the soft edge of density: placemaking on the urban industrial fringe

Steven Nielsen

A thesis submitted in partial fulfillment of the
requirements for the degree of

Master of Architecture
University of Washington

2012

Committee:

Elizabeth Golden

Robert Mugerauer

Program Authorized to Offer Degree:
Architecture

TABLE OF CONTENTS

LIST OF FIGURES

Acknowlegements

I would like to thank the following people for the roles they played in this thesis:

My thesis committee members, Elizabeth Golden and Bob Mugerauer for their continued insight and guidance throughout this exploration.

My friends and colleagues in thesis studio for being a sounding board for ideas. This experience would not have been the same without you.

My friend Nathan Brantley for his insight, energy and thoughtful conversations on the topic.

Lastly, I would like to thank my wife Mai Teras for her continued love and support during the past two years. Thank you.

01: Introduction

i. Introduction

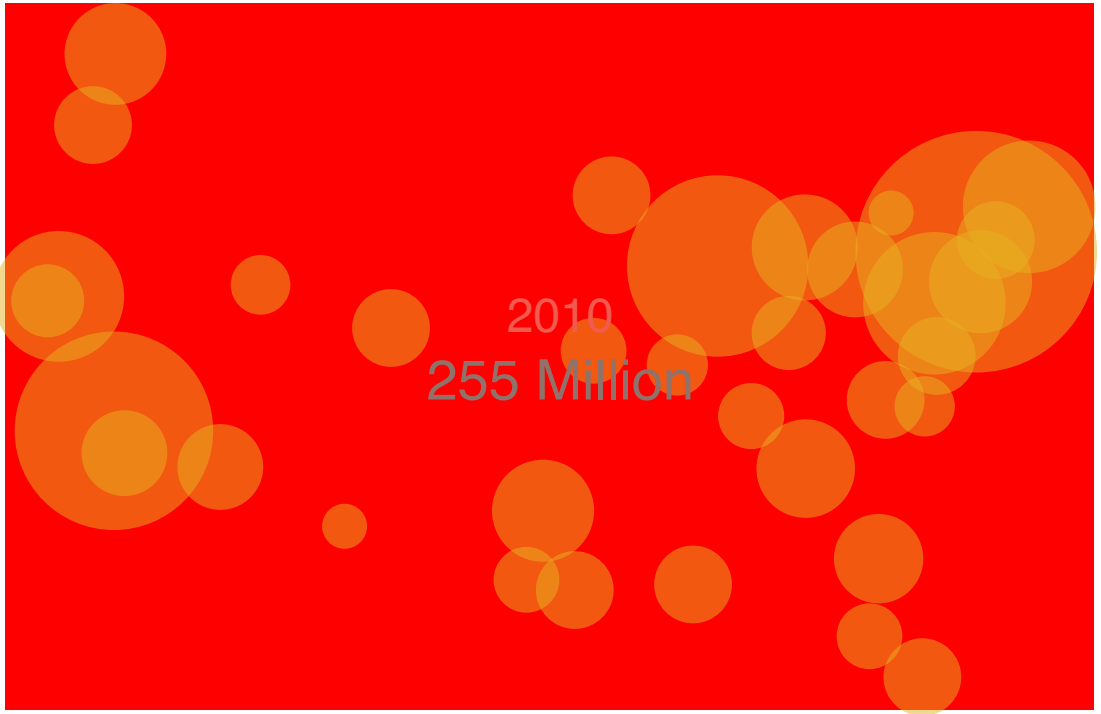
How should we balance the pressing need for housing in our growing cities with job and employment growth? This is a complicated issue, tangled with deep roots in many sectors including: urban planning, architecture, political, environmental, community. Maybe nowhere does this fragile balance play out more than on the urban industrial fringe. The urban industrial fringe is the boarder between industrial & manufacturing uses and residential & commercial uses. Due to the massive exodus of manufacturing operations away from America's urban centers the fringe has become a collection of open lots, surface level parking, decaying buildings and incomplete urban narratives. Recently though, due to the widespread increase in urban populations, and subsequent need to provide both housing and working opportunities for the increasing masses the urban industrial fringe has been the target of many multi-family and mixed use developments. This industrial fringe realm is rich with potential; a strong proximity to existing living and working infrastructure it embodies a great potential for combining living and working opportunities while stitching together the incomplete narrative to form more clearly identifiable, safer neighborhoods. Though recent developments do meet a certain need for living and working needs, they often do not tap into the existing economic, social and cultural potential of the neighborhood in which they land but rather are developed under a homogeneous model in order to maximize build-out and profit with little consideration for integrating the community aspects in the place they land. This thesis searches for resolution and a better way to address the needs of all involved, to begin to see the urban industrial fringe as an opportunity and complementary piece to our urban puzzle.

ii. Urban Density

Population in America's cities is growing rapidly, it has been forecasted that during the next twenty years population will continue to grow (Nelson 2009). Much of the growth will be the result of inward migration from rural areas, continued population growth in cities from new births and a growing elderly population that is both living longer and choosing to remain in the city.

The make up of the urban inhabitant has also undergone unprecedented shifts. The number of singles, which already account for 41% of the population in places like Seattle, will continue to account for a greater portion of the population (Nelson 2009). The percentage of households with children are also on the decline. Currently, half of American households are rasing children but by 2030 that fraction will decrease to a quarter. It has been forecasted that by 2030 we will witness the share of single-person households surpassing households with children, but for the first time in the nation's history. In cities where there are already less children, this discrepancy is magnified further.

Population in U.S. metropolitan areas increased by 165 % between 1970 & 2010



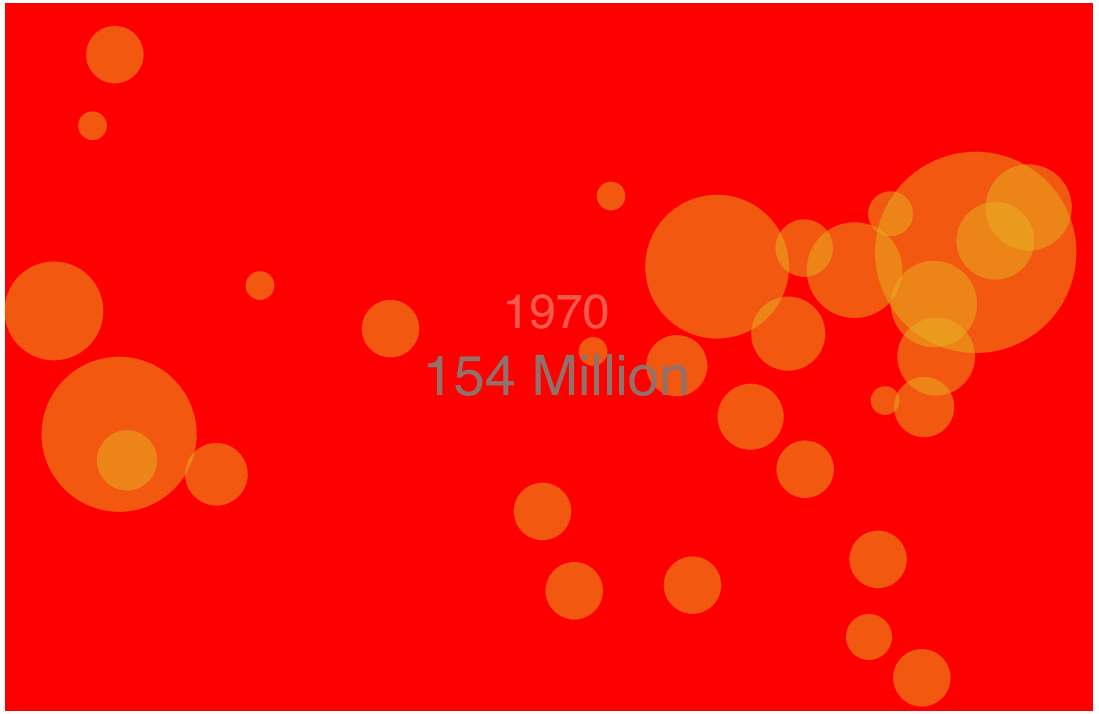
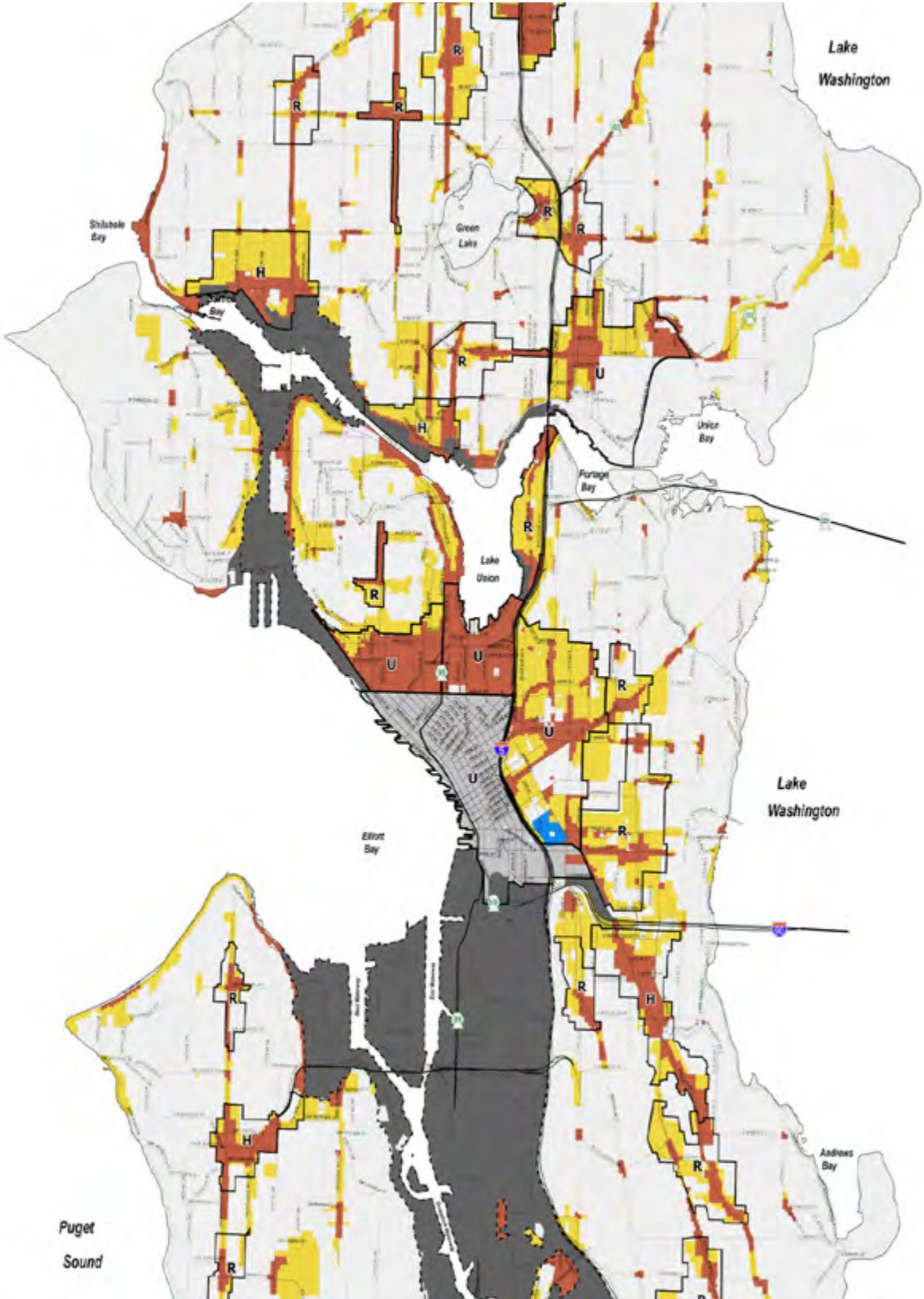


figure 1.01 Population in America's Metropolitan Areas

Source: U.S. Census 1970/2010

iii. Density in Seattle

Seattle, like many cities across the US is growing. We are also searching for ways to meet both living and working needs of these new inhabitants. In 2006 the median cost of a home in the Seattle metropolitan region surpassed $500,000 marking a rapid trend in rising living costs that has built momentum over the past two decades (COSCP 2009). While the economic turbulence of the last few years has caused this trend to decreased slightly, there still remains a large discrepancy between cost of living and available income. During the past decade alone, the cost of housing in Seattle has outpaced wage increases by nearly 100% (COSCP 2009). The resulting growing monetary discrepancy between income and housing is continuing to forcing middle and low income urban inhabitants to the peripheries in search of viable housing alternatives. While there is a growing trend to consider multifamily housing within the city, many still do not view multifamily housing as a viable alternative to the detached single family home. One reason is that contemporary, multifamily housing continues to leave much to be desired in terms of providing innovative, well designed sense of place and community in balance with the need for privacy.



Seattle Future Zoning Overlay

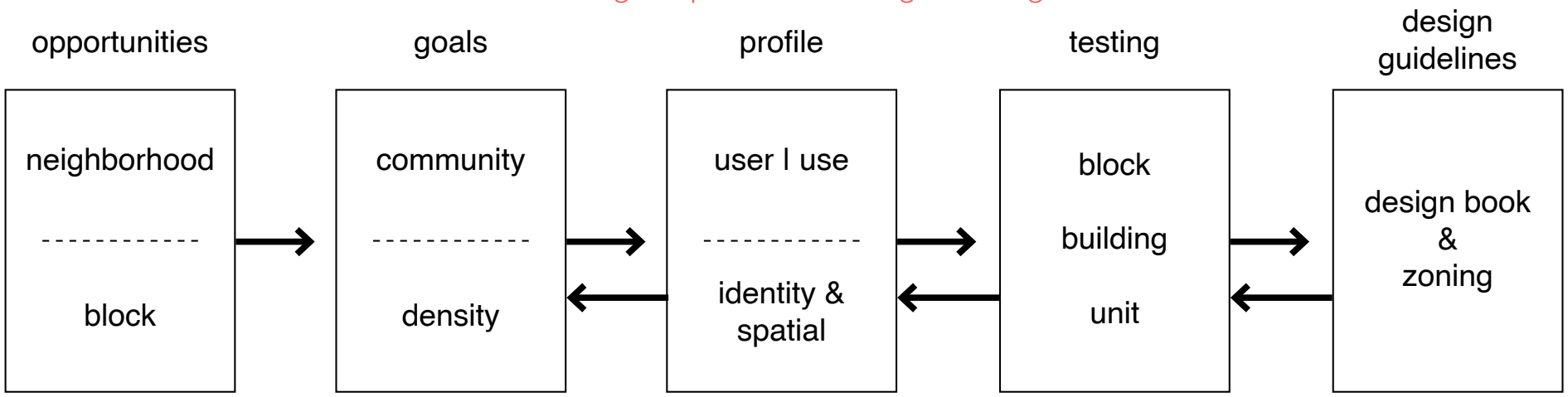
- High Density Growth
- Medium Density Growth
- Industrial

figure 1.02 Seattle Proposed Growth
Source: Seattle Comprehensive Plan

iv. A New Framework for Density

An alternative to the current housing stock, one that breaks the monotony of public housing and holistically addresses the changing needs of the inhabitant is due. To gain a better perspective on ones relationship to the dwelling I propose to leverage the body of knowledge related to psychological and sociological issues relating to the home. I will combine that theoretical foundation with an intensive on-site investigation of the site. The site investigation will uncover social, cultural and economic strengths of the neighborhood. These strengths will prompt a series of development goals and generate an initial profile of who is best suited to occupy the new building and what physical and spatial characteristics the building should take on. Once a profile is developed then a series of schematic design tests will inform the search for the new typology. Goals, profile and testing will inform one another and should remain flexible. The final outcome is a set of design guidelines, much like those implemented by West 8 on the Borneo & Sporenburg housing development, that will be given to the architect and developer to implement. During the design review process the design review board must hold the developer and architect accountable for adhering to the guidelines.

Crafting Responsive Planning & Zoning



02. Problem Statement

i. Zoning & Planning

Seattle zoning, like many cities in the United States follows the euclidian method. Euclidian zoning is classified by a desire for gradation in use and scale and separates these areas into districts (Rothwell 2010). In the Ballard neighborhood we have the following gradation: single family residential, low-rise residential, neighborhood commercial, mid-rise, commercial, industrial buffer, industrial commercial and general industrial. This method of zoning has a long tradition in the United States and is easiest to implement. It is intended to create a soft transition, one that couples compatible and complimentary uses and bulk with it's neighbors. One of the drawbacks of the euclidian method, as Jane Jacobs has stated, is "that it is soft where it should be hard and hard where it should be soft" (Jacobs 1961). This is witnessed clearly in the pattern of development through the industrial fringe area where a specific typology of mixed use is inserted through each of these zones from low-rise residential to commercial effectively creating a hard edge at both the transition between residential and commercial and commercial to manufacturing.

Ballards mix of old town charm and gritty industrial character have caused this blue collar neighborhood to boom in recent years. Housing growth has moved at a feverish pace during the past decade and shows little sign of slowing. Ballards sporadic industrial warehouse development, with expansive surface level parking which were developed to service the shipping and other heavy industry trades, are proving to be a weakness in the overall fabric. this weakness is now being exposed by developers of large mixed use developments. Developers are leveling entire city blocks, typically 400 ft. x 200 ft., and rebuilding with 5 over 1 mixed used developments that rarely, if ever respond to the existing character. What has resulted are clusters of strong urban character fractured by long blocks of dead space. Unfortunately, this trend shows no sing of slowing as there are many new large scale development projects in the works and moving forward.

In response to the large scale development projects this thesis aims to take a much more acute approach to the need for increased density in a growing urban neighborhood. The aim will be to develop a comprehensive understanding of selected micro-neighborhoods character and then responding by strategically in filling open lots with either housing or community amenities or both.

ii. Disproportionate Growth

The shift toward urban inhabitation is causing an increase in housing developments in many of Seattle's urban districts. Unfortunately, many of the new large scale market rate housing developments do not address the needs of two demographic groups that are responsible for the largest share of the population growth; young urbanites with moderate to low incomes, and the elderly (Census 2010). Both of these groups have large numbers of singles and therefore require less space, more community interaction and amenities, and affordable rates.

A detailed look at the population, age and economic characteristics of the Ballard Hub Urban Village reveal many interesting facts. The fastest growing age groups in Ballard are the 22 to 35, growing by a whopping 14.4 % during the past decade. Surprisingly, the elderly population has declined slightly over the past decade but is forecasted to increase rapidly over the next 20 years due to the aging baby boomer population. Over 64% of the population 65 and older are living alone. Also significant is that both young and elderly are the lowest earners, earning on average less than half the wage as the middle years. The number of single person households are rapidly outpacing the rest of the community, this household group represents over half of the Ballard demographic (Census 2000 - 2010). However, this group also represents the lowest median income. Due to the rising cost of housing in The Ballard, the two fastest growing groups of singles - elderly and young - are finding themselves priced out of the community.

disproportion in age | disproportion in wage

Elderly in Ballard are decreasing due to increased rent

One person households rule 54.2%. They also earn the least!

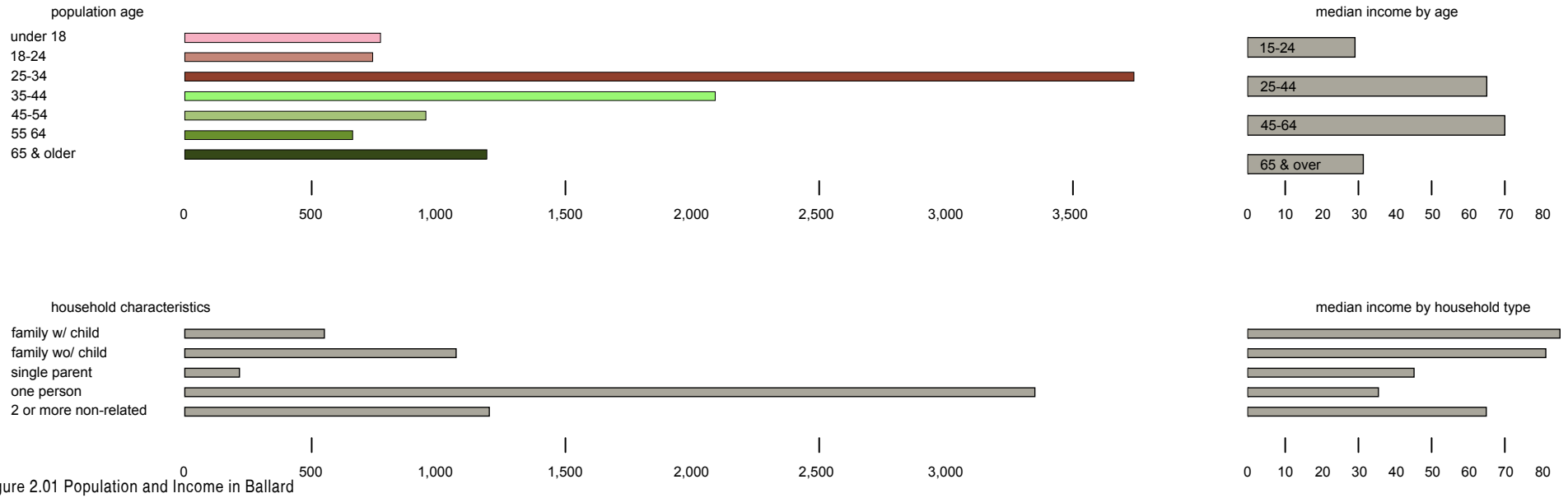


figure 2.01 Population and Income in Ballard

Source: United States Census 2010

iii. Trending Users

4,159 new housing units emerge in Ballard since 2001 (Mattson 2012), it is clear that a tremendous “growth spurt” is occurring in the neighborhood. Many of the dwellings do not address the needs of the fast growing demographic of new user. The fastest growing new users are singles and small households with smaller incomes (COSCP 2009). These users increasingly need more affordable living opportunities and place more value on community and neighborhood amenities and less on square footage. The new user can typically be placed in one of the following categories: young urbanites under the age of 34, small households, single elderly, and single parents. Above all, this group needs affordable, reliable housing alternatives at a reasonable distance from employment. In Ballard, due to the relatively high land values, these types of housing will most likely come in the form of smaller, denser dwellings. But unlike dense, affordable housing of the past they should be developed for comfort and adaptability and connect the dweller with his or her city.

The aspiring urban single would benefit from a living arrangement that promotes community connectedness. This potential connection is inherent in the dense urban housing clusters but is often not developed to its potential. Interaction is possible in the intermediary zones, between the internal living environment and the external neighborhood. These areas include circulation hallways, community stairs, public entries, external park and garden areas, laundry areas, etc. Unfortunately, these areas are often designed as an afterthought, or value engineered to the minimum code requirements until they are unrecognizable as habitable space. Code requirements have almost no consideration for how the inhabitants utilize the space on a day to day basis. One example of the limitation of code on community development potential is by the requirement for enclosed egress stairs, which in many cases severely limit the potential for connectedness between floor plates. Lastly, both groups would benefit from smaller, denser, and more affordable unit types.

When comparing national population data with that of Seattle we notice a further disproportion of non-children homes. Seattle has less youth under 20 years of age than the national average. Census results reveal that in Seattle, youth only represent 19 percent of the population compared with 29 percent nationally. In Ballard, the under 20 population only account for 8.8 %. Seattle also has a higher proportion of young adults age 20-34 than the national average, another trend that is common in cities. This group represents 31 percent in Seattle while only accounting for 21 percent nationally. In Ballard, As does the number of young adults (Seattle dpd)

GENERAL TRENDS THROUGH 2030

- There will be less children & more singles
- Single parent families are growing

iv. Diversity and Social Benefits

It is often not economically feasible for a developer to build multi family housing solely for the lowest incomes. A tested strategy is to develop a mix of market rate housing with lower income housing. Greater diversity of unit types and inhabitants not only helps project feasibility, but also has potential social and economic benefits for the inhabitants. For instance, if a live/work inhabitant is operating a day care or bike repair, or computer repair service the market rate inhabitant who is likely at work might benefit.

The key when integrating a diverse living community is to have groups that become strong activists and fill the place with life. In Pyatok's Swan's Market, which is a mix of cohousing, low income, retail, and a children's museum, Pyatok states that the cohousing community and the children's museums are the active anchors to the project. They are stable tenants who often spill out on to the shared courtyard spaces and bring life to the community.

The social links diagram extrapolates potential age intermixing potentials for three potential activities that could exist within the development. The social links study could also provide input that would inform the arrangement of spatial characteristics within the development. The study reveals that the strongest potential interaction could occur either between groups of the same age and then with the elderly and children providing a potential core for the community. This should inform the development of central community areas. These areas should be accessible and provide covered seating and play areas.

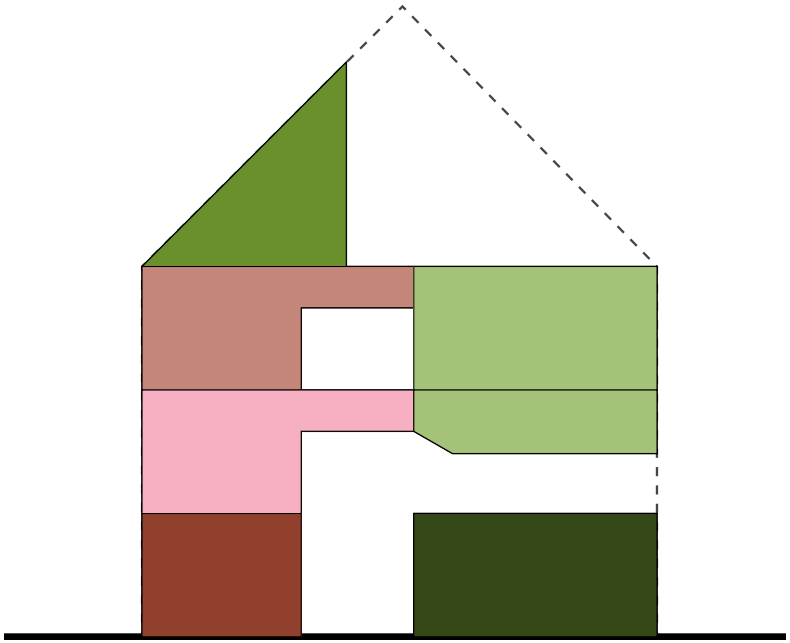
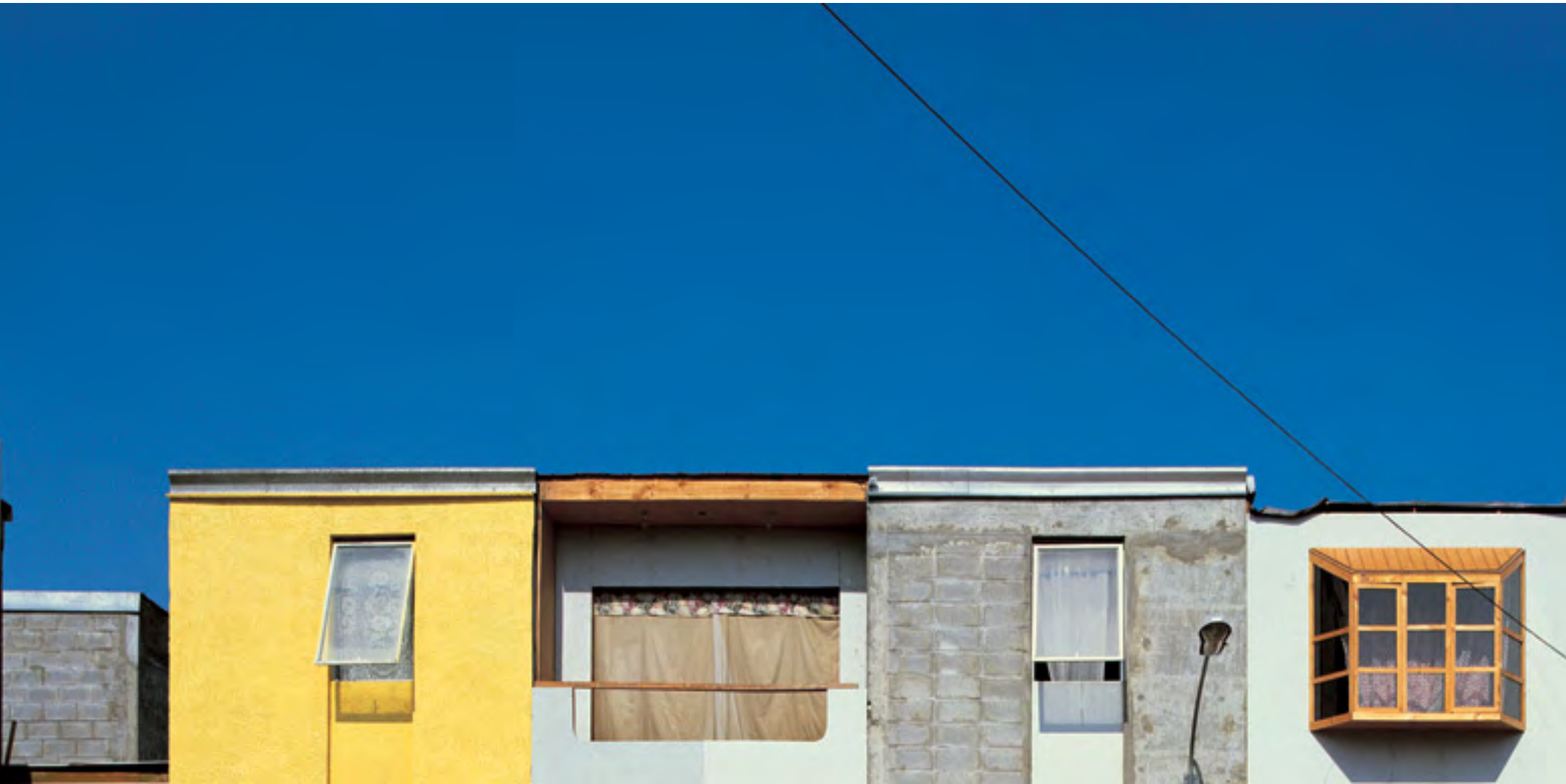


figure 2.02 the Diverse Living Arrangement

03: Psychological & Sociological Insight



i. Place, Identity, and Lifestyle: The Architecture of Efficacy

By understanding the way people perceive and react to various cues and spatial characteristics in the built environment we can be better informed about how spatial relationships might encourage human use and enjoyment, especially in the dense urban condition.

There has been a great deal of research declaring that the home is a physical extension of the way we view ourselves. Gasteon stated that just as our bodies have a public exterior and intimate interior so do our homes (Cooper 1974). It is commonly accepted that we express ourselves a certain way on the exterior, but reserve private expression for only a select few. Likewise, our homes begin to take on a similar dichotomy; from the exterior there is a formal expression of how we wish to be perceived but once within the home one is allowed into a much more intimate view, a compilation of family pictures, religious symbols, and other displays of personal interests (figure 1.01).

However, the personal expression of identity is not always confined to the internal boundaries of the home. Often, as one gains confidence and security in their environment, the identity bubble will expand to acquire certain niches adjacent to the immediate “dwelling”. For example, sociologist Lee Rainwater has studied the psychology between how freely humans allow others to experience the “intimate” interior of their homes and concluded that insecurity in the living environment causes one to shut down and seek the confines of the home’s interior. (Cooper 1974) However, as one gains “economic and psychic stability” they “no longer regarded (their) house as a fortress to be defended but (rather) as an attractive, individual expression of self and family, with picture windows so neighbors can admire the inside” (134). This is important in understanding that the expression of personal identity, community well being, and security are all interrelated.

The Eldorado multifamily housing for the elderly designed by architect Michael Pyatok reveals physical examples of this phenomena. The units were designed so that each had a corner window at the intersection of the kitchen and entry. The window was situated such that the inhabitant could observe who was approaching their door, giving them an added sense of security(figure 1.02). When the architect conducted a post occupancy visit he noticed that many of the inhabitants were decorating the internal window ledges with personal objects

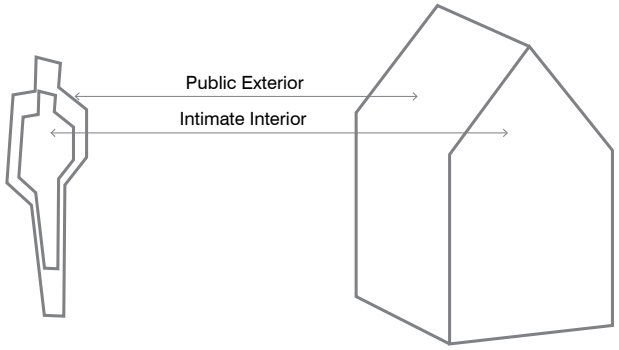


figure 3.01 Relationship between self and dwelling

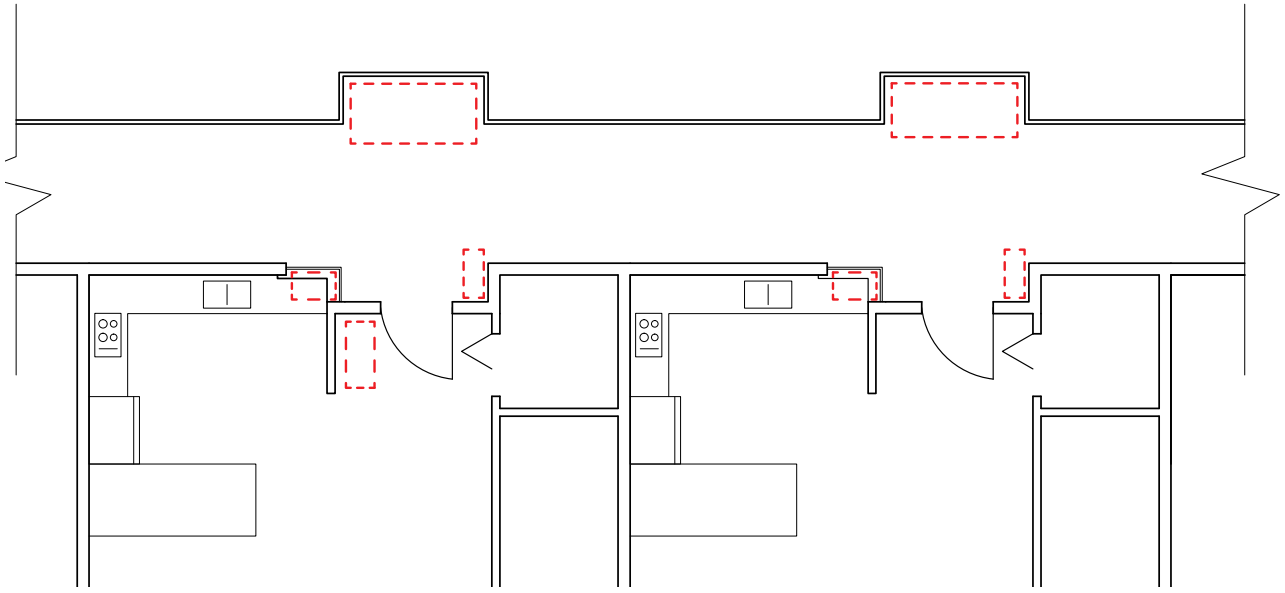


figure 3.02 Expression of identity

and belongings. Several months later, when the architect returned he noticed that even more tenants had begun decorating their windows and that the site of decorating had expanded to the area immediately outside of the entry door. The corridors were becoming a place of personal pride and territorialization for the inhabitants. Maybe more importantly these areas became a place to interact with other neighbors and socialize.

ii. Connecting to Context: Developing a Sense of Place

One way people perceive space is through the mental image. The mental image, according to Kevin Lynch, is a composite sketch of a place or series of places that has developed temporally. It is the way in which most of us envision our surroundings and is critical to the way in which we perceive our environment either positively or negatively. Lynch stated that "Above all, if the environment is visibly organized and sharply identified, then the citizen can inform it with his own meanings and connections. Only then will it become a true place, remarkable and unmistakable." (Lynch 92) Lynch used the mental image as a tool for understanding our connection to the environment on the city scale. If we think of the built environment as a series of nested environments within one another we can relate Lynch's theory on the neighborhood, block and building scales. By understanding the imageable development of our environment we would not only be able to gain a stronger spatial understanding within the building scale but could also create a stronger connection with the immediate urban environment, in turn developing a heightened psychological connection with ones surroundings and a more vivid image of the environment.

"if the image is visibly organized and sharply identified, then the citizen can inform it with his own meanings"

- Kevin Lynch

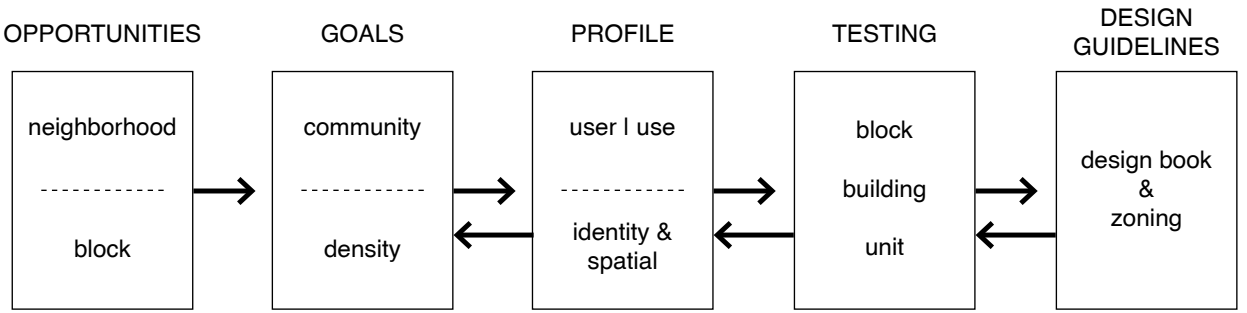
04: Crafting a New Typology

i. Crafting a New Typology

The following is a test of the new framework. The test aims to understand the potential for the new framework to provide a better way of developing the urban industrial fringe. The framework responds to earlier “problem statement” and “theoretical framework” findings coupled with multiple iterations, advisor reviews, jurried reviews and intuitive testing.. The framework is intended to be fluid and responsive. The framework is intended to culminate in a rigid but malleable set of design guidelines that could be passed on to planners, developers, architects, and community members were the new development will occur.

The underlying ambition of the framework is that each development will connect to, integrate, and respond to the exact location in which it is placed. The analysis occurs on multiple levels; social, cultural, economic. and also on multiple scales; neighborhood, block, building and unit. The new development should stitch the urban fabric together from the ground up and create timeless, truly sustainable, community oriented neighborhoods that will provide enjoyment and living and working opportunities for many years to come.

The framework is presented in the form of a design guidelines book. The guidelines herein are specific to one location, the Fringe district along Leary Avenue in the Ballard neighborhood of Seattle. While this site is specific many of the guidelines are scalable and would provide an appropriate base for further development guidelines in other areas.



05: Case Studies

Kings & Spadina - Toronto

The Kings and Spadina neighborhood shares many similarities with Ballard and presents a good precedent for approaching development on the zoning and planning levels. The distillery district, a historic district at the center of the neighborhood has sustained for years as a small tourist attraction. Its charming historic architecture give it a distinct character but the area around the historic district was run down and underutilized. The Canadian government, observing the need to act loosened the zoning requirements on the once industrial land which prompted developers to the area. But the government also wisely provided incentives for the preservation of old structures, not only historically significant structures but any structure. What followed was a highly mixed use district with a wide range of rental opportunities.

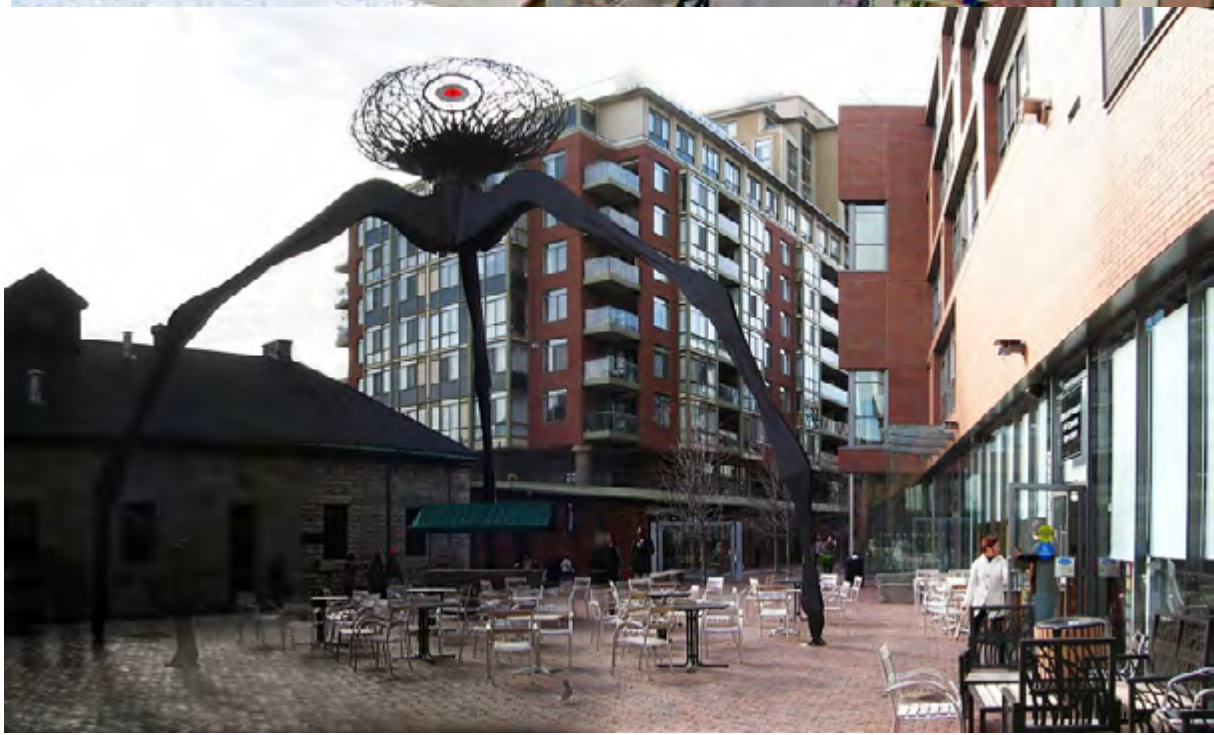


figure 5.01 Aerial view of the Distillery District
figure 5.02 Street view of the Distillery District

Borneo and Sporenburg - Netherlands

West 8 architects took on the masterplan for a large scale residential development including 2500 dwellings on two waterfront peninsulas. In response, West 8 developed a book of design guidelines to be used by 100 selected architects for the development of the units. The guidelines included recommendations for materials, height regulations, open space regulations to name a few. The simple set of regulations allowed architects and designers to be expressive but in an ordered and clearly identifiable way. What developed is arguably the finest example of successful large scale architecture the world has known.

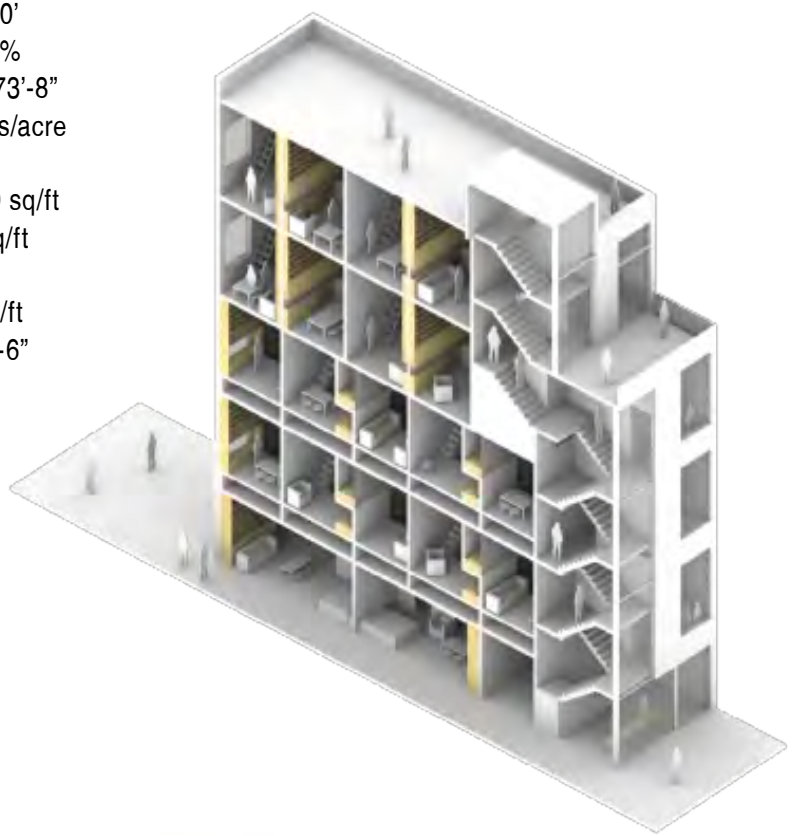
figure 5.03 Diagram showing variation in 30% open space requirement
figure 5.04 Design guidelines provided for similar but distinct facades

Gluck | Chiao “Micro-Lofts”

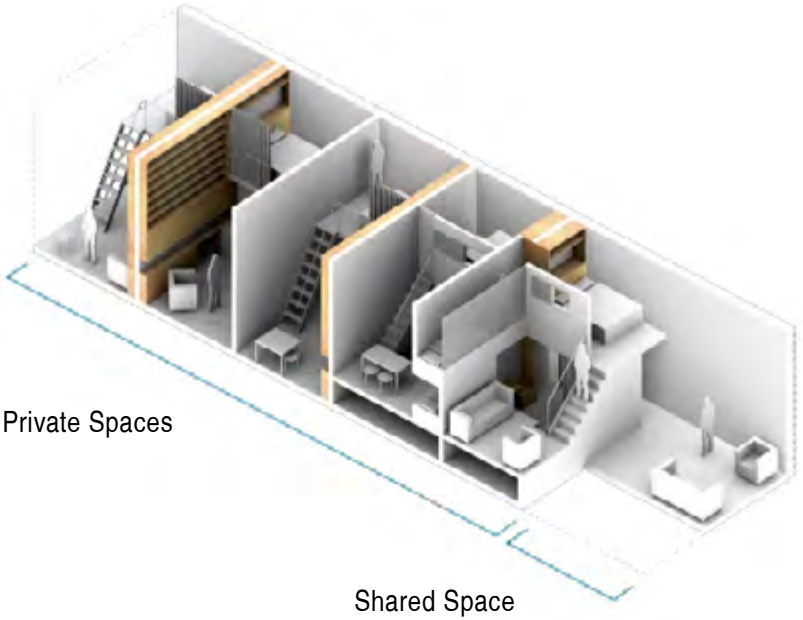
In 2011 The Citizens Housing & Planning Council organized a conference to examine the possibilities of new housing models in urban New York. The goal was to develop innovative schemes that ignored existing regulations which often stifle progression, and to focus on actual aspects of safe, economical construction. Architect Peter Gluck along with a young group of collaborators unveiled a modern variation of the rooming house on a 25’ x 100’ lot that would typically be developed as a townhome. The proposal would accommodate 20 micro-lofts at roughly 150 square feet each. Each unit includes mini-kitchens, 14 foot ceilings and public spaces for inhabitants to socialize on each of the 5 stories. The ground level was developed to meet ADA regulations. The proposal trades standard features such as elevators and parking spaces for private space and affordability. Though not mentioned, the micro lofts open plan would allow the units to be highly adaptable for their tiny size.

Lot Size: 25’ x 100’
Lot Coverage: 56%
Building Height: 73’-8”
Density: 340 units/acre

Gross/floor: 1800 sq/ft
Net/floor: 1158 sq/ft
Units/total: 20
Unit area: 232 sq/ft
Floor to floor: 15’-6”



Typical Floor



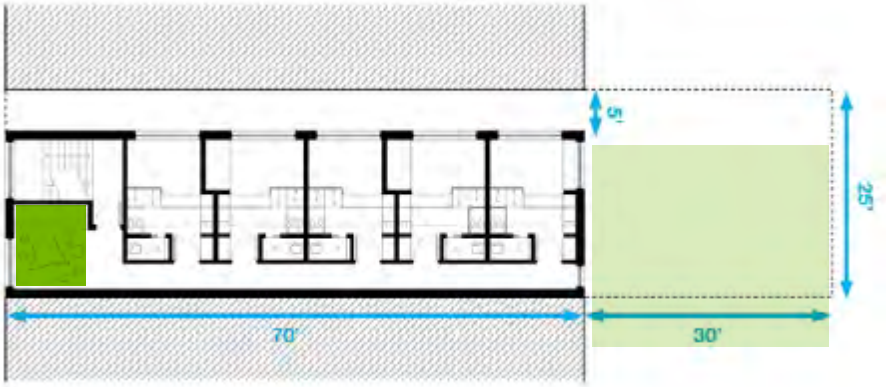
Private Spaces

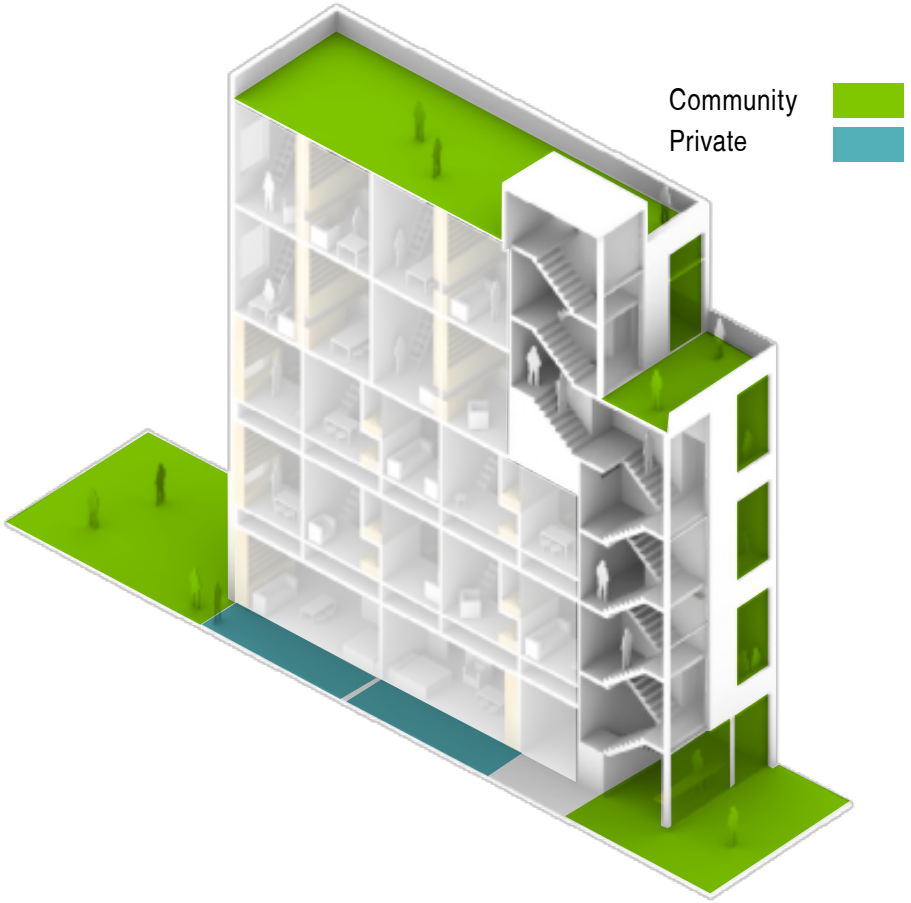
Typical Loft

Shared Space

figure 5.05 Micro-loft axonometric renderings

Typical 5 unit floor plan with setbacks





First Floor ADA Units

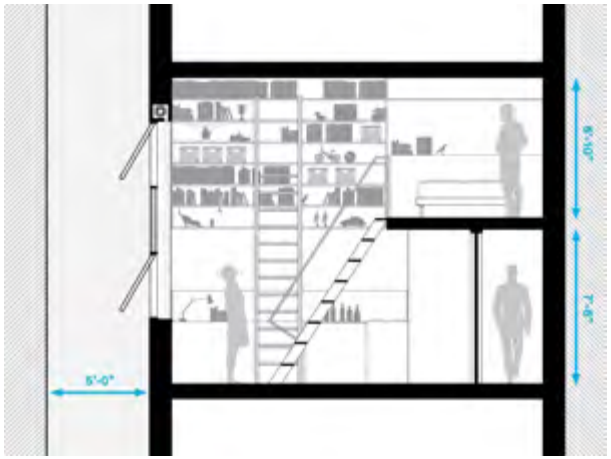


figure 5.06 Plan and section of typical micro-loft unit

Swan's Marketplace

Swan's Marketplace in Oakland, Ca. by Pyatok Architects is an inspiring example of an integrated community housing development that offers much more to both internal and external community than most prototypical housing developments. In this project Pyatok seemlessly weaves cohousing and affordable housing into the existing marketplace amenity in this reuse project. The project garners much of its success from two tenants which are strong activists of the development; the Children's Museum and the cohousing group. These two groups anchor the project and activate the shared spaces with regular events. The organization of the cohousing is of particular interest. The cohousing block to the south is elevated above a parking deck which provides a strong threshold between cohousing neighborhood and the other courtyard areas while maintaining an open and inviting feel. Within the cohousing section there is an open air pedestrian "street" where community members typically engage in conversation. The street is also a place where the inhabitants have begun to personalize with plantings and other artifacts.

figure 5.07 Swan's Marketplace cohousing development

industrial fringe design book

ballard neighborhood

based on research from the thesis

the soft edge of density: placemaking on the urban industrial fringe

TABLE OF CONTENTS

LIST OF FIGURES

chapter 01: introduction

Introduction

The Ballard neighborhood is a remarkable place within the greater Seattle region. Due to its historic classification as its own city and close proximity to the Lake Washington Ship Canal, the neighborhood has thrived as a gritty, working class district with a quarky, independent cultural flavor. The area has always been identifiable through the character of its people - a little rough around the edges but full of life and energy. Ballard is a hub for both culture and business , boasting one of the regions best historic cultural districts. The neighborhood is also home to Seattle's second largest industrial area - Ballard Interbay Northend Manufacturing and Industrial Center or BINMIC - which, despite recent economic hardship, continues to provide job opportunities to a growing number of urban citizens.

The Ideal Prototype

Ballard was selected as a test district for many reasons, such as, Its designation as a growth neighborhood by the Seattle Comprehensive Plan, its strong geographical relationship with the second largest manufacturing and industrial area in Seattle the Ballard interbay northend manufacturing and industrial center (BINMIC), and the tremendous construction boom that has occurred during the past decade - mostly in the form of large multifamily mixed use developments, better known as the 5 over 1. However, the most important factor in its use as a prototype is the ongoing land struggle that is ensuing in the neighborhood. There are several open and/or under-utilized lots along the fringe that have been targeted for development adding to the urgency for some type of resolution to the issue of development along the fringe.

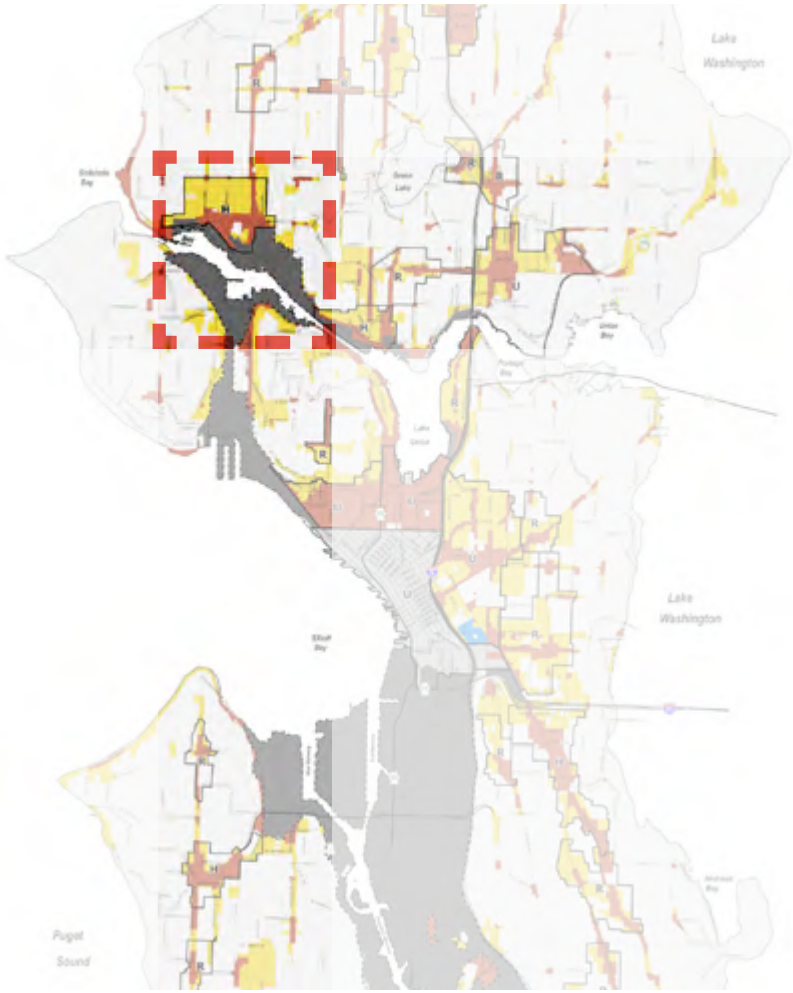


figure 1.01 Ballard, Seattle in context

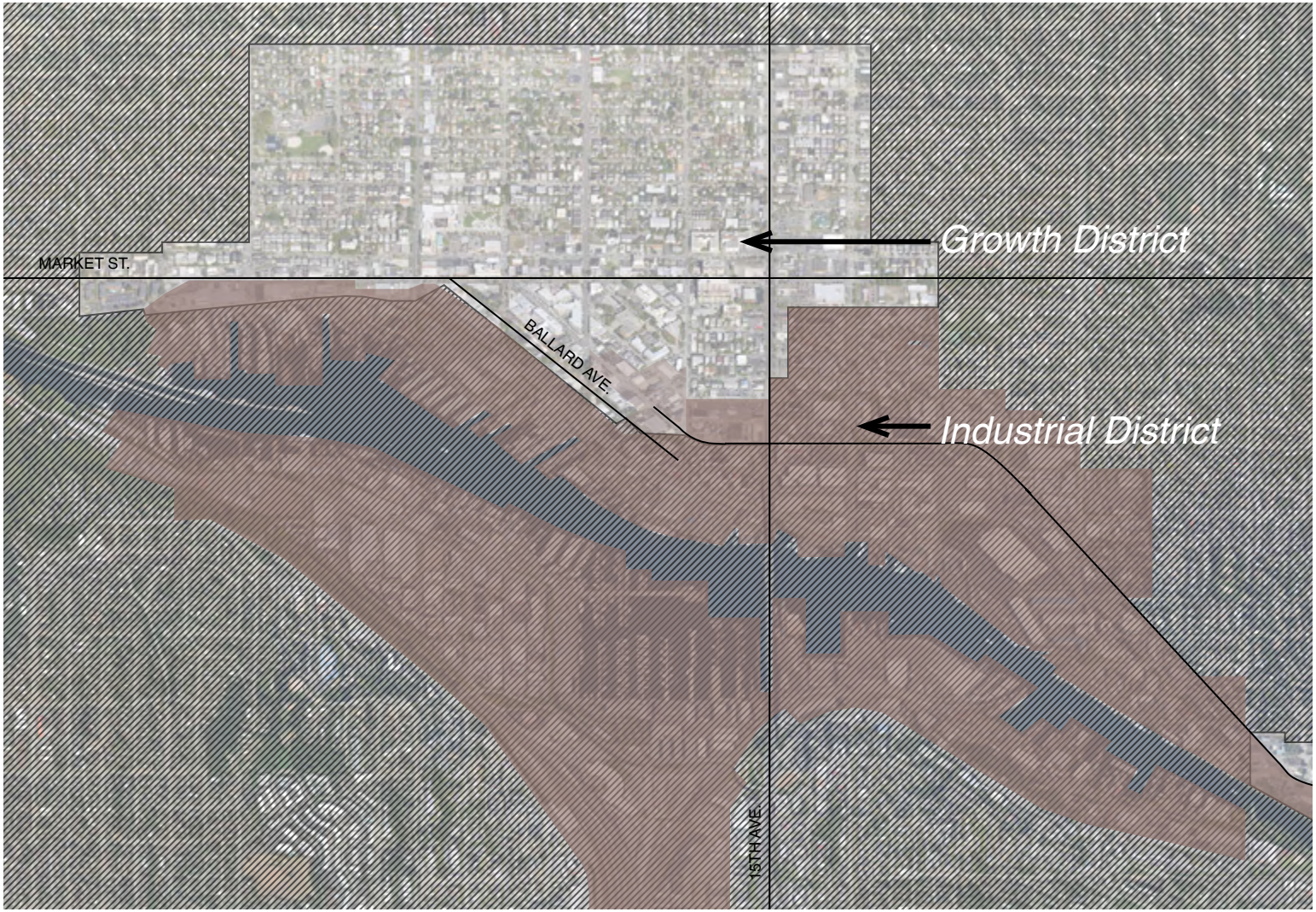


figure 1.02 Boundary of growth district and relationship to industrial district

Changes

Ballard has witnessed a tremendous “growth spurt” during the past ten years, a result of its great location and designation as a “Hub Urban Village” by Seattle’s comprehensive plan. While growth has generally aligned with zoning and planning designations, many people in the public and private sectors are becoming alarmed by the rapid development of the 5 over 1 mixed use typology within the district. While they do provide a mixture of housing and leasable commercial space, the projects often do not strengthen the district’s public realm or add to the character that defines the neighborhood. In addition they are severing the once strong connection between living, making and commerce by placing inhabitants and businesses that do not relate to existing social, cultural and economic strengths of the neighborhood. Furthermore, existing industrial and manufacturing businesses which already operate on tight margins are feeling added economic pressure due to the new developments. Some of the negative impacts are increased land cost, property speculation, and economic outsourcing. However, there exists a great potential to interrelate local economic conditions, there is a growing population of artisan’s, food and craft related small urban manufacturers that the nearby residential community would find attractive. Unfortunately, current developments

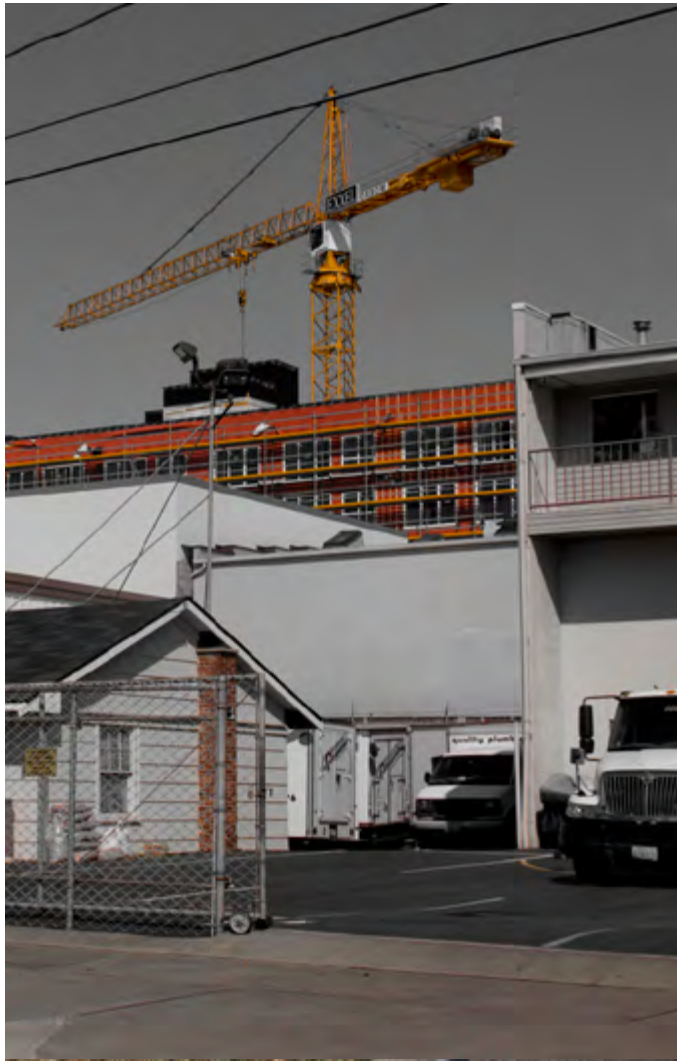


figure 1.03 Construction on the fringe

Actual Use

Current use can be identified by three types along the fringe. Single family homes, low rise and mid-rise multifamily to the north and east. The downtown commerce area to the north and west, and the manufacturing and industrial district to the south.

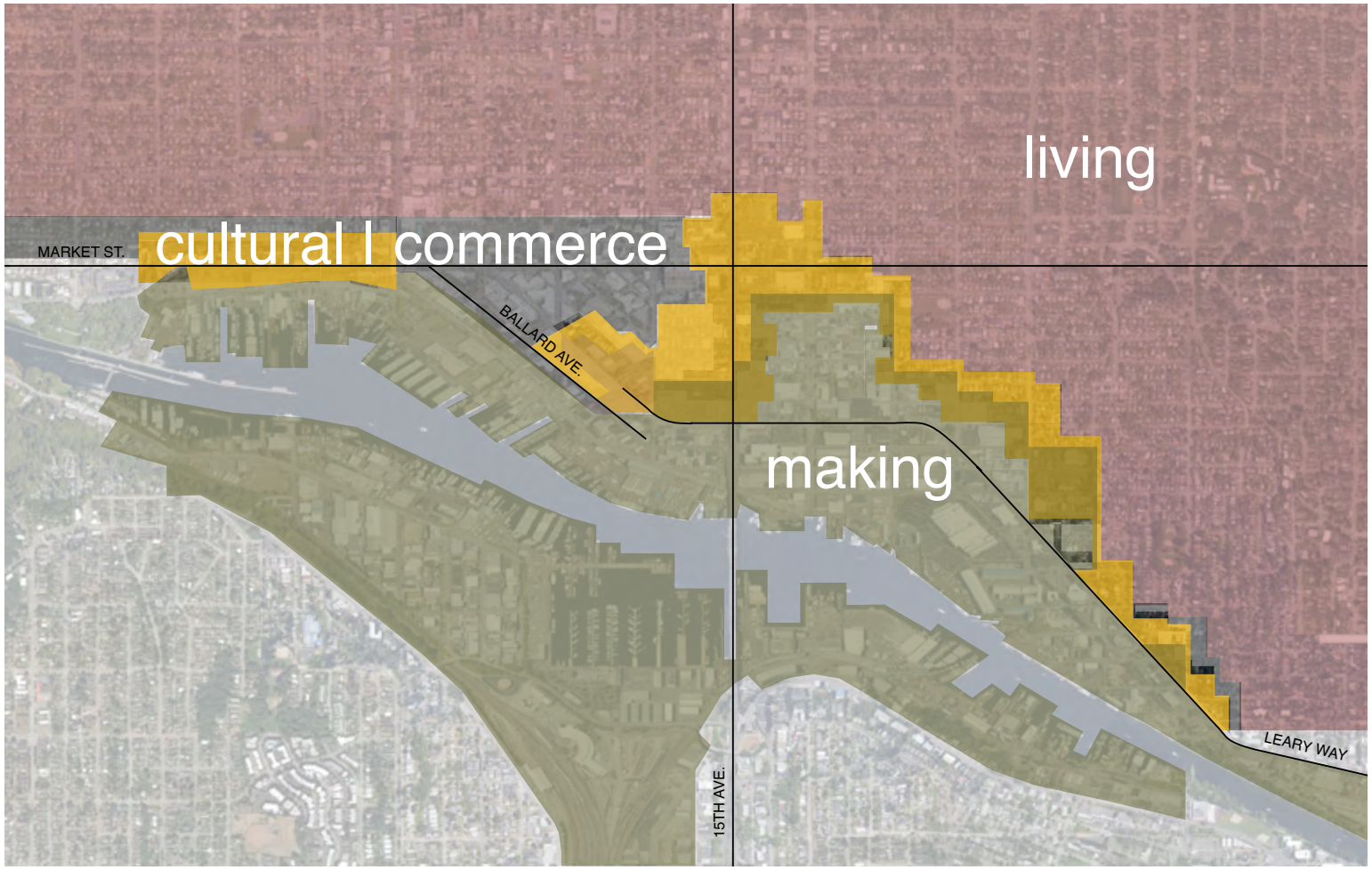


figure 1.04 Ballard simplified use map

Zoning

Zoning in Ballard follows the Euclidian method. Euclidian zoning is classified by a desire for gradation in use and scale, separating these areas into districts. This method of zoning has a long tradition in the United States and is easiest to implement. It is intended to create a soft transition, one that couples compatible and complimentary uses and bulk with it's neighbors. One of the drawbacks of the euclidian method, as Jane Jacobs has stated is that it is soft where it should be hard and hard where it should be soft.

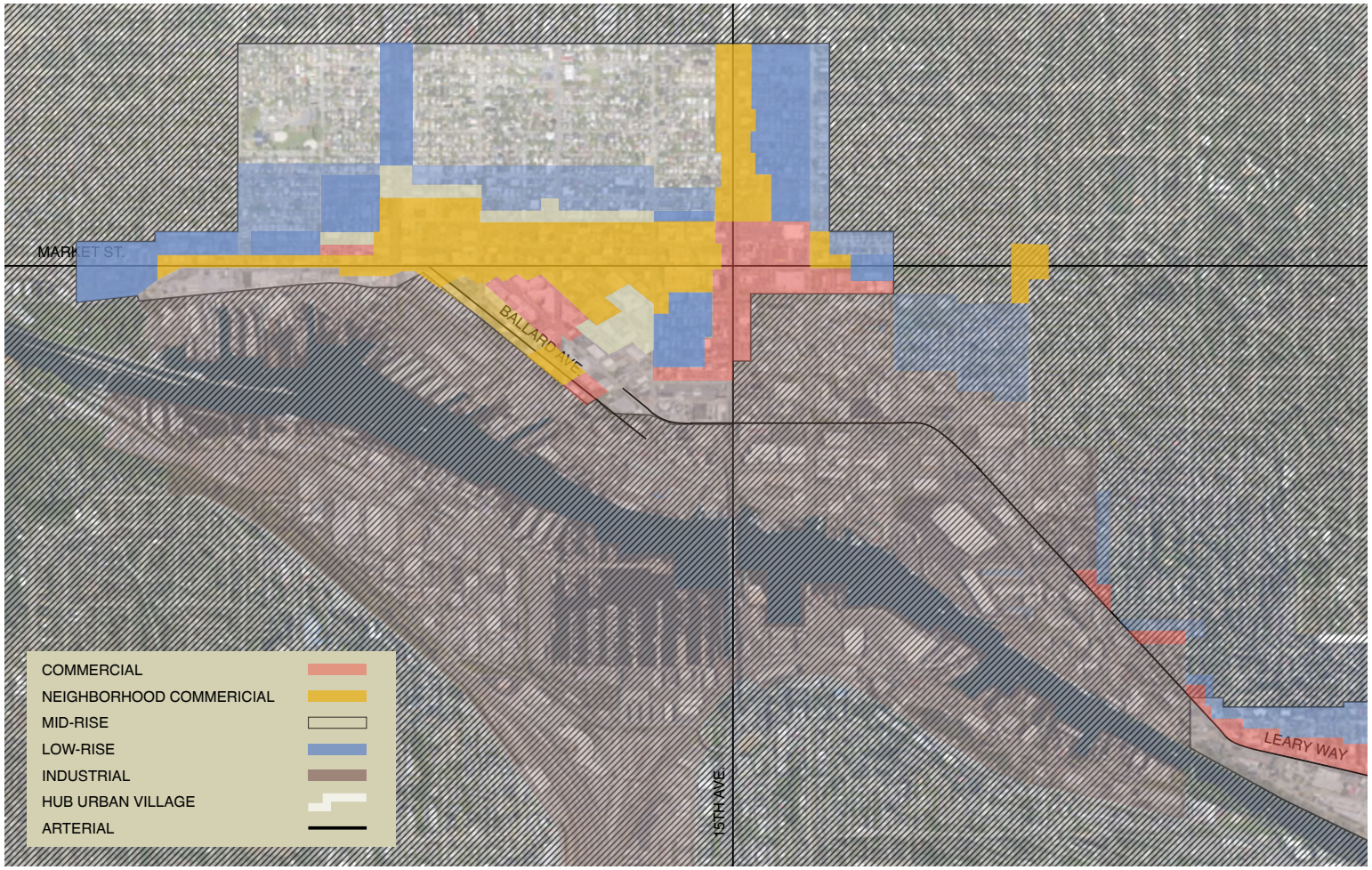


figure 1.05 Ballard zoning

Zoning

Current zoning does not emphasize the importance of integration with existing fabric nor does it incentivize salvaging existing structures. Existing zoning does incentivize mixed-use but does so similarly for each zone. What develops is a homogenous pattern of large scale developments without much variation in use or character.

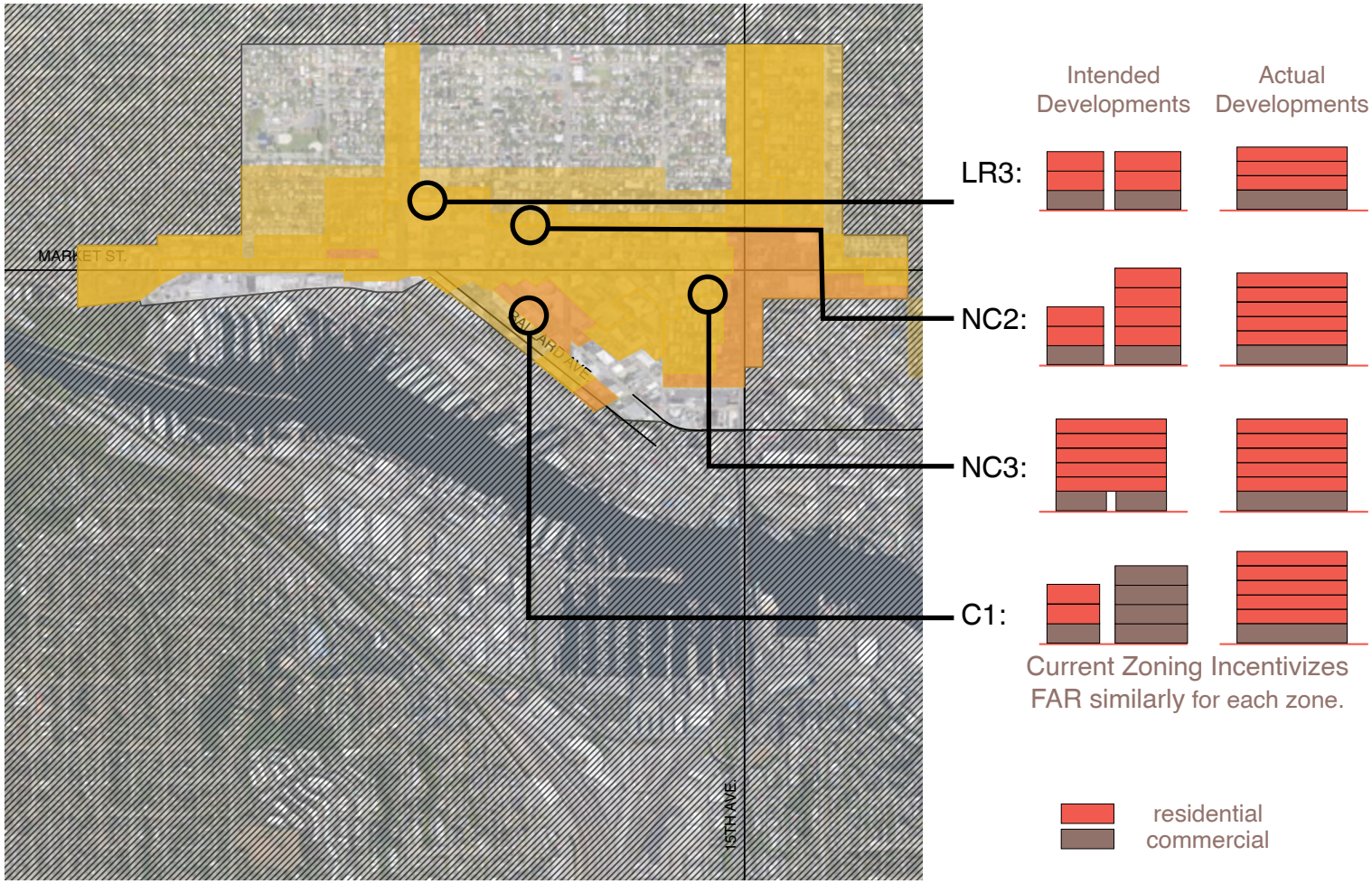


figure 1.06 Actual developments are very similar between all intermediate zones

Zoning

This homogeneity is witnessed clearly in the pattern of development through the industrial fringe area where a specific typology of mixed use is inserted through each of these zones from low-rise residential to commercial. This mass and sameness effectively creates a hard edge at both the transition between residential and commercial, and manufacturing and commercial.

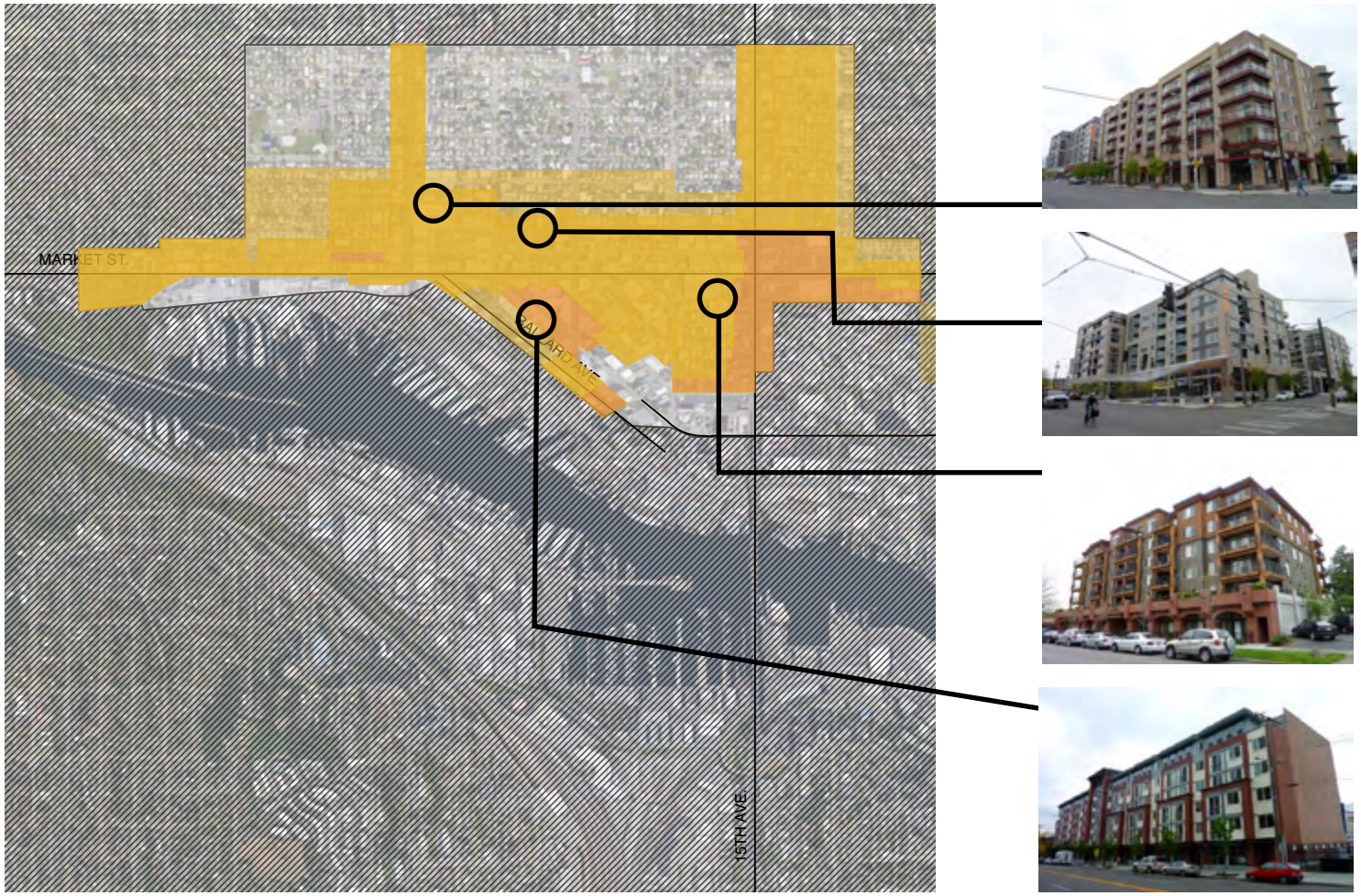


figure 1.07 Homogenous character of new developments

Development Trends

Due to low land values on the fringe of the BINMIC (typically 50-70% less than those in the commercial core) Development trends point to the acquisition of land along the industrial fringe. Several lots along the fringe have been targeted for development including much of the Nelson family property north of Leary and east of 15th Avenue. As mixed-use development encroaches it creates property speculation along the fringe, driving up rent, reducing the availability of open space and structure and often places incompatible users near one another.

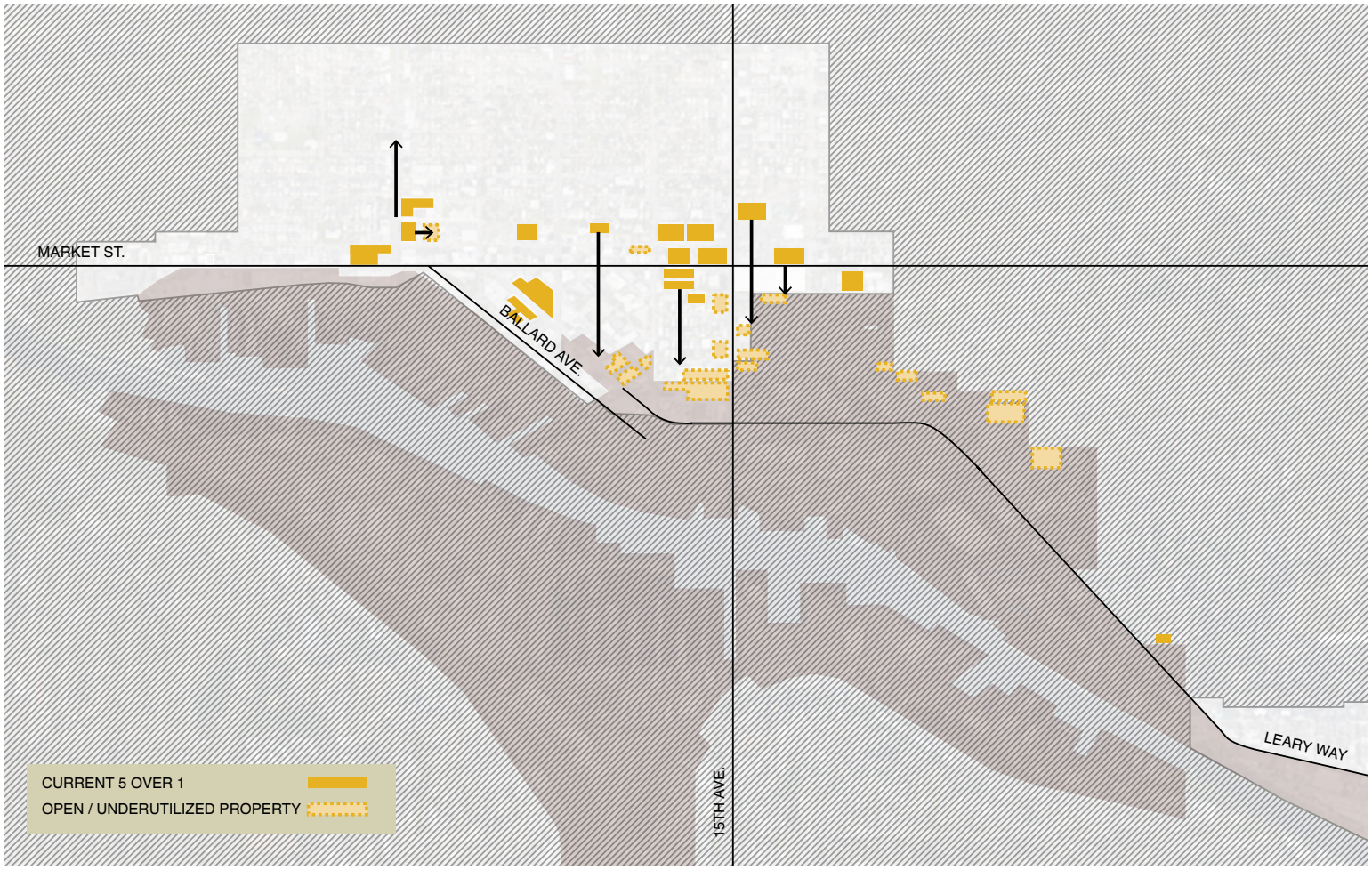


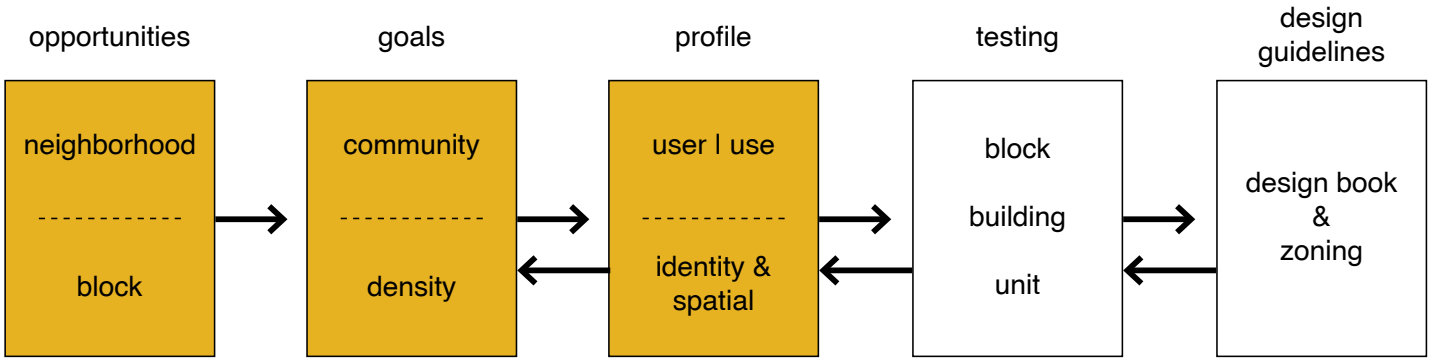
figure 1.08 Forecasted development locations

chapter 02: opportunities | goals | profile

Extracting Site Opportunities

Testing and analysis will occur on multiple scales, beginning with neighborhood and then the block. Observations at one scale will be scaled and tested at the next. What develops is intended to be a fluid back and forth analysis between the two scales. The neighborhood scale investigation will reveal economic, social and cultural opportunities. The block scale investigation provides an analysis of opportunities at a more detailed level, taking account existing strengths of the specific character and uses adjacent to the proposed development area. The block scale in many ways becomes a microcosm of the larger issue and should provide information that is sometimes scaleable throughout the development.

opportunities | goals | profile



Use | User: Demographics

A detailed look at the population, age and economic characteristics of the Ballard Hub Urban Village reveal many interesting facts. The fastest growing age groups in Ballard are the 22 to 35, growing by a whopping 14.4 % during the past decade. Surprisingly, the elderly population has declined slightly over the past decade but is forecasted to increase rapidly over the next 20 years due to the aging baby boomer population. Over 64% of the population 65 and older are living alone. Also significant is that both young and elderly are the lowest earners, earning on average less than half the wage as the middle years. The number of single person households are rapidly outpacing the rest of the community, this household group represents over half of the Ballard demographic. However, this group also represents the lowest median income. Due to the rising cost of housing in The Ballard, the two fastest growing groups of singles - elderly and young - are finding themselves priced out of the community.

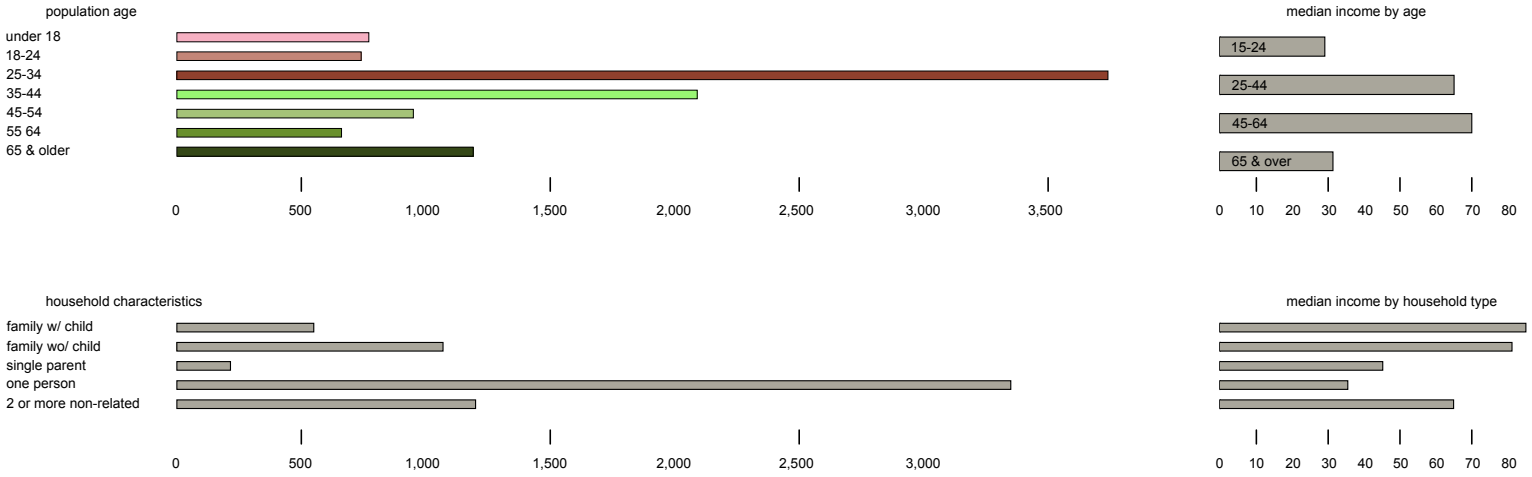


figure 2.01 Population and income in Ballard

Use | User: Small Urban Manufacturers

In previous decades what little growth the manufacturing sector has experienced has occurred on the outskirts of cities, causing workers to need to commute further to and from work. Today, a good portion of manufacturing strength is occurring through the steady increase of small urban manufacturers, or SUM's. SUM's are a major growth market in the US. SUM's differ from large manufacturers in many ways. They produce different and cleaner items.

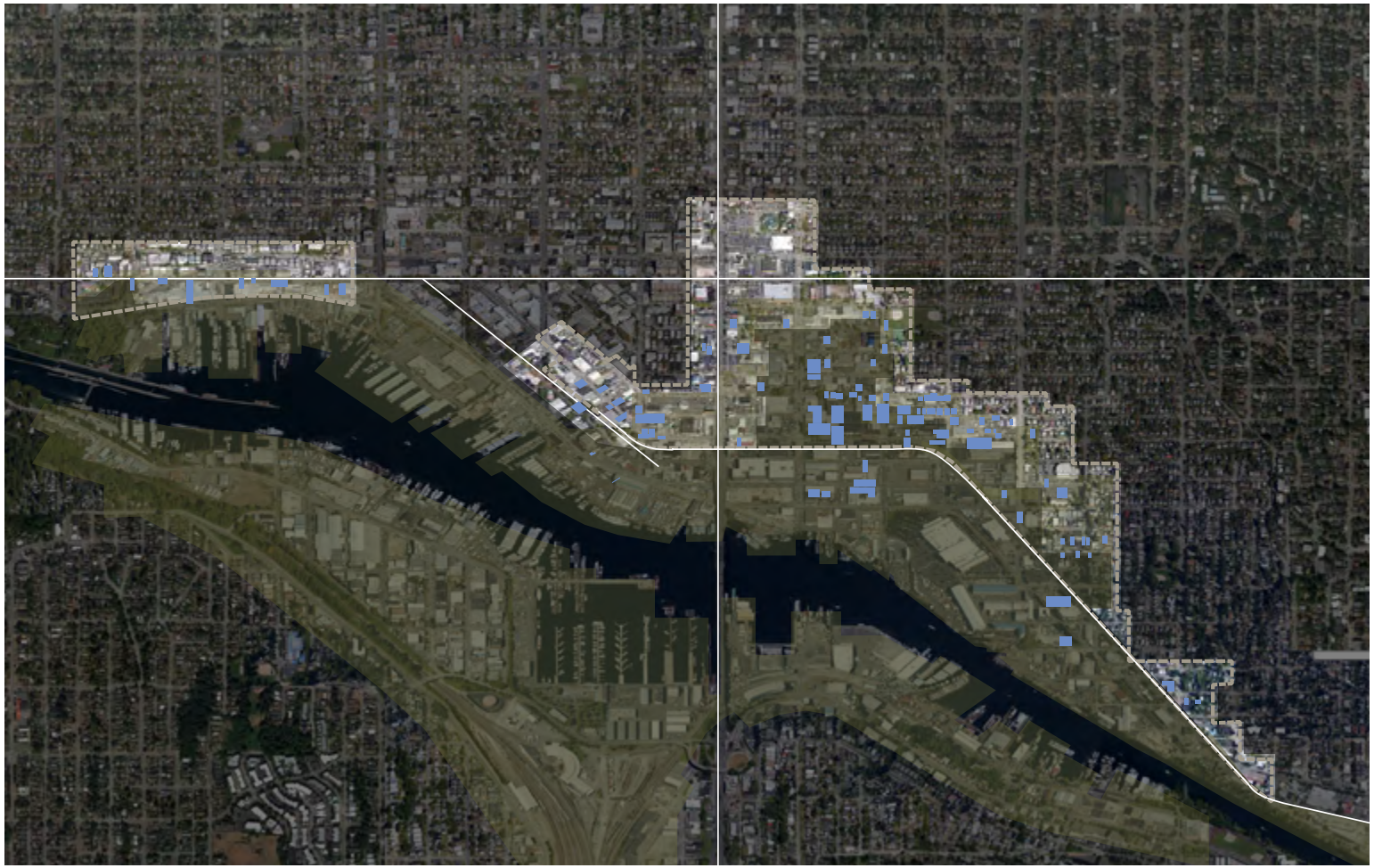
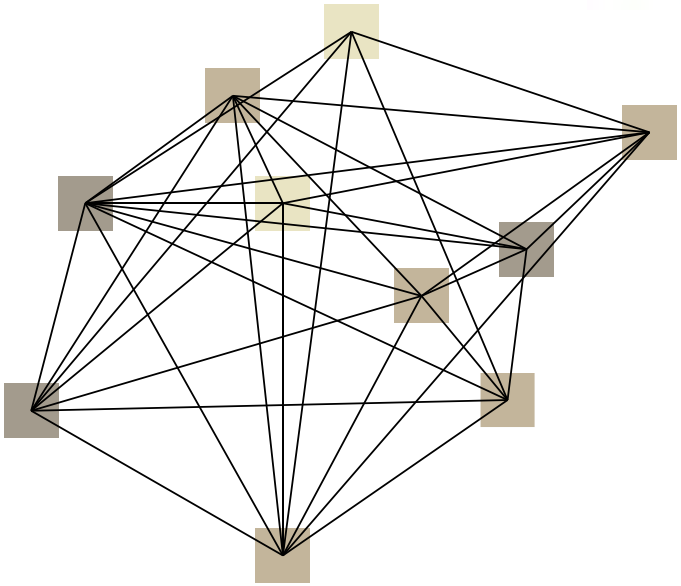


figure 2.02 Location of small urban manufacturers

Use | User: Small Urban Manufacturers

Small urban manufacturers often rely on a small network of companies or other small businesses to fuel sales and/or outsource aspects of work to. In this sense they depend on the strength, relationship, and potential compatibility of other businesses throughout the network. The SUM network in the artisan realm is primarily comprised of design, craft and artisan goods and services. New operators inserted into this realm should ideally complement these strengths.

brewer



graphic designer

printing press

figure 2.03 Potential SUM network

Identity | Spatial: Variation of Character

A walk along Ballards industrial fringe would reveal the often varied and changing character of “micro-hoods” or realms. Maritime activity transitions seemlessly to historic cultural district, to automotive oriented businesses and into service related and professional businesses. Much of the transition has occurred as a result to the specific locations geographic relation to service and transportation infrastructure. Each realm has also grown with its own physical character of fabric. Cranes, hangars and boat lifts near Lake Washington Ship Canal, rows of garage doors, ready to accept the next automobile in need along 15th Avenue and gable roofs and galvanized steel siding on the edge of 11th Avenue where remnants of the previous single family neighborhood once was. In each realm the existing style, character and general fabric should be preserved whenever possible.

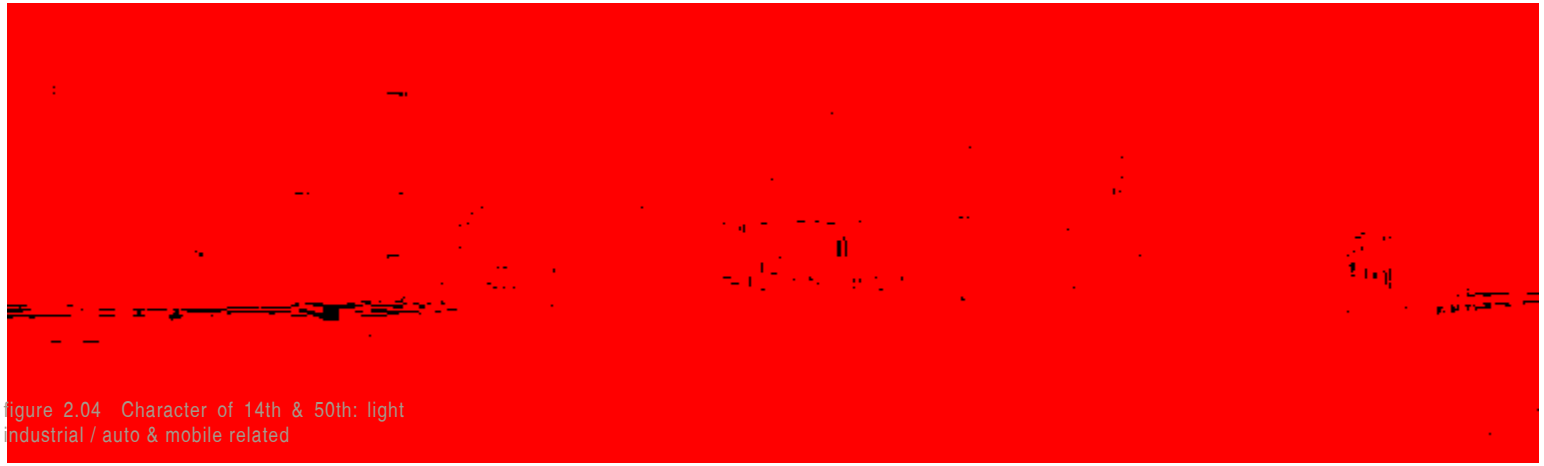


figure 2.04 Character of 14th & 50th: light industrial / auto & mobile related

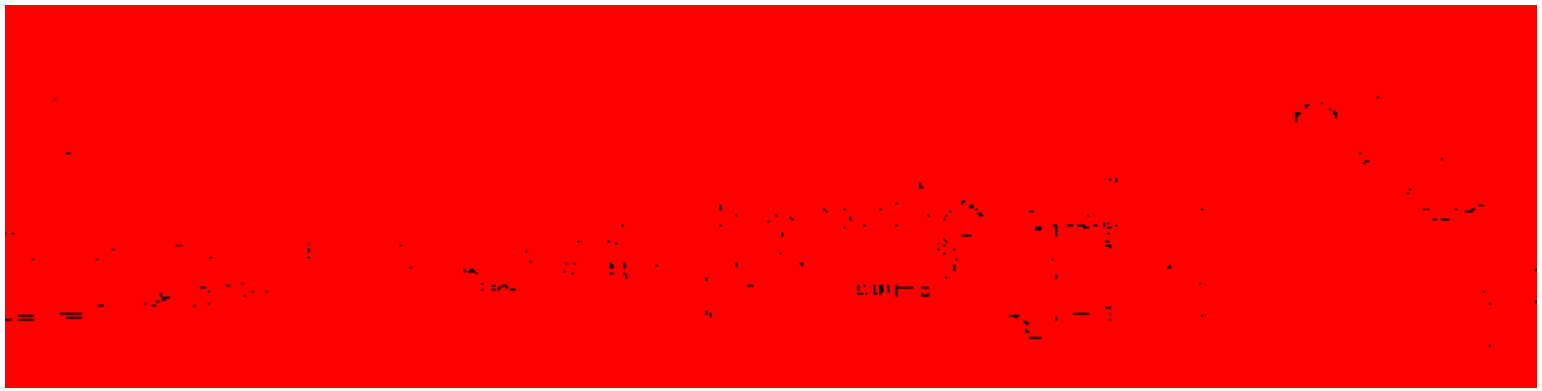


figure 2.05 Character of 17th & 50th: artisan, design & residential

Proposed Interventions Along Fringe

Information provided during the variation of character investigation results in the identification of four distinct districts; Maritime, Artisan, Technology & Service. Each relating to the actual use and opportunities at the block level. Analysis and testing within the district or “realm” will provide further insight as to how to develop the area most appropriately. The following analysis will look more closely at the Artisan Realm to draw forth it’s opportunities.

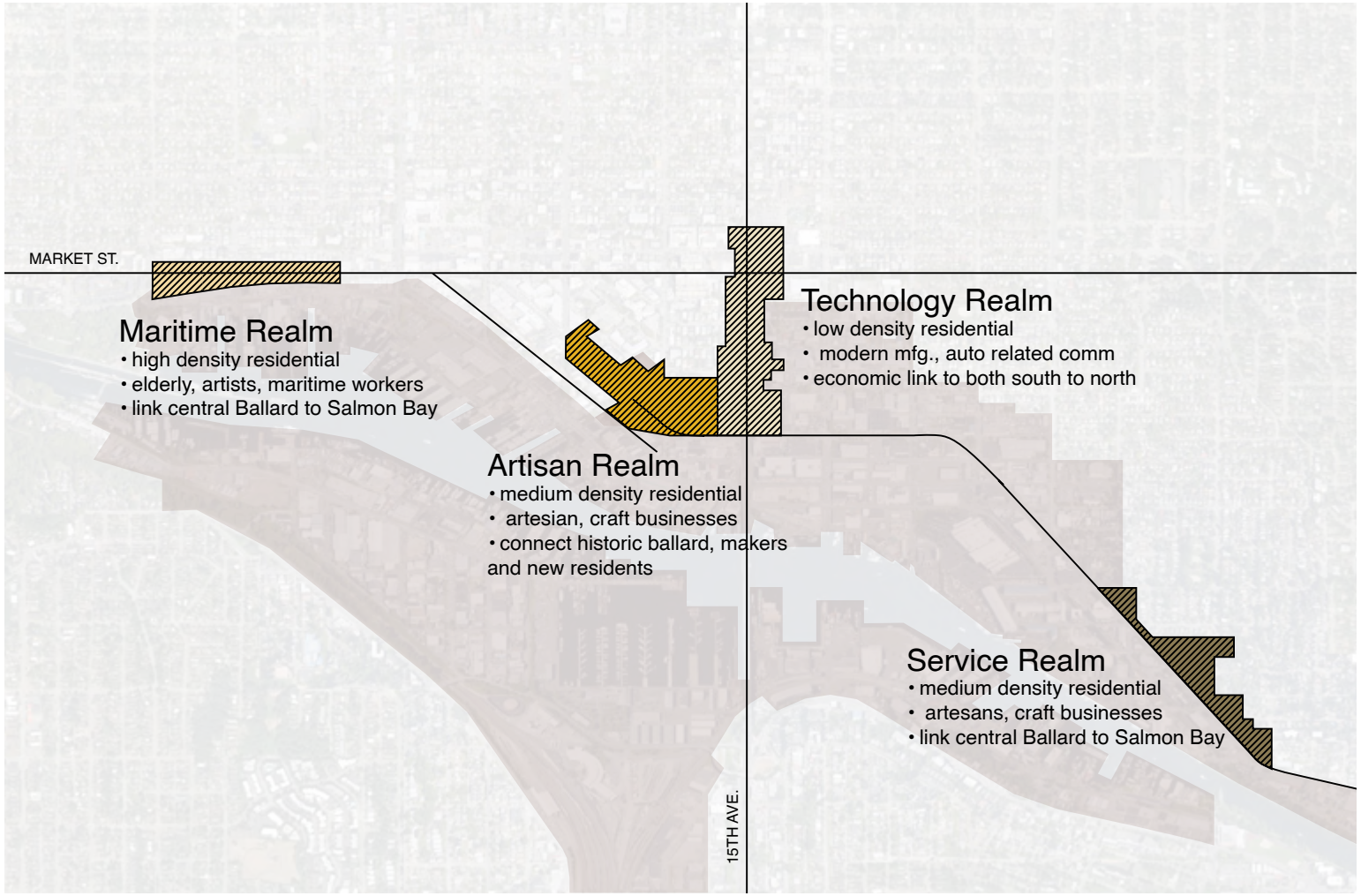


figure 2.06 Proposed new districts and their character

The Block Scale

A microcosm of the urban industrial fringe condition is analyzed and tested for potential opportunities and development. The area selected is highly underutilized, with nearly 60% of the land either vacant or surface level parking. This is substantial considering that the two districts immediately adjacent - the ballard avenue historic district to the southwest and a group of low-rise housing to the northeast - are both heavily occupied and teaming with life. As much of the land owned by either Carter Volkswagen or Nelson Chevrolet the district could at one time be considered the auto capitol of Ballard. However, while the Carter presence is still strong Nelson Chevrolet has closed its doors.

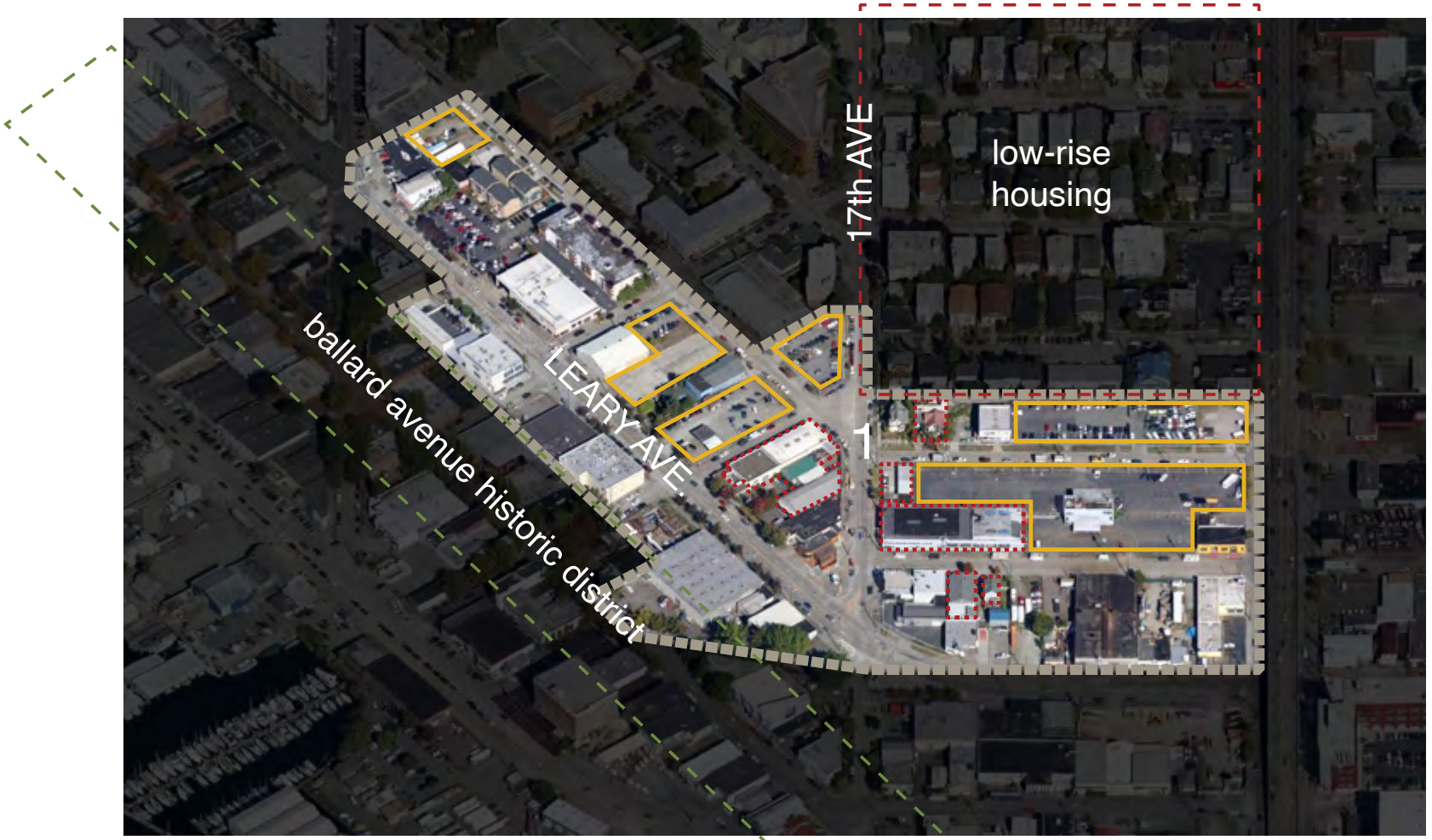


figure 2.07 The Artisan District

Open Lots

The dichotomy of the open lot, useful as open outdoor storage or parking space but harmful in that they create a weakness in the fabric that could be exposed by incompatible uses. As our cities grow dense these open lots will continually be targeted for development. One of the critiques of the 5 over 1 development is that they expose such open lots and rather than taking an “urban infill” approach they level entire city blocks including whatever sign of life was left. In some cases there is simply not enough life left to support further compatible development, but this cannot be said of the artisan realm. Like many areas along the fringe the artisan realm is peppered with surface level parking and open lots. These open areas are an asset to nearby businesses, primarily Carter Volkswagen and a few maritime related companies which store equipment, vehicles and other surplus on the open lots.

figure 2.08 Open lots at 50th Street & 15th Avenue

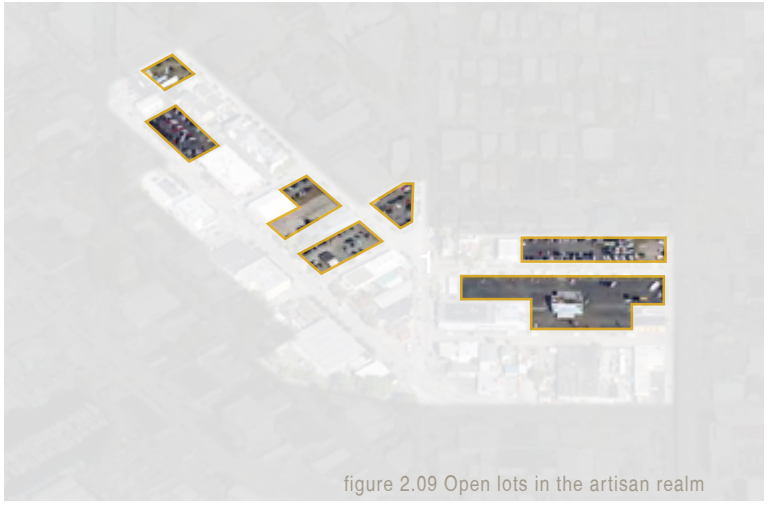


figure 2.09 Open lots in the artisan realm

Existing Artisan Related Businesses

At the heart of the artisan realm - the intersection of 50th Street, Leary Avenue & 17th Avenue - there exists a strong cluster of craft, design and artisan related businesses. These businesses include Hilliards brewery and tap room, Ballard Woodworks craft and furniture incubator, NW Peaks brewery, Slab Art, embroidery shops, a photography studio and several other small artisan related businesses. Future development in the area should recognize and aim to strengthen the relationship to this budding artisan district by placing operators and inhabitants that relate to these uses.

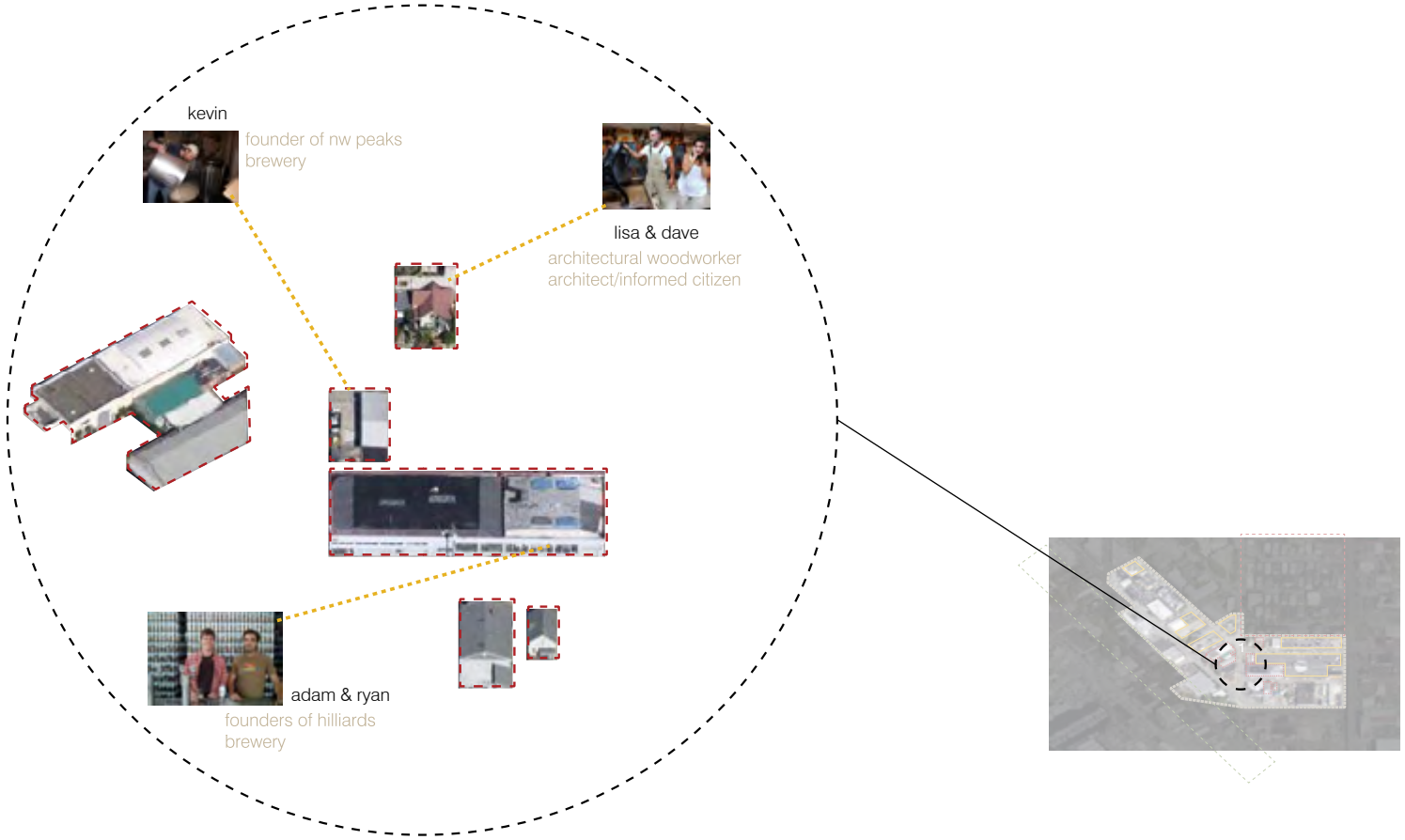


figure 2.10 Existing artisan business owners and location

Porosity & Triangulation

Porosity: Laminar flow - the fluid separation with no disruption - as Sorkin stated “laminar flow is one of modernities obsessions and is the basis of many future visions of the city” but in the public realm it is the eddy’s of turbulent flow which provides opportunity to stop, contemplate, and “mix” with fellow urbanites. This mixing due to eddy’s in the fabric was observed many times during my on-site research, meeting locals as I stopped within these voids to observe, document or photograph and should be encouraged in new developments.

Triangulation: As Christopher Alexander has stated “triangulation occurs when a space allows for two or more overlapping functions and thus facilitates additional activity and interaction between people. It often occurs in small spaces through the precise positioning of an object or two around a key location.” It’s effects can have a positive consequence when used on the urban scale to provide opportunity for connection between strangers. The implementation of triangulation on the urban industrial fringe is critical due to the nature of the small urban manufacturer network.

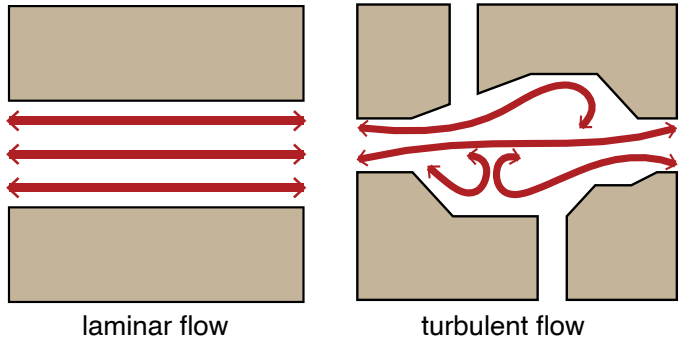


figure 2.11 Diagram of porosity

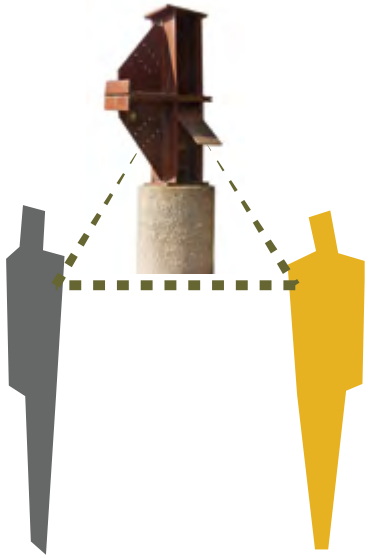


figure 2.12 Diagram of triangulation

goals

Community Goals & Density Goals

The following goals are derived from the investigation of opportunities. They provide overarching recommendations for who the ideal occupant could be as well as the ideal spatial and environmental characteristics for the development(s). Goals can be broadly placed into two families: community design goals and density goals. Community design goals address user, character, public realm, scale & bulk. Density goals would be set forth by the planning committee to create a baseline for density of development.

Initial baseline goals should be set from the beginning but as information and opportunities surface the goals should evolve to respond to this new information. Final community goals should address character, use | user, scale & bulk, and other important aspects that arose during the investigation process.

community & design goals

1. reimagine the gritty, working class identity of the neighborhood
2. operators should strengthen the connection to the local making culture
3. provide for porosity & triangulation
4. relate to existing fabric in terms of scale & bulk
5. attract the next generation of entrepreneurial spirited creative thinkers.
6. address the housing needs of the growing population of urbanites

profile

Potential Users

Three user groups were selected to optimize the development for. These groups are not intended to make up 100% of the development but rather represent the largest target market in terms of housing accommodation in Ballard and would likely benefit most from a development suited to their needs.

figure 2.13 Potential users

The Aspiring Single

The number of aspiring singles is growing rapidly in many urban areas, such is the case in Ballard. These “millennials” are typically students, recent graduates, Ballard industry workers, entrepreneurs, barristas or service workers, or construction workers. They are hard working but increasingly finding themselves in low paying jobs (median income $31,000) due to the lackluster economy. This group often chooses to remain single longer, putting off marriage by an estimated 5 years from the previous generation (according to census reports). The aspiring single has generally not acquired much property and often does not own a vehicle. They require much less living space than families and consider the city their back yard. For them, a high value will be placed on urban amenities such as public transportation, entertainment, coffee shops and restaurants, nightlife and shopping. Unfortunately, most housing in Ballard does not address their needs, and is either beyond their means or in poor condition.

This group would benefit from reduced income, the targeted rent for this group will be $1,000 per month including utilities which represents less than 40 percent of the yearly income dedicated to housing by the average earner. The current average rent in Ballard hub urban village is $1,740.

Densities in the range of 200 to 250 units per acre will be required to meet this cost. This group would benefit from a live work arrangement even if the space dedicated for working was of a small size. Youth find all kinds of inventive ways to earn additional income. Electronic hardware needs to be repaired, software needs to be developed, art needs to fill the nooks and crannies of the new market rate apartments, street food needs preparing. Such work spaces have been effective at as little as 150 square feet, the same as a standard parking stall.

rammy

aspiring brewer

budget: business $4,000/mo

profile: needs a small space with opportunity to grow

katie

seamstress

budget: living: $1,300/mo
business $4,000/mo

profile: needs a small space with opportunity to grow

The Lively Elderly

The lively elderly would likely find enjoyment in engaging with neighbors and socializing on a day-to-day basis. They have great potentially to become an important mentor to the others in the group including the aspiring single parents and children. In the case of emergency, the elderly would benefit from a close proximity to other adults. Additionally, they would benefit from close proximity to Swedish medical center, a hospital services just north of the artisan realm. If public transportation is prevalent they would be less dependent on the automobile. The elderly might benefit from a rideshare operation within the complex or neighborhood. Covered areas and proper sun orientation and exposure would be ideal. The living areas would be highly assessable and follow the philosophies of universal design. Gardens and other areas that can be inhabited or shared would work well for this group. Much of the grounds would want to be accessible if possible. In the mixed use environment noise compatibility will need to be addressed at the onset to minimize disturbance to any parties involved.

grace

single urbanite

budget: living $1,000/mo

profile: prefers urban amenities over living square footage, volunteers at swedish medical center.

howard

renaissance man

budget: living: $900/mo

profile: loves to share his knowledge with other “handyfolk”

The Single Parent

The single parent is a growing demographic when compared to the nuclear family. The single parent will benefit greatly from the social living environment as their children will have a much greater opportunity to engage and learn from other adults and children in the neighborhood. The single parent also benefits from the economics of the collective living arrangement as it presents a much better opportunity to live at a reduced cost. The single parent might have less overall time to invest in community engagement because there is little free time available between work and raising a child, however they stand to benefit greatly from the community interaction when it does occur.

lisa & dylan

single mom & owner of a professional design service

budget: combined $5,500/mo

profile: lisa is looking for a collaborative environment with business oriented amenities to help grow her business.

bruce

architectural woodworker

budget: living: $1,100/mo

profile: bruce, single parent, works at a local architectural woodworking shop and lives in kirkland. he is interested in finding affordable rent locally.

chapter 03: testing

Industrial Fringe Design Guidelines

As with any large scale urban insertion the development of a new approach to densifying the urban industrial fringe is a complex endeavor. The result must meet the current and future needs of the community, neighborhood, economy, and also be profitable enough for a developer and landowner to pursue. To do so, the impact must be understood on multiple scales. The testing method uses the theory of fractals to create like associations between scales when possible and identify incompatibilities as they arise.

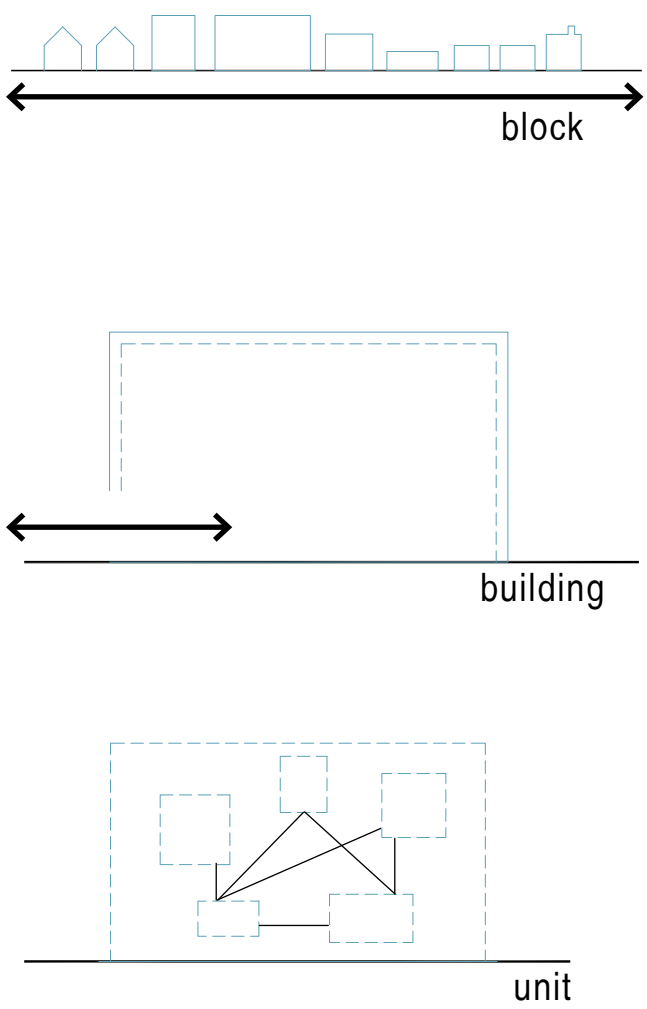
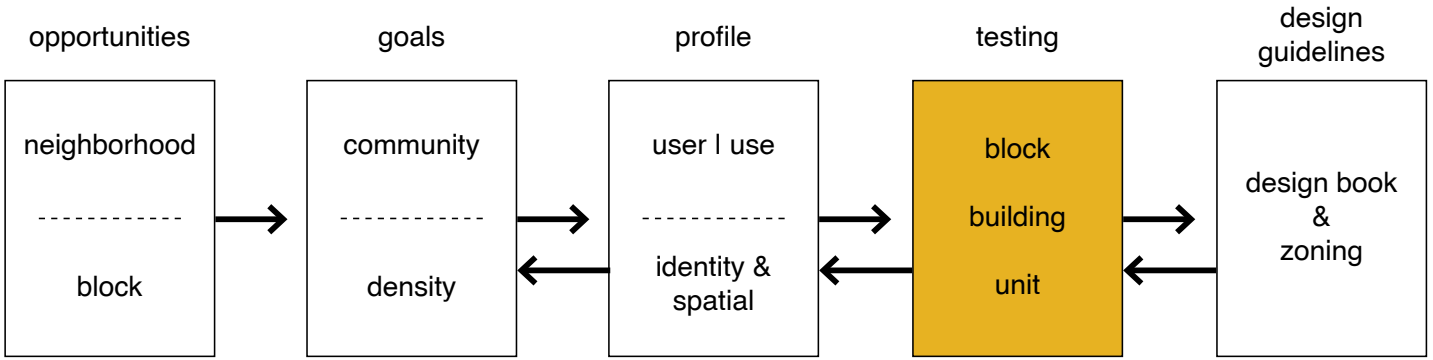


figure 3.01 testing on the three scales

testing


opportunities
neighborhood
block
goals
community
density
profile
user | use
identity &
spatial
testing
block
building
unit
design
guidelines
design book
&
zoning

The Gasket

The first iteration of design was the gasket. The gasket aims to create a “separate but connected” mixed use typology, integrating larger scale warehousing artisan manufacturing uses such as a brewery or glass blowing studio that would need access to shipping/receiving with lighter “storefront” manufacturing uses such as embroidery or professional design services.

figure 3.02 Gasket scheme arrayed onto artisan realm

Ground Level

On the ground level the initial ambitions of the gasket can be witnessed, allowing shipping/receiving for warehouse manufacturing activities at the street edge and creating an open air marketplace were pedestrians can shop or observe artisan craft manufacturing in action. The structure is pulled away from the street at the corners to provide eddy's of potential interaction. Residential egress from above and amenities such as mail and bike storage are strategically placed adjacent to the public spine such that opportunities for interaction will occur naturally and passively. These residential locks are designed to give the physical and mental intention of a safe and secure entry.

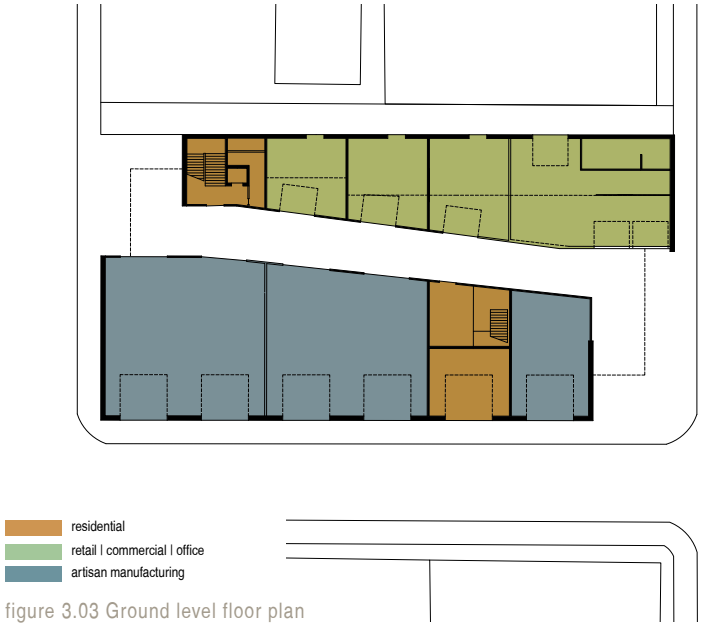


figure 3.03 Ground level floor plan

Scaling Up

The gasket concept was scaled up and revealed some interesting results. It was possible - even without the demolition of existing structures on the block scale - to scale up the internal public spine, however the clarity of the initial diagram was beginning to be lost. Additionally, the scheme has the possibility of drawing life away from the street, diverting it into the pedestrian spine, rather than strengthening the street edge. The alternate debate is that there exists no strong street edge and in that sense the pedestrian spine could sustain itself, especially given that the edge conditions near Leary Avenue are already less than pedestrian oriented.

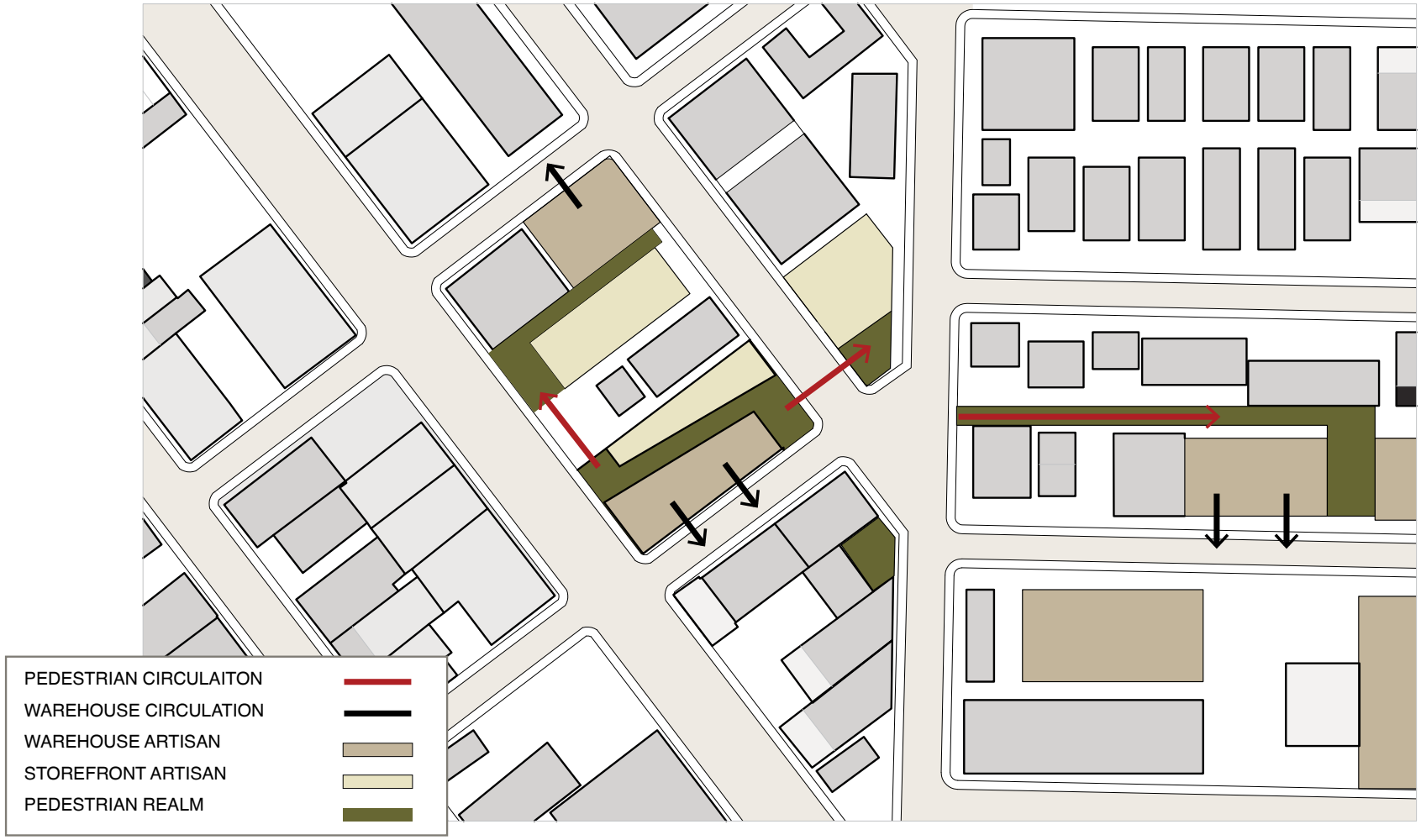


figure 3.04 Public open space

Scaling Down

The pedestrian spine, or gasket, was continued up through the center of the building. This spine created the opportunity for centralized community amenity space but also allowed for better daylighting strategy. On the upper floors the typical 10' floor to floor was challenged. By introducing taller, skinnier units with a mezzanine level the developer could achieve nearly the same square footage in a living area that had a greater variation of public and private spaces, offered higher, better lit circulation spaces and reduced the floor depth of the structure thus reducing cost. One potential benefit to this system is if the height restrictions were eased or incentivized the developer would have the opportunity of adding two additional floors of wood construction, increasing occupancy by nearly 75%.

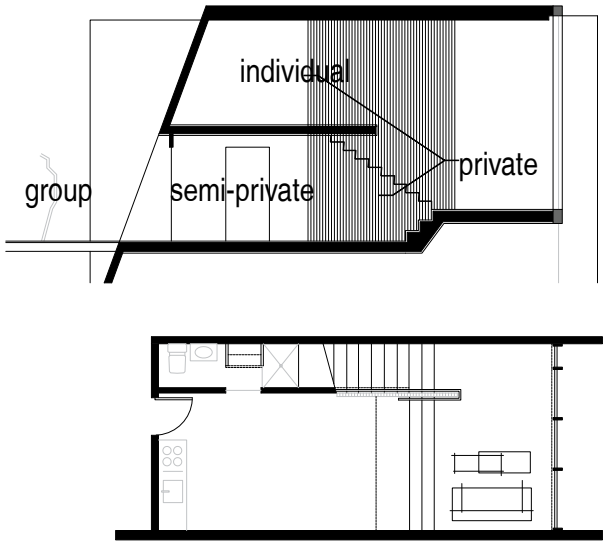


figure 3.05 Gradation of privacy

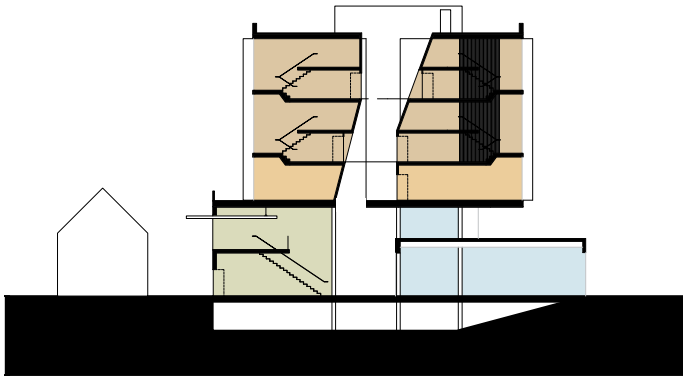


figure 3.06 Separate but connected uses

longer | skinnier | higher
the dwelling with high ceilings provides more variation and daylighting than the standard as well as spacious internal areas and the potential for increased number of units

The Warehouse

The warehouse scheme aims to address deficiencies of the gasket by integrating uses, breaking down horizontal scale and addressing the public realm on the street side. Horizontal scale is addressed by placing a new rule that developments shall have mid-block cuts with integrated eddy's for service and/or pedestrian circulation as appropriate.

figure 3.07 Warehouse scheme arrayed onto artisan realm

Ground Level

On the ground level the integration of various program elements creates variation and flexibility. Eddy's at the street corners provide the opportunity for porosity and triangulation to occur without sacrificing square footage. Like the gasket scheme, the warehouse achieves 30% open space on the ground level but in this iteration places much of that within the back of the building as functional space that can potentially be used as staging for shipping/receiving or building related events. As with the gasket residential uses are placed near eddy locations to encourage passive interaction between internal and external community.

figure 3.08 Ground level floor plan

Scaling Up

Upon scaling the warehouse scheme some of the drawbacks of requiring mid-block cuts were revealed. While the voids generally broke down the scale of development while providing useful nodes in some instances such as near the nelson chevrolet dealership the voids resulted in a “dead end” effect. There are two potential resolutions; either the regulation on mid-block cut would need to be flexible enough to follow a more complete master plan or use and design would need to be regulated at the dead end termination point. ie. the existing Nelson facility would respond by integrating a large, transparent social component on the ground level.

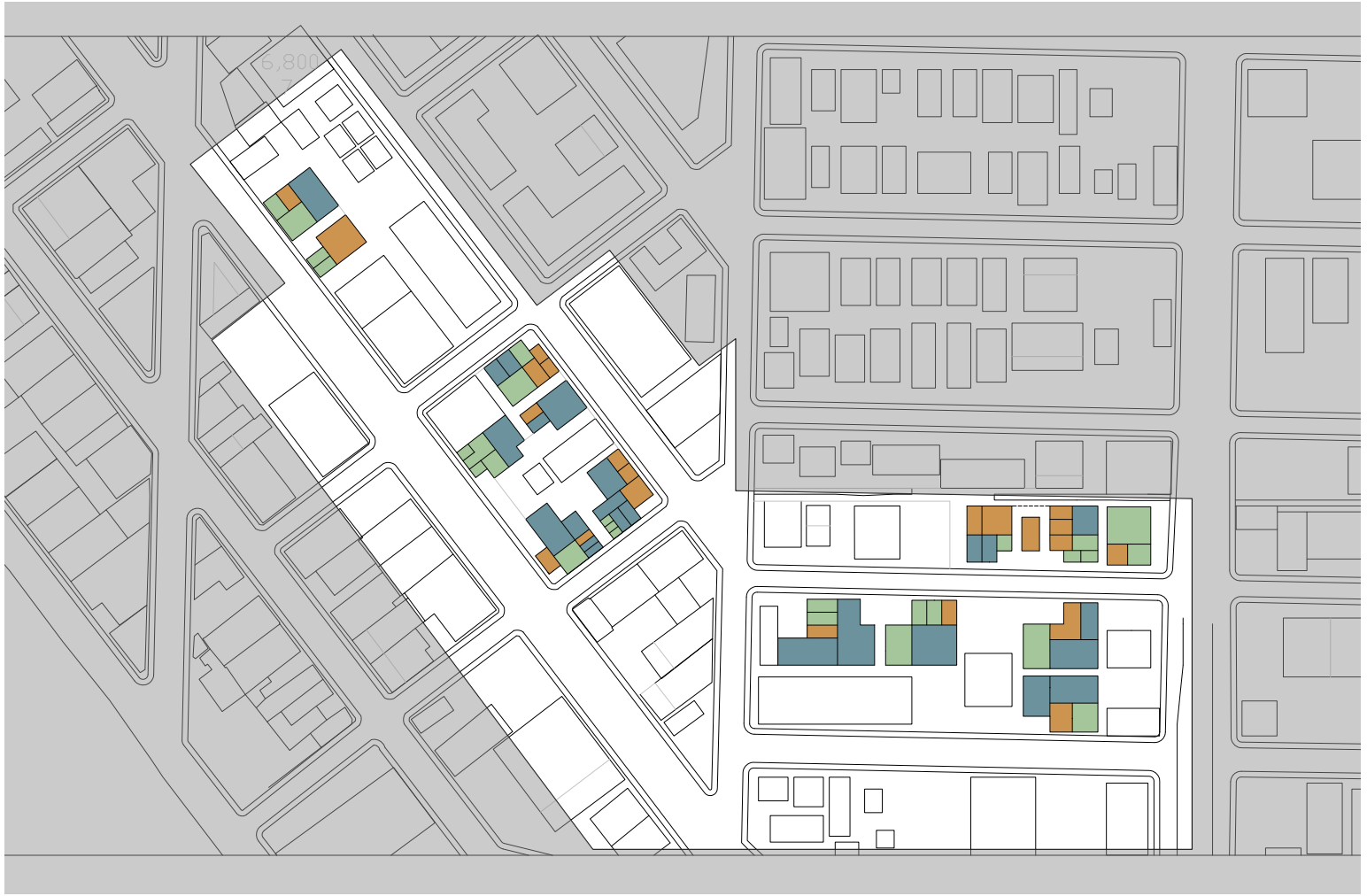


figure 3.09 Ground floor plan showing use gradation

Scaling Down

In the warehouse scheme internal space stratification is completely removed and in place is a heavy mixture of potential uses. To accommodate such flexibility the development of an series of adaptable modules was created. Using the same 17' FTC module as the gasket seven possible configurations arose. These modules present the opportunity for an important and unique component of the new typology, the shared living and/or working space. Pulling from methods of cohousing these units have the potential to provide connected living and working environments at more affordable rates.

figure 3.10 Variation of use within module

shared amenities
various living and working activities spill out to shared community spaces. these spaces integrate both living and working community needs. one example is the workshop lounge that provides rentable storage for tenants.

the warehouse

The Tower

The tower scheme evolves from the gasket and warehouse by attempting to consolidate the strengths of each into a clearly identifiable typology. Ground level open space is consolidated to the street side were it can provide servicing for both building and community. Integration of living and working components remain on the lower floors but now there is the opportunity for a certain amount of separation between uses, an evolution that should make it attractive to a broader audience.

figure 3.11 Tower scheme arrayed onto artisan realm

Ground Level

On the ground level open space is increased to nearly 50% of total plot area. To subsidize this generous amenity developers are allowed to build certain areas higher than current height regulations allow. This method of development has been enacted with much success in Toronto and Vancouver. Live and work functions frame an open space that can be utilized as staging, storage and warehousing operations during the weekday and transform into a lively market, supported by both the community and the building on the weekends. While there is still a level of integration between uses there is a clearer distinction between living and working zones which will provide for a more comfortable overall experience.

figure 3.12 Ground level floor plan

Scaling Up

Applying the tower scheme throughout the artisan realm proved to be mostly successful. The 50% open space requirement allowed clusters of valuable community and work areas through the district with the only exception occurring north of Lone Place where the value of open space was decreased because it was more critical to hold the Leary street edge. Additionally, while the tower mass would provide a much needed landmark at the corner of Dock and Leary to signify the beginning of the historic and cultural district the value of a tower on the Nelson Chevrolet property might not lead to substantial benefits.

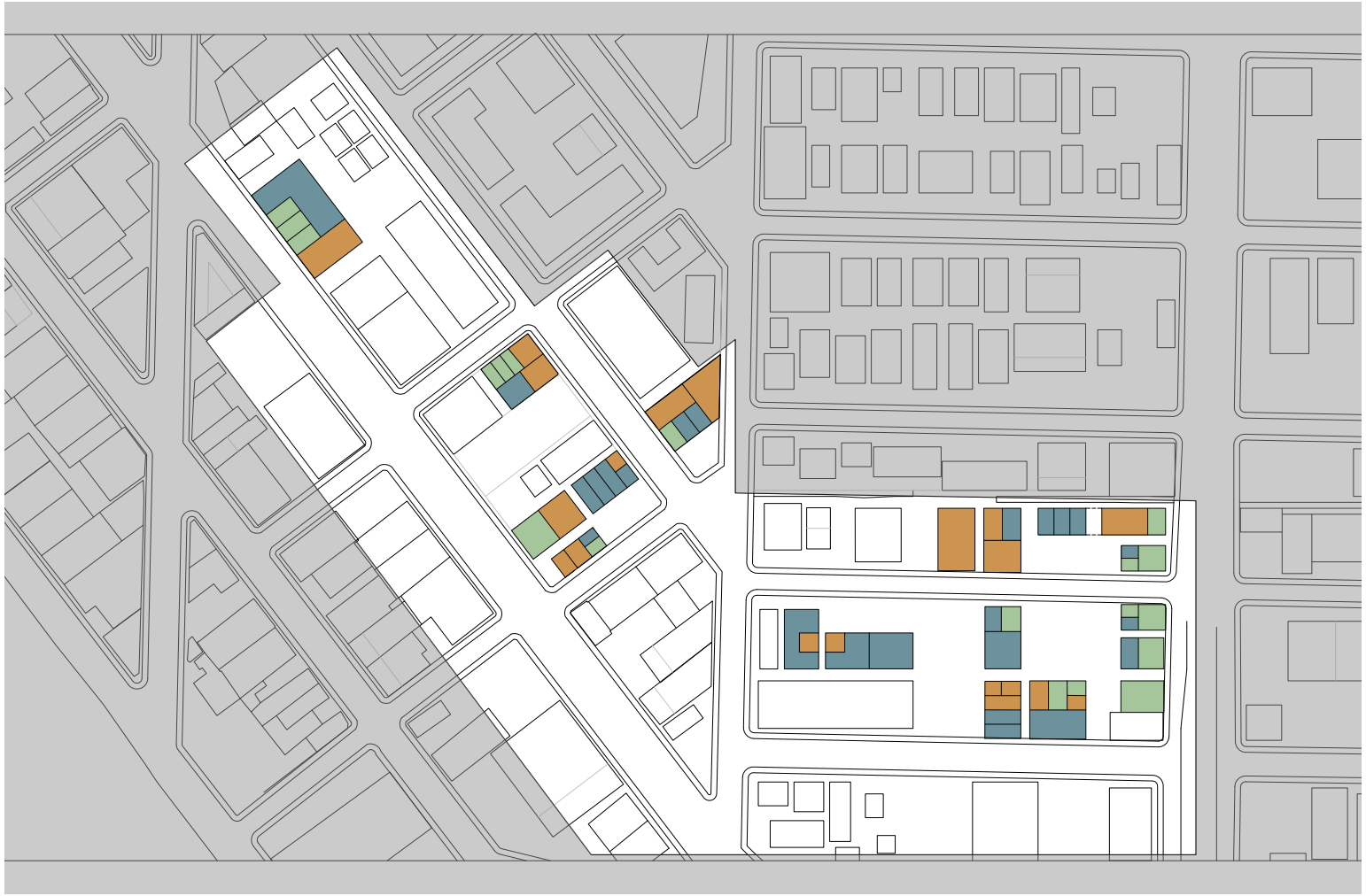
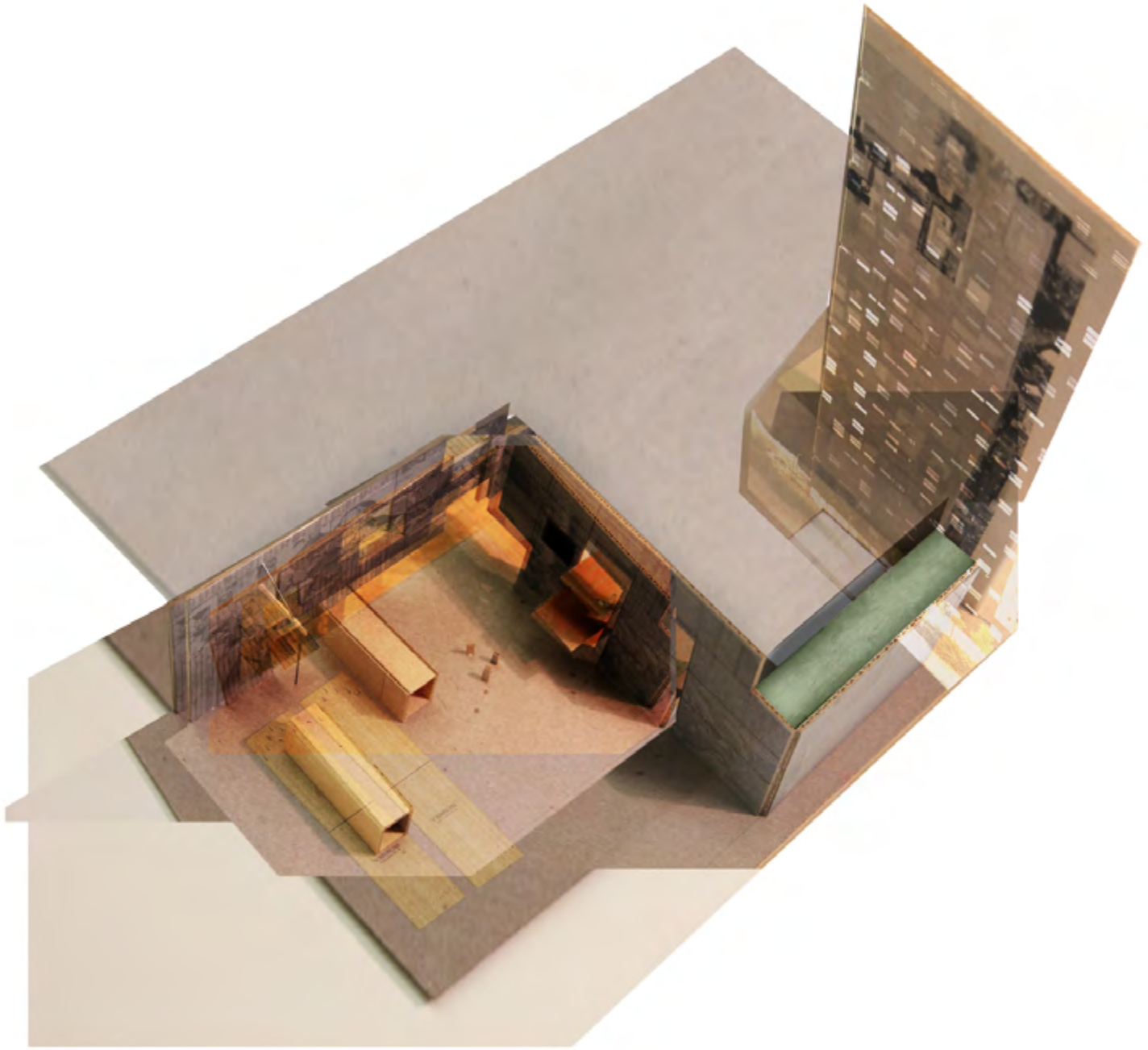


figure 3.13 Ground floor plan showing use gradation

50% open space requirement
clusters of living and working opportunities huddle around a central open space providing spaces that can be enjoyed by tenants and community members alike.

the tower



the tower

chapter 04: conclusions

Potentials I Fragments I Interventions

During the design and testing process I was optimistic that a single, new mixed-use typology would surface that could address the multifaceted needs of the community and owners. What emerged instead was a series of potentials, fragments and interventions that when combined in various ways could create the opportunity for a better connected, community & character strengthening developments. What is clear is that the intensive involvement by community, planning department, developer and architect along with an intensive understanding of existing site opportunities will be critical to the successful development of the urban industrial fringe.

design guidelines

artisan realm

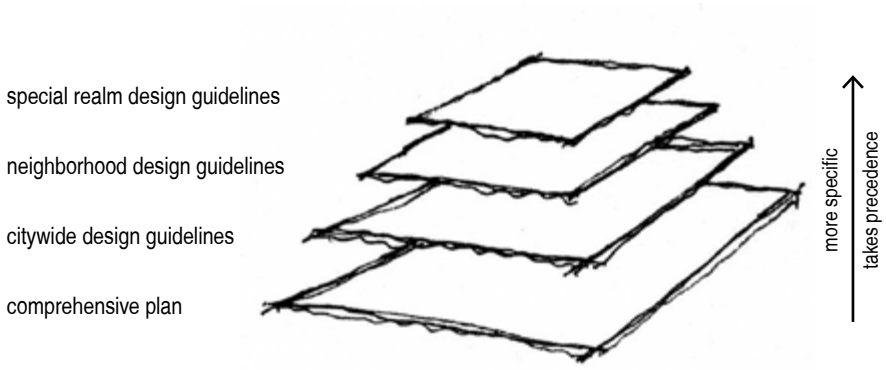
based on research from the thesis

the soft edge of density: placemaking on the urban industrial fringe

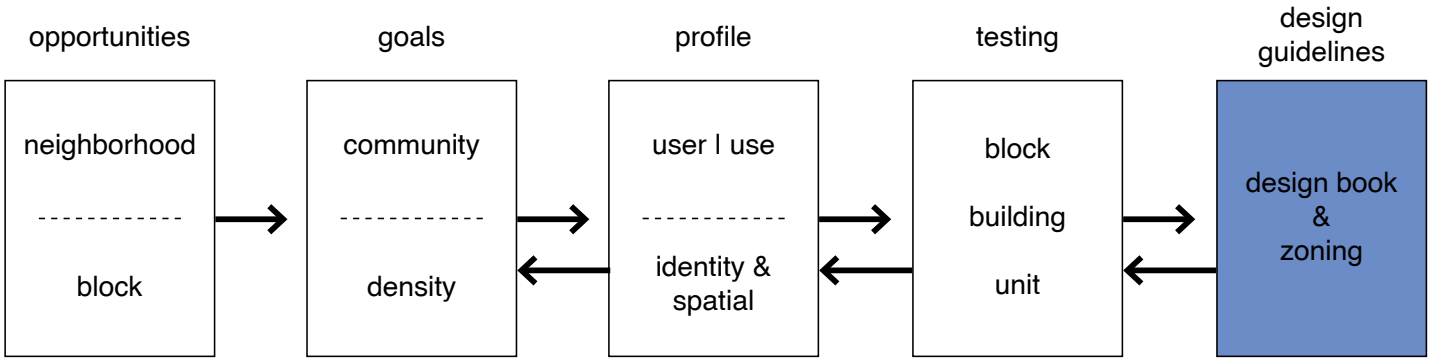
chapter 05: design guidelines

industrial fringe design guidelines

The guidelines within shall be used in conjunction with those in the Seattle Comprehensive Plan, Citywide design guidelines, and neighborhood design guidelines. These objectives are to be applied specifically within certain realms along the industrial fringe of the greater Ballard neighborhood but can also be utilized as a template for design goals in industrial fringe districts of other neighborhoods such as Fremont or West Seattle.



design guidelines



1. reimagine the gritty, working class identity of the neighborhood

identity

Ballard has a unique gritty industrial, maritime cultural character that should be reinforced in all new developments. Reinforcing character in a neighborhood or district is an important factor in creating a clearly defined image and increasing community health.

"if the image is visibly organized and sharply identified then the citizen can inform it with their own meanings"

-Kevin Lynch

community spaces can be used interchangeably for gatherings or workspace as needed.

1. identity

1a. materials & details

1a-1. material palette

use utilitarian materials that age gracefully and weather at contrasting rates. this will help to break down the scale of urban fabric. materials should follow the following rhythm: fine at or near residential, and coarse at manufacturing.

Palette:

- fir or hemlock at ground level public openings
- dk red or yellow brick
- contrasting window frames
- exposed concrete block
- corrugated metal panels
- galvanized steel panels

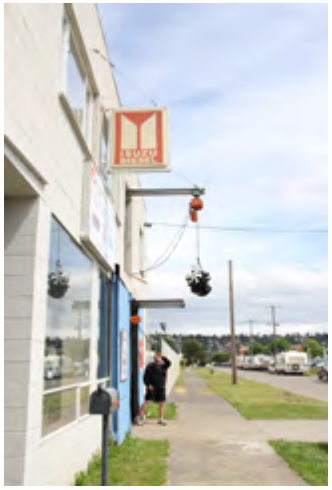
1. identity

1a. materials & details

1a-2. details

use details that reflect the working, craft, and maritime culture in an aesthetically pleasing way. Use color, signage and functionally unique elements and changes in sidewalk materials to create a distinction when moving in to active working portions of the block.

express structural and raw materiality of components within the pedestrian realm.



use of color, signage and/or functionally unique elements identify work areas.

1. identity

1a. cultural

1a-3. art

incorporate contemporary, easy-to-maintain works of art and murals within buildings and landscape along pedestrian paths.

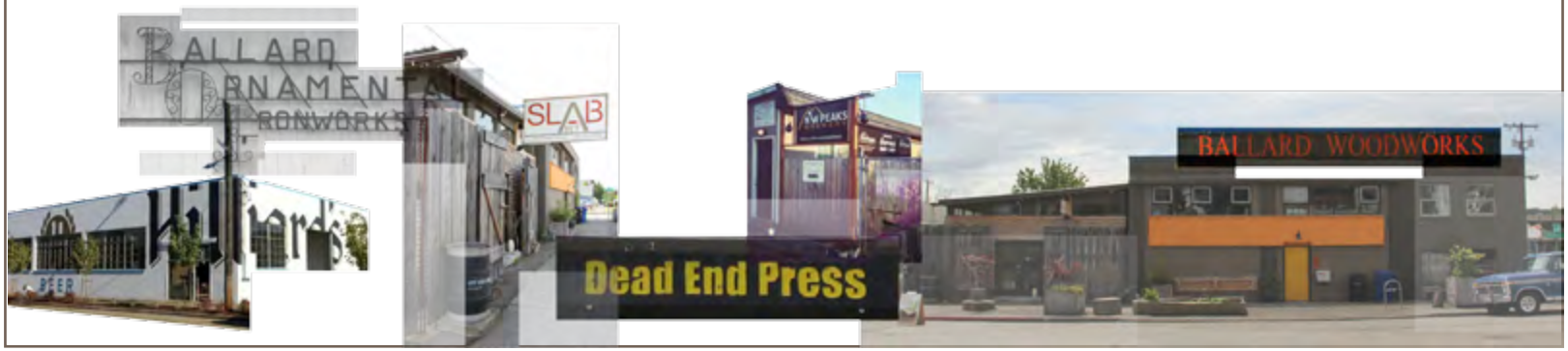
focus on the use of industrial related sculptures. these can be in the form of “found objects” or reclaimed industrial scrap such as railroad signs or pieces from old machinery.

2. operators should strengthen the connection to the local making culture

existing strengths

Connecting small urban manufacturers to the fastest growing market in Ballard: young urbanites, progressive design professionals and skilled workers.

Soften pedestrian/economic edge by graduating uses to promote connected social and economic opportunities.



2. use

2a. target market

2a-1. residents

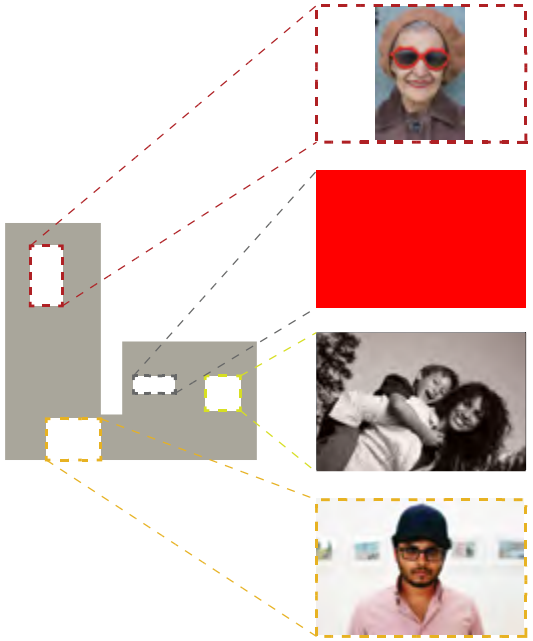
Three user groups were selected to optimize the development for. These groups are not intended to make up 100% of the development but rather represent the largest target market in terms of housing accommodation in Ballard and would likely benefit most from a development suited to their needs.

The target resident groups are

The aspiring single

The lively elderly

The single parent



potential user profiles

grace
single urbanite
living budget: $1,000/mo

profile: prefers urban amenities over living square footage
volunteers at swedish medical center.

katie
seamstress
budget: living: $1,300 | business: $800

profile: misia is a hard-working entrepreneur that has a
limited budget for both living and business expenses.

lisa & dylan
single mom & owner of professional design service
budget: living: $1,500/mo | business: $1,000

profile: friends and business partners, they are looking for a
collaborative environment with business oriented amenities
to help grow their business.

rammy
aspiring brewer
budget: business $4,000/mo

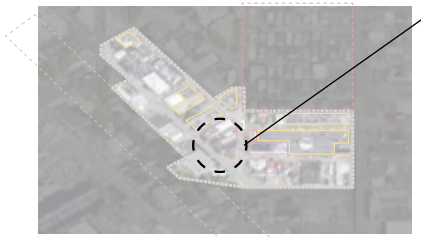
profile: needs a small space with opportunity to grow
for his craft beer business.

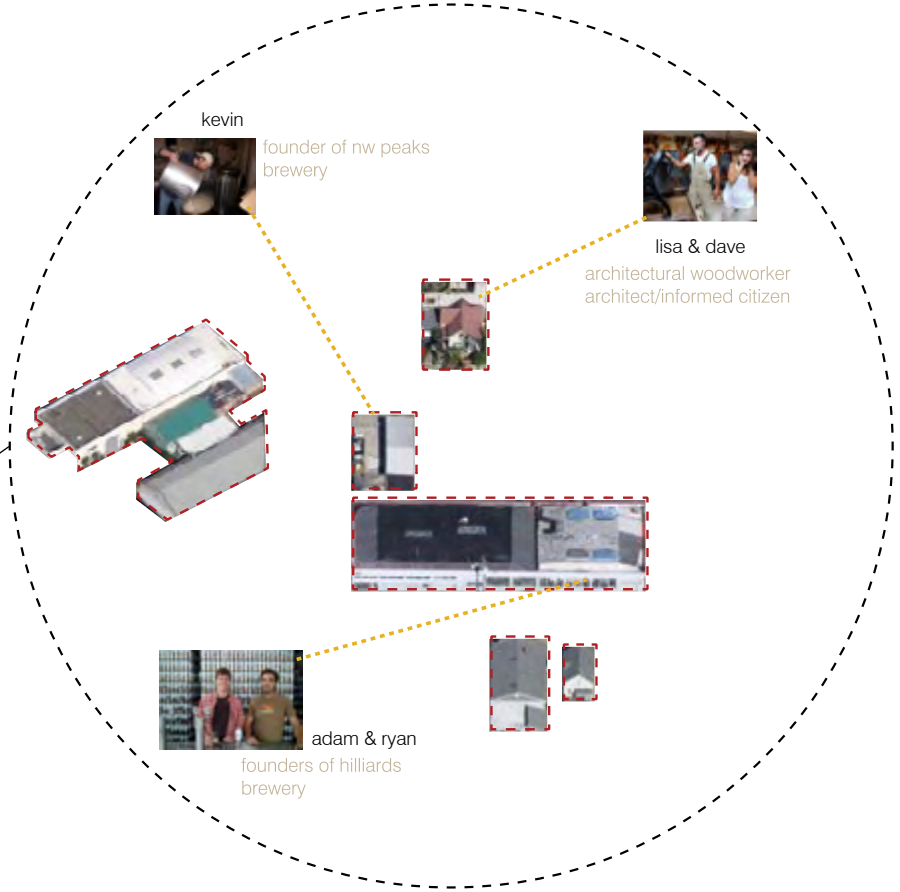
2. use

2a. target market

2a-2. businesses

Insert operators in new developments along the urban industrial fringe that relate to existing operators.
In the artisan realm there exists a large number of craft, design, and artisan businesses. New operators should add to this existing network.



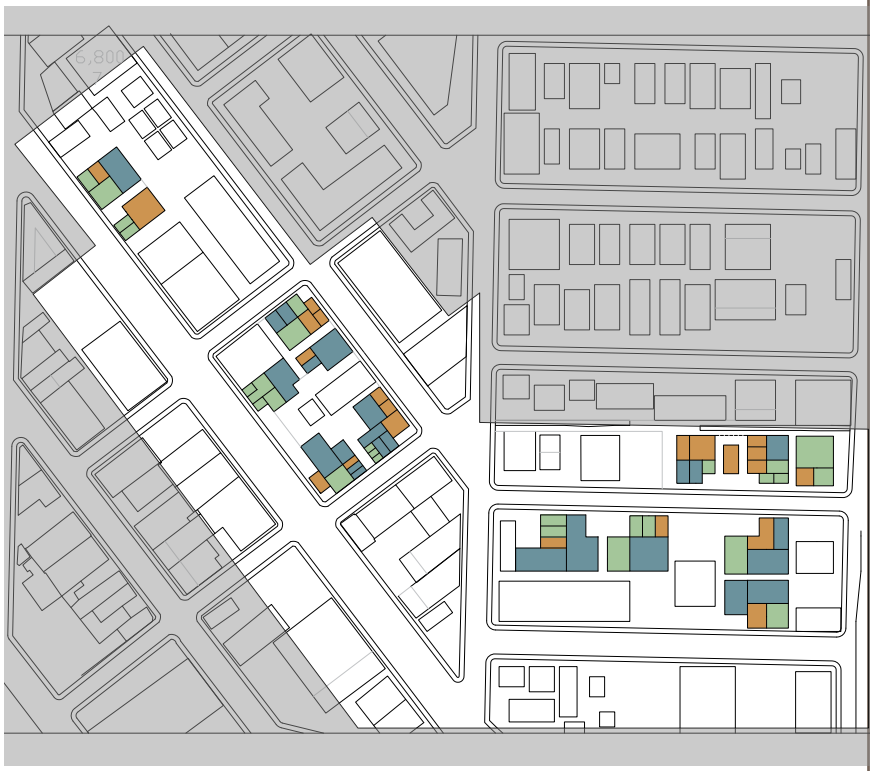


2. use

2b. use gradients

2b-1. mix ground level

Provide a mix of business and residential uses at ground level.
Uses shall correspond to existing adjacent uses and form a gradation as use changes. ie. cluster residential uses at the ground level near existing residential areas tapering into either commercial, industrial or both.
Ground level use gradation will introduce a soft transition from one area to the next.



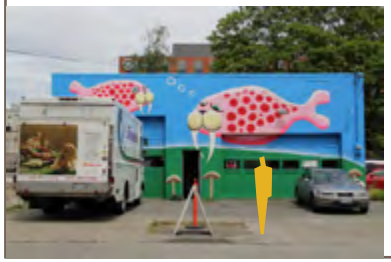
3. provide opportunity for porosity & triangulation

public realm

Provide opportunities for social interaction through implementation of porosity & triangulation.

Egress building circulation to porous openings whenever possible.

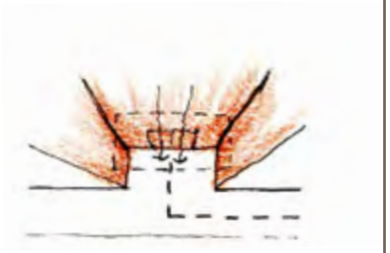
Design mid-block cuts to accommodate both service and pedestrian circulation.



3. public realm

3a. pedestrian connection

3a-1. porosity & triangulation



Provide eddy's and open niches that will follow the philosophy of porosity & triangulation. These niches shall be implemented on both the ground level pedestrian areas as well as within the internal building. On the ground level, the ideal location for instances of porosity and triangulation will be at the street corners and/or at the mid-block cut. Building egress from upper levels should

4. relate in scale to the existing fabric

scale

Reduce visual appearance of height and bulk by breaking down the scale of new developments

By relating to the scale of the existing fabric the artisan realm will grow organically as a clearly identifiable district.

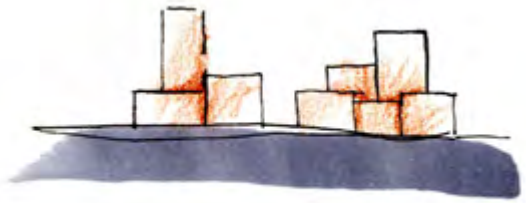
4. scale

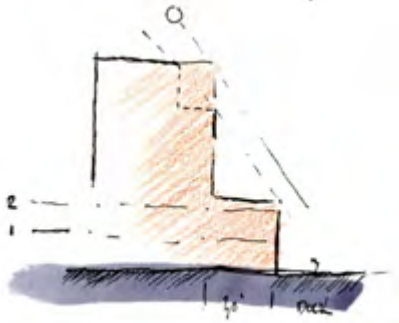
4a. height | bulk

4a-1. vertical scale

Vary building heights to provide fine grain fabric.

Adjust height near existing buildings to relate in scale and provide solar access.

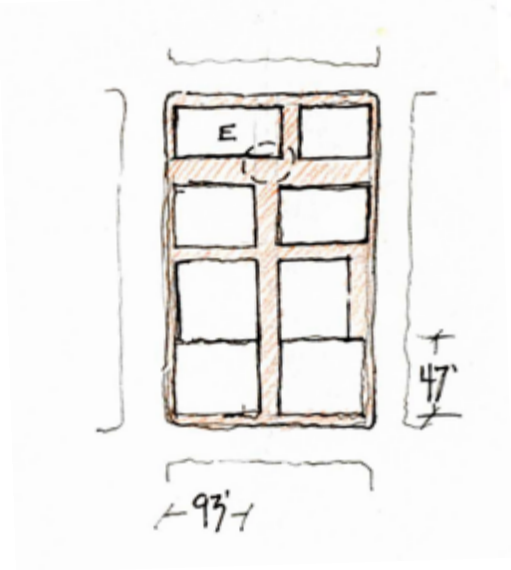




4a-2. horizontal scale

Maximum building dimension are 47’ on long side of block and 93’ on short.

Provide 30% open space on street edge. Open space should provide pedestrian relief from service access routs and be public in nature.



Bibliography

Alexander, Serge Cheermayeff and Christopher. Toward a New Architecture of Humanism. New York: Doubleday & Company, Inc, 1963.

Brown, David J. The Home House Project. London: The MIT Press, 2004.

Byron, Nisha Mistry & Joan. The Federal Role in Supporting Urban Manufacturing. Pratt Center for Community Development, 2011.

Celento, David. "Innovate or Perish: new technologies and architecture's future." In Fabricating Architecture, by Robert Corser, 56-83. New York: Princeton Architectural Press, n.d.

CoHousign.org. n.d. www.cohousing.org/what_is_cohousing (accessed December 2011).

Cooper, Clare. "The House as Symbol of the Self." In Designing for Human Behavior, by Jon Lang, 130-164. 1974.

Durrett, Kathryn McCamant and Charles. "Creating Cohousing: Building Sustainable Communities." New Society Publishers, 2011.

Encyclopedia Britannica. n.d. http://www.britannica.com/EBchecked/topic/328742/laminar-flow.

Jacobs, Jane. The Life and Death of Great American Cities. New York: Vintage , 1961.

Katz, Stanley N. "Thomas Jefferson and the Right to Property in Revolutionary America." Journal of Law and Economics, 1976: 467-488.

Knights, Stephan Thernstrom and Peter R. "Men in Motion: Some Data and Speculations about Urban Population Mobility in Nineteenth-Century America." The Journal of Interdisciplinary History, 1970: 7-35.

Lynch, Kevin. The Image of the City. the Massachusetts Institute of Technology, 1960.

Manufacturing.gov. n.d. http://www.manufacturing.gov (accessed September 15, 2012).

Mattson, Rob. "Ballard Private Developments." Seattle, 2012.

Meltzer, Graham. "Sustainable Community: Learning from the Cohousing Model." Trafford, 2005.

Migration and Geographic Mobility in Metropolitan and Nonmetropolitan America: 1995 to 2000. U.S. Department of Commerce, 2003.

Nelson, Arthur C. The New Urbanity: The Rise of a New America. sage, 2009.

Plan, City of Seattle Consolidated. "Seattle Housing Market." 2009.

Putnam, Robert D. "Bowling Alone." Simon & Schuster, 2000.

Rothwell, Jonathan T. "Density Zoning and Class Segregation in U.S. Metropolitan Areas." Urban Affairs Review. Volume 4, Number 6 (Social Science Quarterly. Volume 91, Issue 5, pp. 1123-1141), 2010: 1123-1141.

Sorkin, Michael. "More or Less." In The Home House Project, by David Brown, 10-17. London: The MIT Press, 2004.

—. Some Assembly Required. Minneapolis / London: University of Minnesota Press, 2001.

Who's been working in America. 2012. http://www.visualization.geblogs.com/pw-content/viz_includes/jobs/#/years/sector/2011.com (accessed September 15, 2012).

Wickersham, Jay. "Jane Jacob's Critique of Zoning: From Euclid to Portland and Beyond." www.bc.edu. n.d. http://www.bc.edu/dam/files/schools/law/lawreviews/journals/bcealr/28_4/04_TXT.htm.

www.nefe.org. n.d. http://www.nefe.org/ResearchandStrategy/Research/tabid/726/Default.aspx (accessed December 05, 2011).