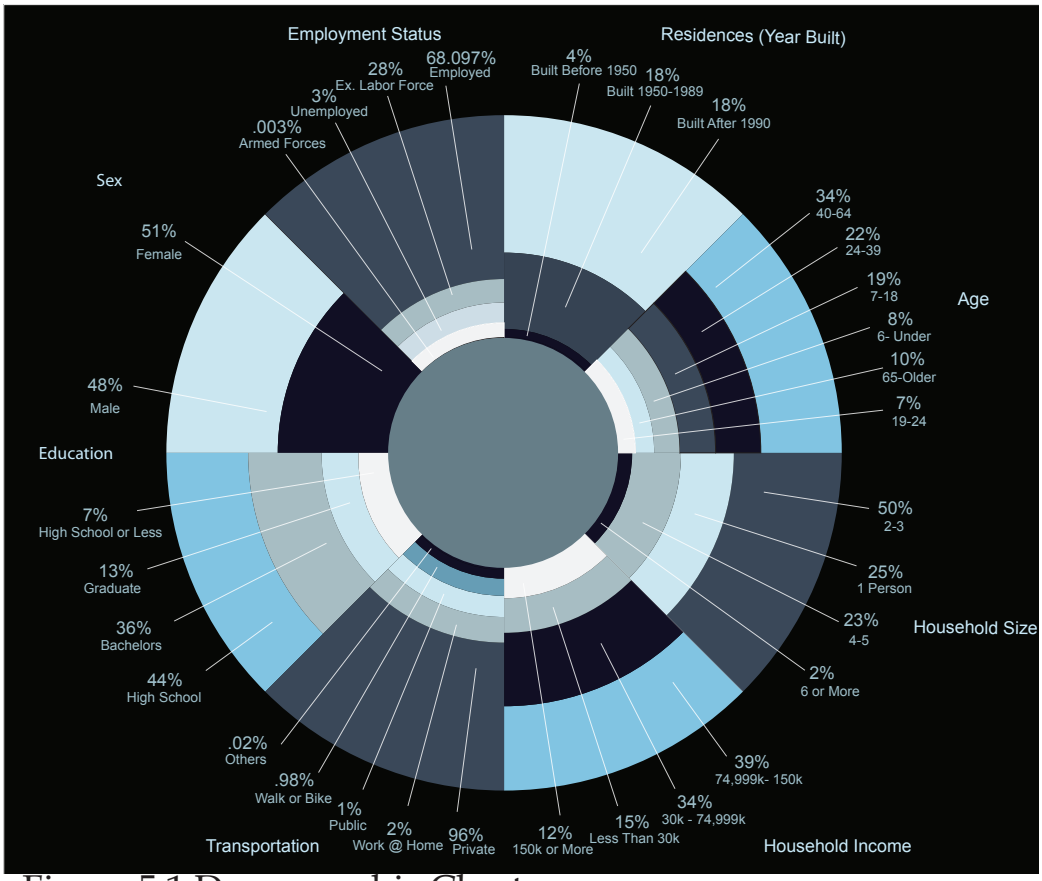


Figure 5.1 Demographic Chart

While Infrastructure demands of residences wasn't a main focus of my research or contextual analysis, my interest in mapping such consumption became important in determining the rate of consumption and the ways in which the proposed development could help alleviate such consumption through resource sharing and onsite treatment possibili-

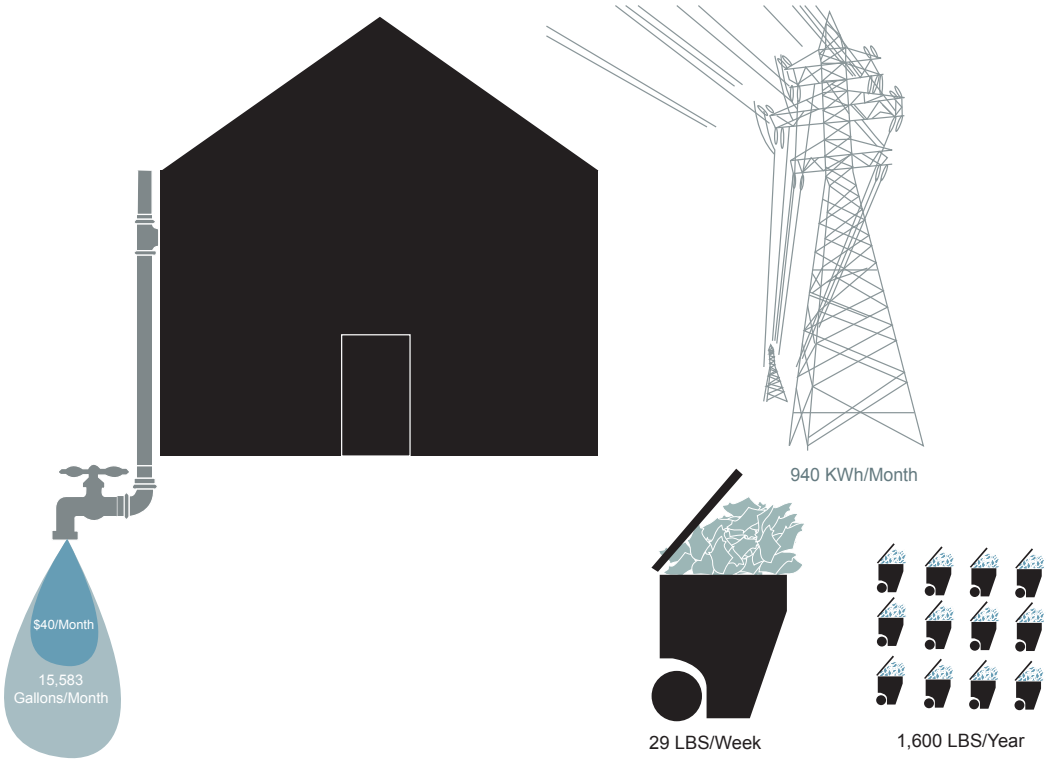


Figure 5.2 Infrastructure Demands

ties. The diagram reveals consumption levels and costs associated with electricity, water, and waste, the most influential demands in Southern California's hot, arid climate.

The subsequent graphical representations reveal 20 minute walking distances associated with existing living amenities. The illustration provides evidence of distance that exceed walkable or biking opportunities and thus reveal that automobile use would be inevitable should the development not incorporate the necessary needs of its residents. Basic necessities such as food sources, education, public open space, and shopping and dining options far exceed allowable distances. In addition, this information reveals that most communities within the city suffer from such disadvantages, providing evidence that new directions should be pursued to alleviate such concerns.

Figure 5.3 Context Analysis- Shops

The illustration above shows existing retail store locations and the 20 minute walking distance. The distance to the study site is approximately a 30-45 minute walk and 20- 30 minute bike ride. This information strongly suggests the needs for the incorporation of retail opportunities within the design proposal.

Figure 5.4 shows the closest existing grocery store locations and the 20 minute walking distance. The distance to the study site is approximately a 45 minute walk and 20- 30 minute bike ride. This information strongly suggests the needs for the incorporation of a food market within the design proposal.

Figure 5.4 Context Analysis- Grocery

This illustration shows the closest existing dining options and the 20 minute walking distance. The distance to the study site is approximately a 5-10 minute walk and 5 minute bike ride. This information suggests that dining opportunities currently exist, however, new options could be introduced within the development, proposal.

Figure 5.5 Context Analysis- Dining

This illustration below reveals the closest existing public parks and the 20 minute walking distance. The distance to the study site is approximately a one and a half hour walk and 45 minute bike ride. This information strongly suggests the needs for the incorporation of public open space within the design proposal.

Figure 5.6 Context Analysis- Public Park

This illustration shows existing school and the 20 minute walking distances. The distance to the study site is approximately a 1 hour walk and 30 minute bike ride. This information suggests that school choices may be an issue and should possibly be incorporated within the design proposal.

Figure 5.7 Site Analysis- Schools

Chapter Six- Site Analysis

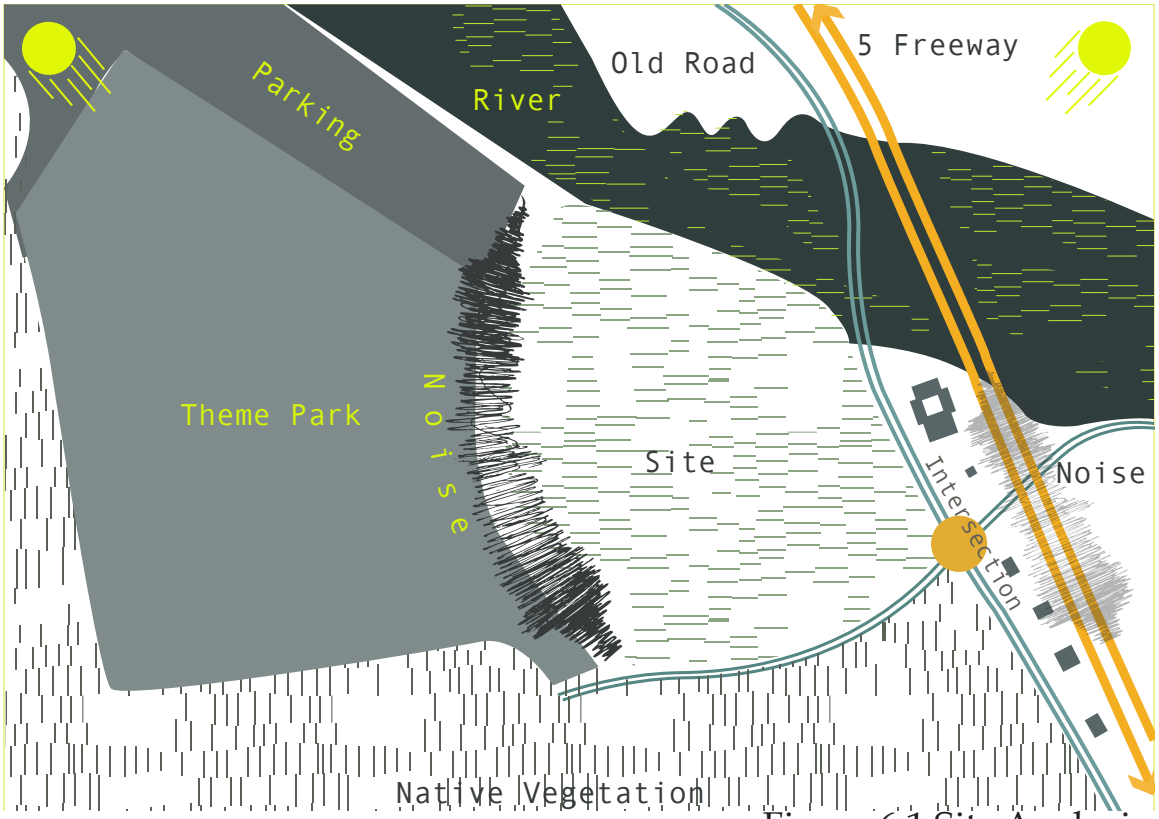


Figure 6.1 Site Analysis

This illustration above reveals the existing conditions that are prevalent in and around the study site. Issues such as freeway proximity and noise, theme park traffic and noise, river degradation possibilities, and major intersections and traffic are analyzed. Additionally, depleted vegetation and habitats, suggest the need for development that reduces such impacts and provides habitat opportunities for residents, creating a much healthier living environment.

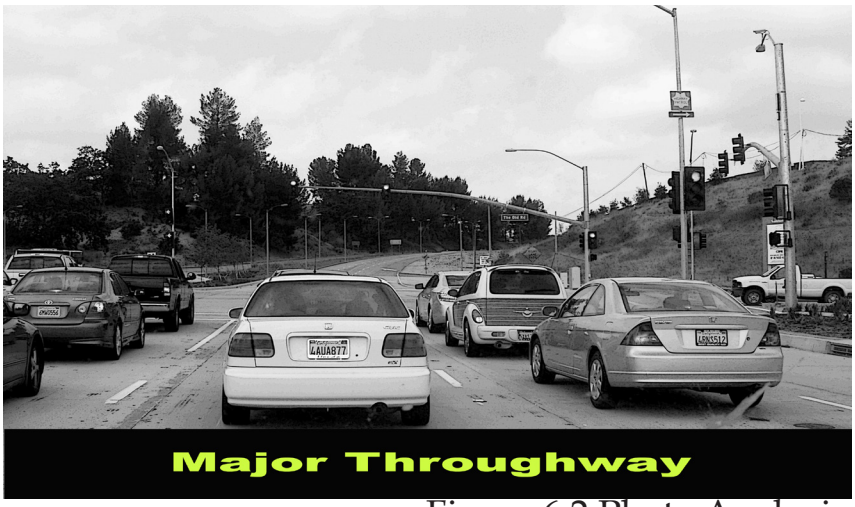


Figure 6.2 Photo Analysis

Figure 6.3 reveals high traffic rates and opportunities for a more appealing entrance.

Figure 6.3 Photo Analysis

Figure 6.4 reveals low vegetation cover and existing topography.

Figure 6.4 Photo Analysis

Figure 6.5 reveals issues with proximity to the freeway offramps and their associated noise and traffic issues.

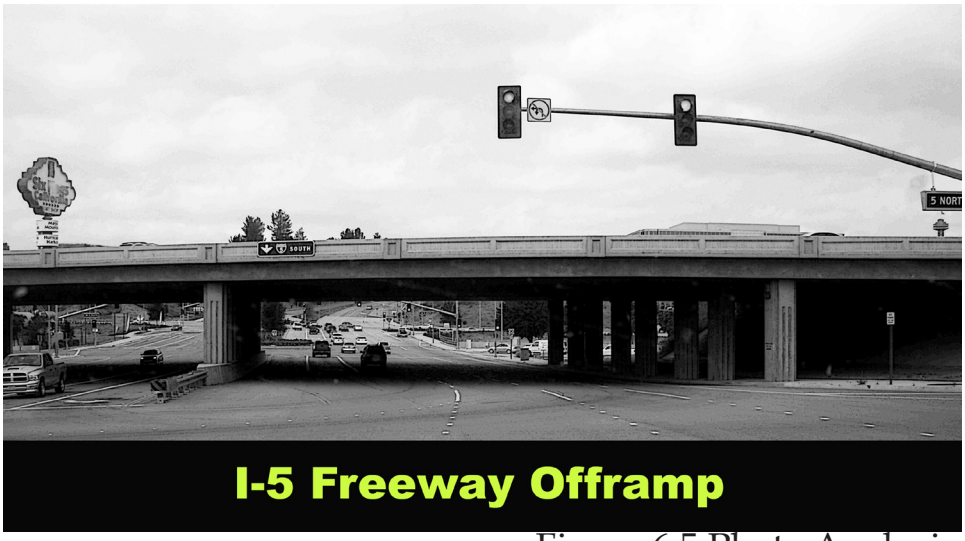
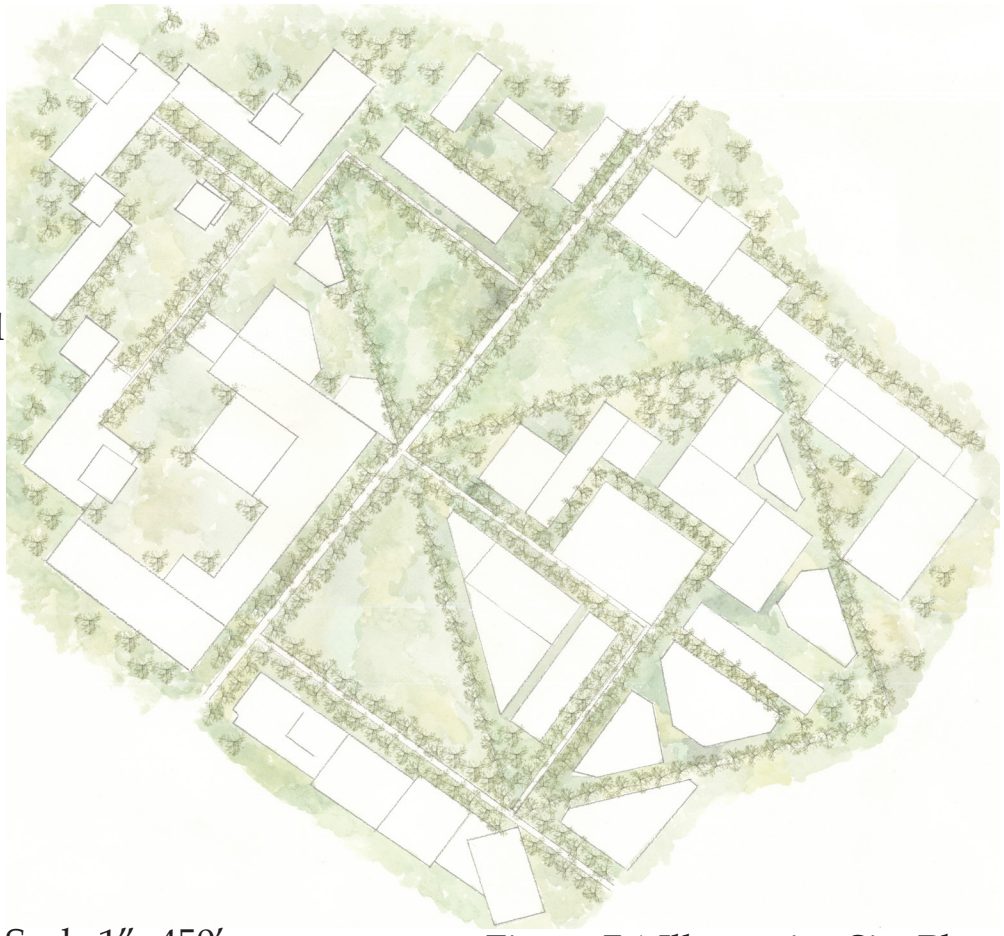


Figure 6.5 Photo Analysis

Chapter 7- Site Design

Derived from the concept of beginning and end, the design strives to incorporate residential, hospitality, retail, dining, and entertainment options within a compact, sustainable, and healthy environment. The forms stem from the concept, with an ordered grid of residential and office space separated by less ordered forms within the central plaza, where retail, dining, and entertainment options exist. This separation allows for privacy while also allowing for interaction between residents and tourists alike. Residential towers provide several different housing options, including apartment style residences, condos, and larger penthouse style accommodations. Corporate office buildings and light manufacturing facilities are integrated just outside of residences and provide jobs within walking distances. The central square, juxtaposed in form from the grid framework of the residences and offices, provides retail, dining, and entertainment opportunities surrounding a central square, creating an intimate shopping experience. A hotel tower provides a focal point at the south end, surrounded by parking structures and retail shops. The community strives to inhibit automobile usage,



Scale 1”=450’

Figure 7.1 Illustrative Site Plan

but promotes the use of electric cars and segways. Many larger species of native trees are introduced to restore lost habitats and provide natural cooling benefits. Infrastructure such as central trash collection and shared power enables reductions in resource consumption.

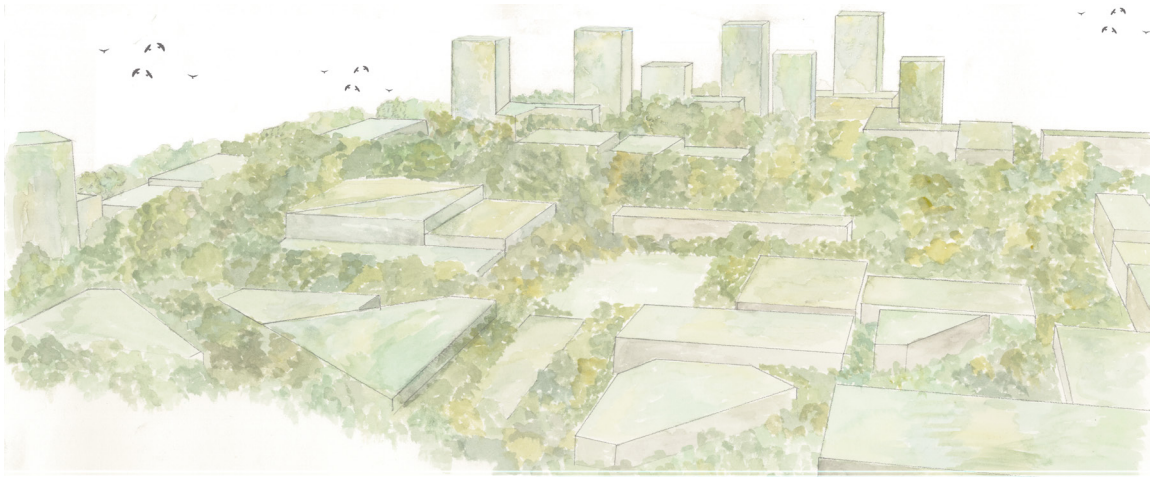


Figure 7.2 Rendered Perspective

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Urban Amendment

The Process Of Designing For A New Aesthetic

A senior project presented to the Landscape Architecture Department of the University of California, Davis in partial fulfilment of the requirement for the degree of Bachelor of Science in Landscape Architecture

Michael Clarke 2011

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