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Re: Integrated Identity: the spatially defined ground place in social housing

Katie Lynn Carroll
Syracuse University

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re: integrated identity : the spatially defined ground plane in social housing .

Katie Lynn Carroll .
Thesis . Spring 2011 .
Graduate .
Advisor . Arthur McDonald .
Committee . Clare Olsen .

street : a paved public thoroughfare in a built environment . a public parcel of land adjoining buildings in an urban context on which people may freely assemble, interact, and move about . **sidewalk** : a path along the side of a road for pedestrian use. a sidewalk may accommodate moderate changes in grade and is normally separated from the vehicular section by a curb or strip of vegetation . **front-yard** : a specified area of the ground plane facing the street . the area extends from the façade of the building to the front property line of the lot . a buffer zone between public and private zones . **front-porch** : an exterior

contention .	1
existing site conditions .	2
market housing strategies .	3
public housing strategy .	4
proposed public housing block .	5
further thesis research .	6

structure that shelters a building entrance and faces the street in order to help create and enhance community interaction and integration . a threshold between the public street and the private dwelling . **dwelling** : a building designed or occupied as the living quarters for one or more families . a place of residence consisting of personal and private space separated from the public realm by enclosure . **back-yard** : a designated space adjoining the rear of a dwelling . **property** : a quality or trait belonging to an individual . the exclusive right to attain ownership [<http://www.merriam-webster.com>] .

re: integrated identity : the spatially defined ground plane in social housing

“Housing is a key ingredient in urban integration. Islands of low-income projects that are socially, economically, and architecturally cut off from the surrounding communities compel their inhabitants to be detached and alienated”

(Sam Davis - The Architecture of Affordable Housing).

“The aim should be to get that project, that patch upon the city, rewoven back into the surrounding fabric - and in the process of doing so, strengthen the neighborhood community”

(Jane Jacobs - The Death and Life of Great American Cities).

In this thesis project I propose that a re-integrated identity for social housing projects can evolve through a spatially defined and sequenced ground plane that is activated through a program response to current demographics within an existing community. This definition and re-organization of the ground plane occurs from an analysis of the surrounding community fabric and the existing community identity and demographics.

My thesis contention is a response to the segregation that occurs at the ground level throughout a majority of social housing projects. A segregated identity surrounding housing projects has evolved through the ideological design treatment of the ground plane in both high and low-rise typologies, but particularly in high-rise. For example towers in the park conceived by Le Corbusier created an open ground plane that was to be used for community activity and promote a healthy lifestyle, but when left spatially undefined, an open ground becomes unclaimed territory and disintegrates into an unsafe area. High-rise social housing projects are physically and visually severed from the street edge, resulting in a lack of density on the ground plane. This lack of density produces an eliminated ground plane that is left undefined and terminating into unused land that becomes unstable, dreary, and un-livable. A contextually integrated ground plane must be defined with livable space, which refers to the everyday surroundings that facilitate public life. Livability is measured by how well these surroundings promote public living, which includes community interaction, economical sustainability, safety, and program necessity toward current demographics. A lack of spatial definition as well as lack of activation through program disassociates an unclaimed ground plane from the housing units, which occupy it. Residents in turn have a segregated identity with the neighboring community.

2

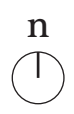
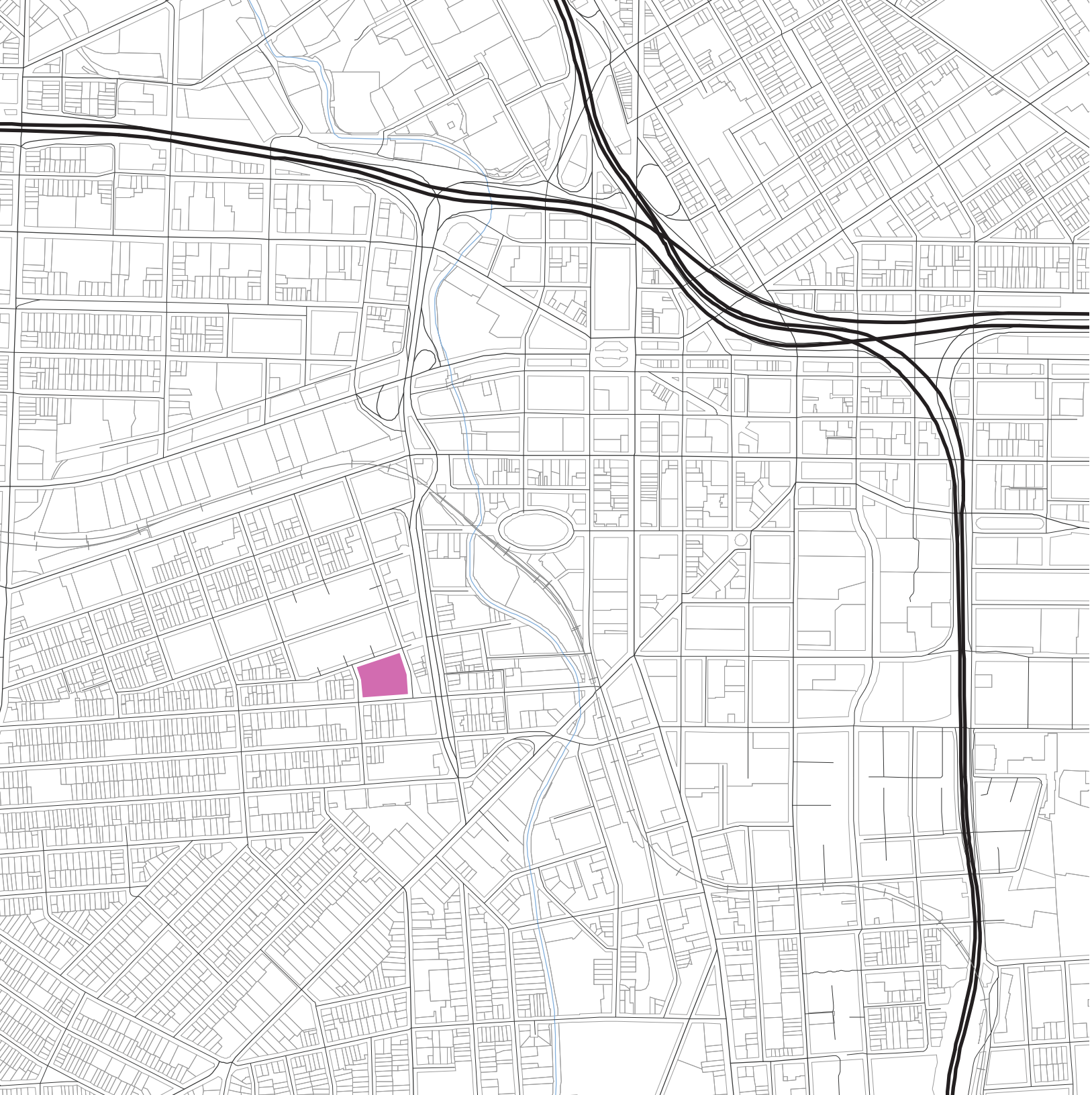
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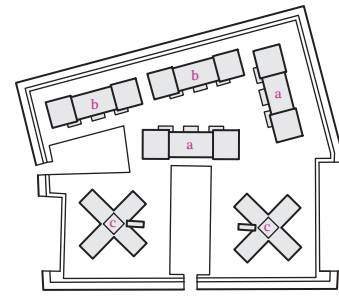
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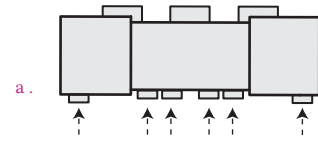
6

1





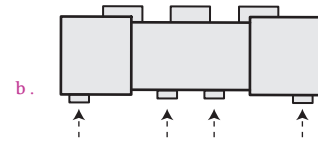
total number of units : 144 - 100%
 1-bedroom units : 116 - 80%
 2-bedroom units : 20 - 14%
 3-bedroom units : 8 - 6%



2-story row house
 walk-up .
 unit types -
 2 : 3-bedroom
 4 : 1-bedroom

X 2

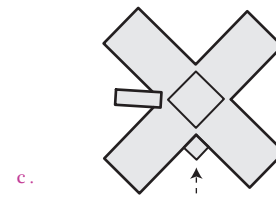
4 : 3-bedroom
 8 : 1-bedroom



2-story row house
 walk-up .
 unit types -
 2 : 3-bedroom
 2 : 2-bedroom

X 2

4 : 3-bedroom
 4 : 2-bedroom



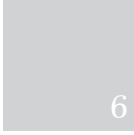
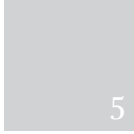
9-story high-rise
 elevator access .
 unit types -
 54 : 1-bedroom
 8 : 2-bedroom

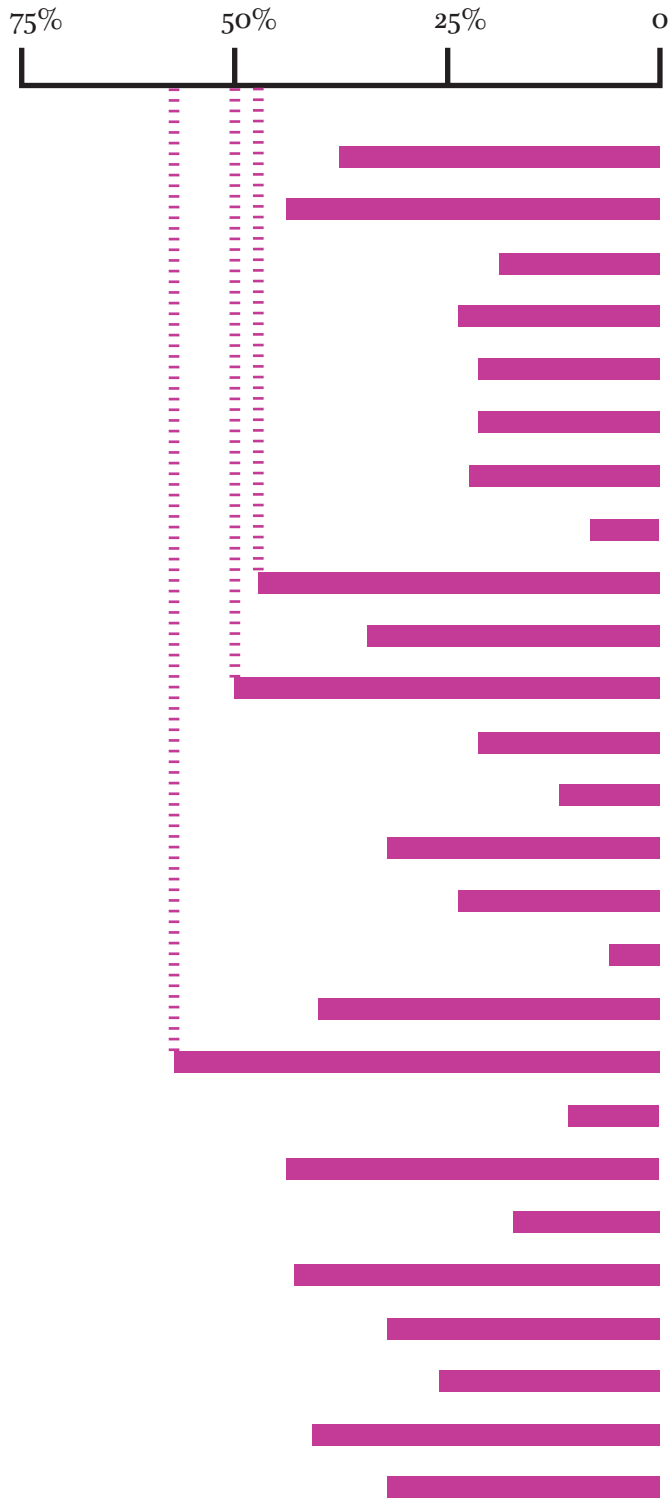
X 2

108 : 1-bedroom
 16 : 2-bedroom

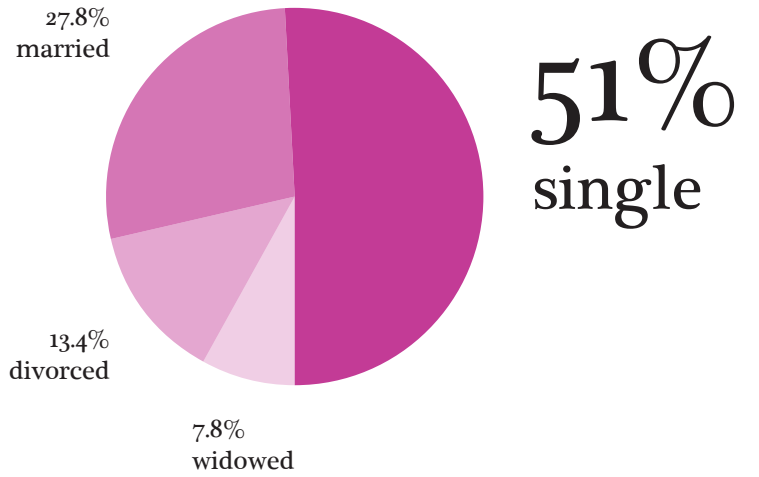
the james geddes housing development . gifford street

The James Geddes Housing Development in the Near Westside Neighborhood of Syracuse NY is the location I have chosen to test my thesis contention. The block I am proposing is between Fabius and Gifford Street and currently consists of both high and low-rise housing typologies [point to prep drawings]. The existing development covers three blocks and was constructed in two phases. The first phase built in 1955 included 33 row houses and 2 towers. The second phase built in 1961 produced an additional 4 row houses and 2 more towers. I am testing my thesis contention against the second phase built in 1961 that consists of 144 units – comprised of 116 one bedroom, 20 two bedroom, and 8 three bedroom units. Although not a “NEW” argument or opinion, I contend that this current model eliminates the ground plane through a lack of defined livable space and no longer programmatically responds to the current demographics of the neighborhood in 2011





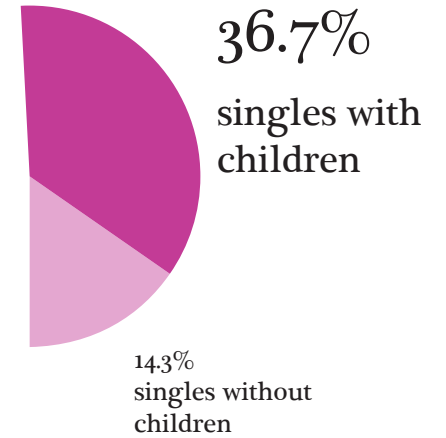
% living below poverty level .



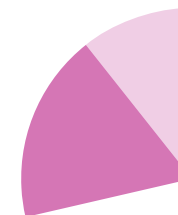
2.5
average single
parent family size



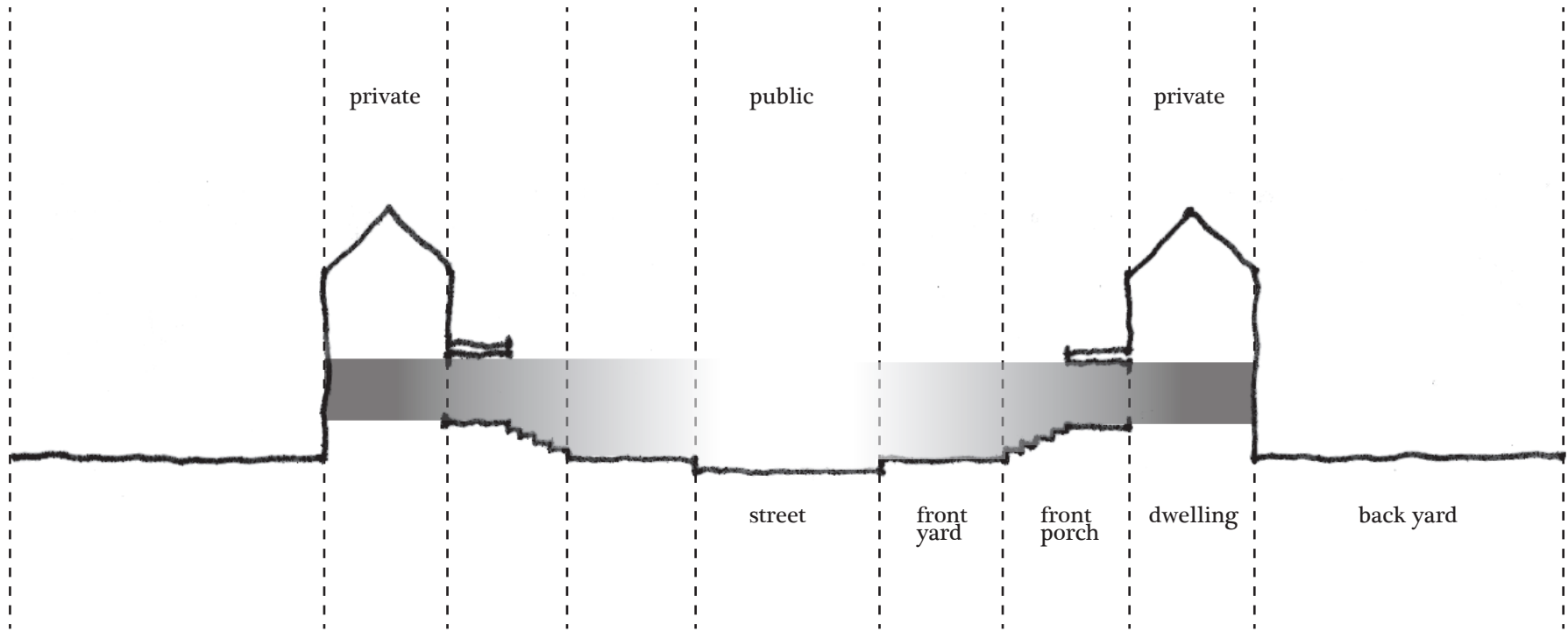
3.5
average married
family size



17.9%
married without
children



9.9%
married with
children



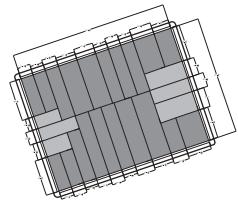
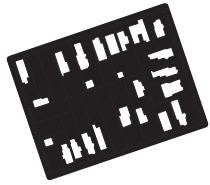
surrounding street section . existing residential identity

nws current demographics .

50% of the population in the NWS is living below the poverty level. 51% of the people living in the neighborhood are single. 36.7% of those single people have an average of 1-2 children. This high percentage of single parents provides a strong demand for 2-3 bedroom units. My proposed housing model provides a low-rise typology with 2-3 story buildings that respond directly to the current demographics as well as to the existing residential identity of the neighborhood [the single family detached home with a front yard and attached front porch]. Existing identity in the NWS occurs between the public street and the semi-private front porch of the dwelling.

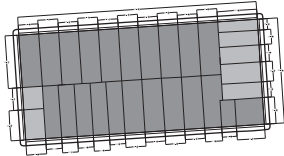
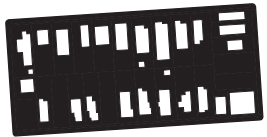






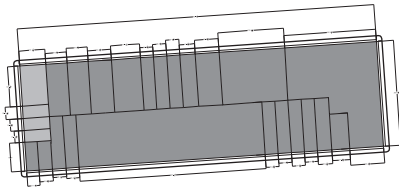
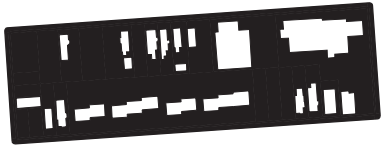
a . market housing block

urban block : 156,190 sf
 total structure : 32,002 sf [20 %]
 total open space : 124,188 sf [80 %]



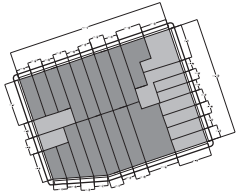
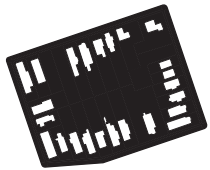
b . market housing block

urban block : 207,190 sf
 total structure : 48,921 sf [24 %]
 total open space : 158,269 sf [76 %]



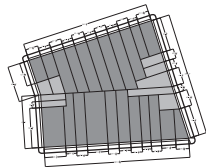
c . market housing block

urban block : 267,522 sf
 total structure : 63,329 sf [31 %]
 total open space : 204,193 sf [69 %]



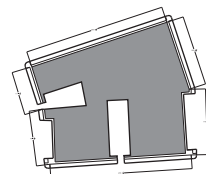
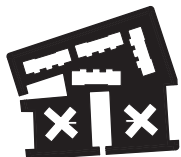
d . market housing

urban block : 130,707 sf
 total structure : 32,707 sf [33 %]
 total open space : 98,000 sf [67 %]



site . market housing in 1924

urban block : 121,893 sf
 total structure : 50,288 sf [41 %]
 total open space : 71,605 sf [59 %]

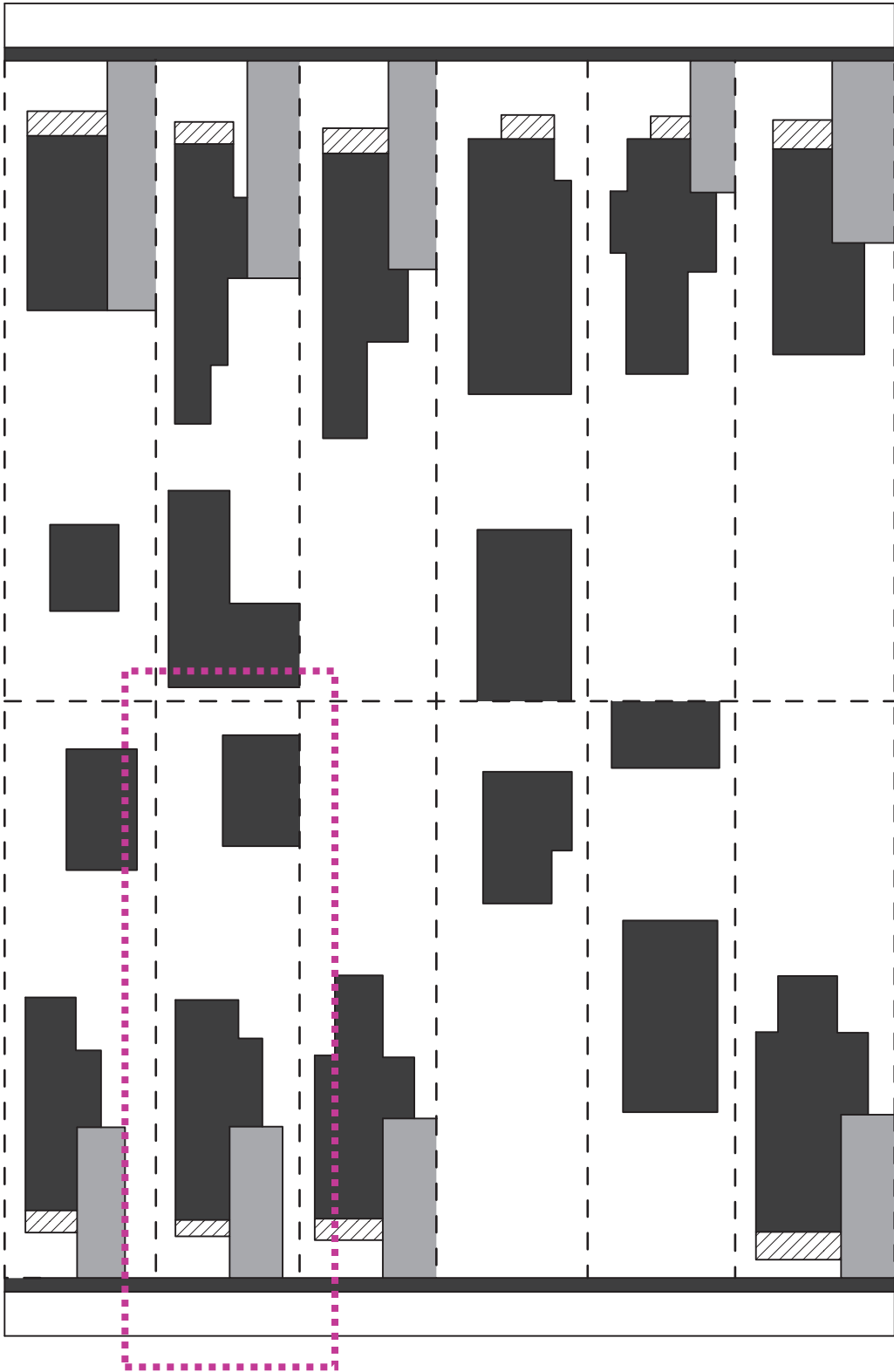


site . public housing in 2011

urban block : 120,607 sf
 total structure : 21,822 sf [18 %]
 total open space : 98,785 sf [82 %]

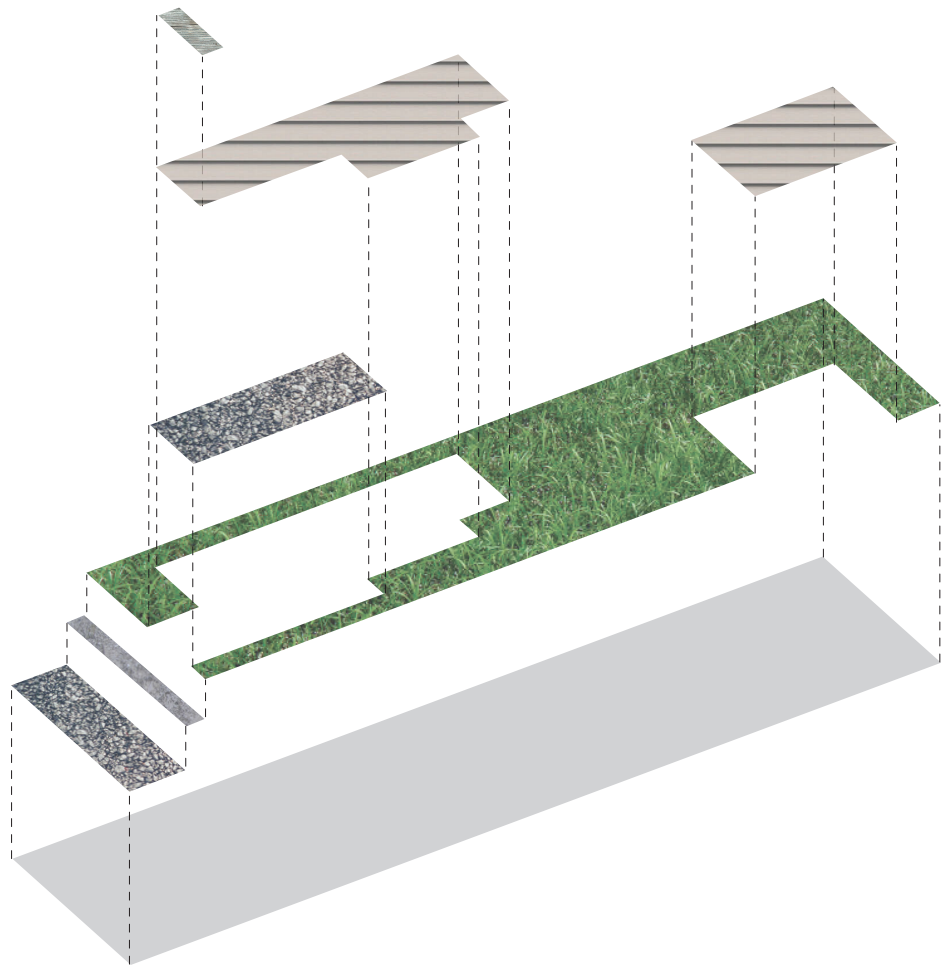
unsustainable density .





residential lot definition .





7 . additive dwelling

6 . back-yard

5 . dwelling

4 . front-porch : wood

3 . front-yard : grass
driveway : pavement

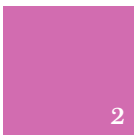
2 . sidewalk : concrete

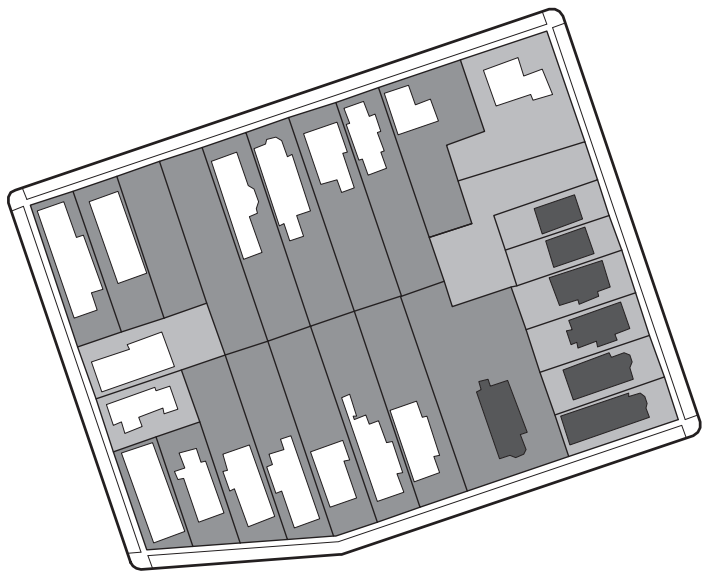
1 . street : pavement



existing residential lot definition .

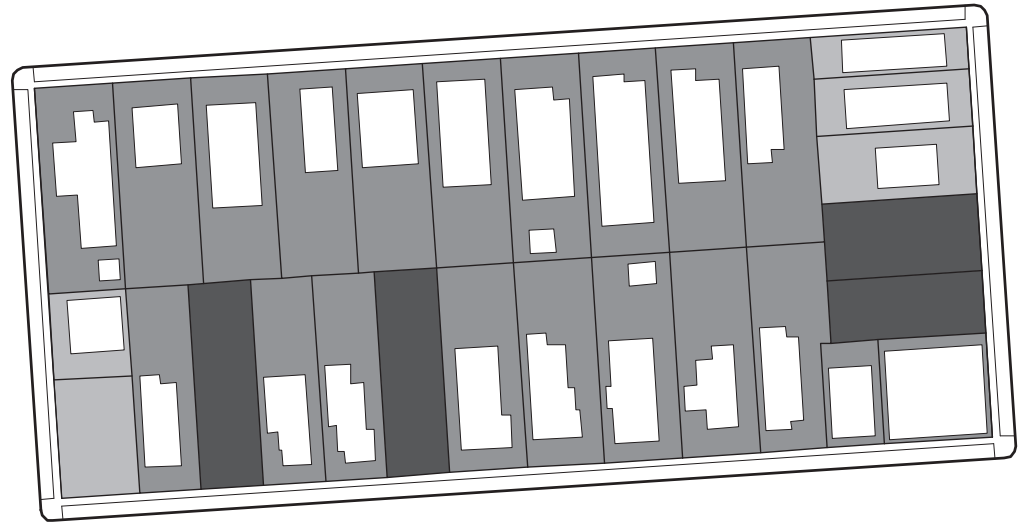
I began an analysis of the surrounding block densities, dimensions, and spatial ground plane definitions. With 50% of the neighborhood living below poverty level, the block densities that I found are economically unsustainable for the current demographics. For example block “D” consists of 33% structure and 67% open space that is left to be maintained by the owners of the units. The block I have chosen for an intervention exists with 18% structure and 82% undefined open space. In 1924 this block consisted of market housing that was comprised of 41% structure and 59% open space. An average existing lot for market housing consists of 5,500sf – 28% of that is structure and 72% is open space that is left to be maintained by the owner, taking both time and money. The single family detached home, which is a culturally advocated dream to most Americans and has been deified, as the socially and morally acceptable housing typology is by far an unsustainable model for this neighborhood.





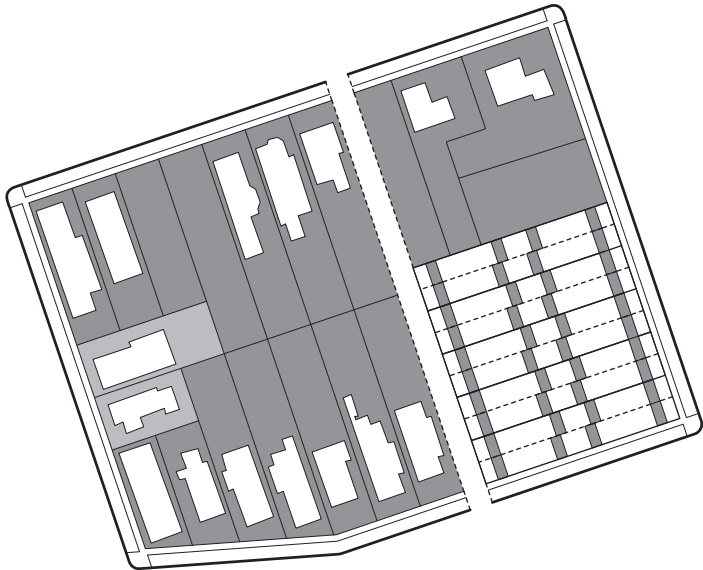
d . market housing block : existing

urban block :	130,707 sf	
total structure :	32,707 sf	[33 %]
total open space :	98,000 sf	[67 %]



b . market housing block : existing

urban block :	207,190 sf	
total structure :	48,921 sf	[24 %]
total open space :	158,269 sf	[76 %]



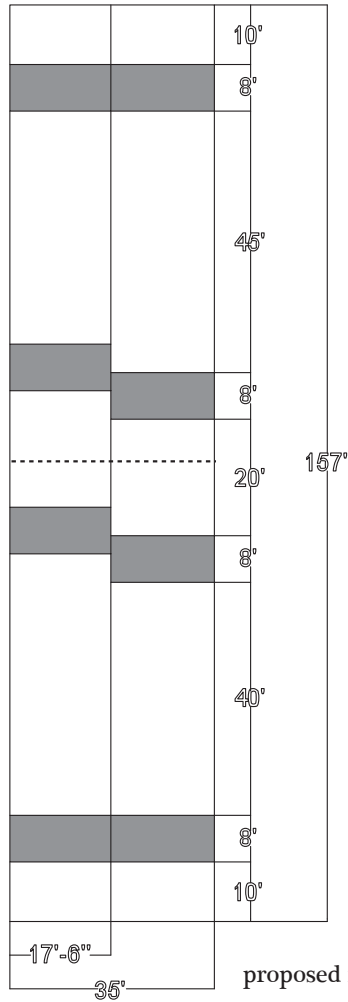
d . housing density study . 7 dwellings = 20

urban block :	130,707 sf	
total structure :	39,067 sf	[38 %]
total open space :	91,640 sf	[62 %]



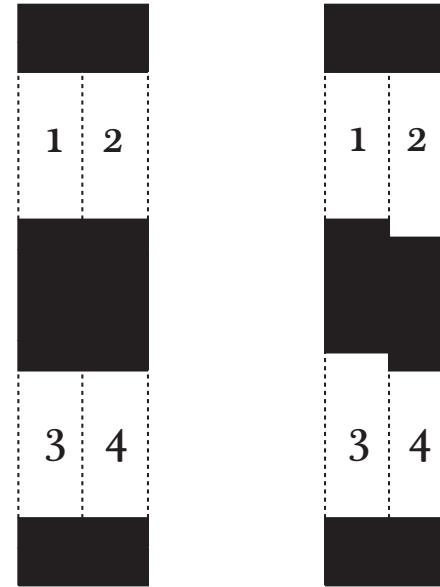
b . vacant lot studies

urban block :	207,190 sf	
total structure :	61,125 sf	[29 %]
total open space :	146,065 sf	[71 %]



existing lot

urban lot : 5,495 sf
 total structure : 1,514 sf [28 %]
 total open space : 3,981 sf [72 %]



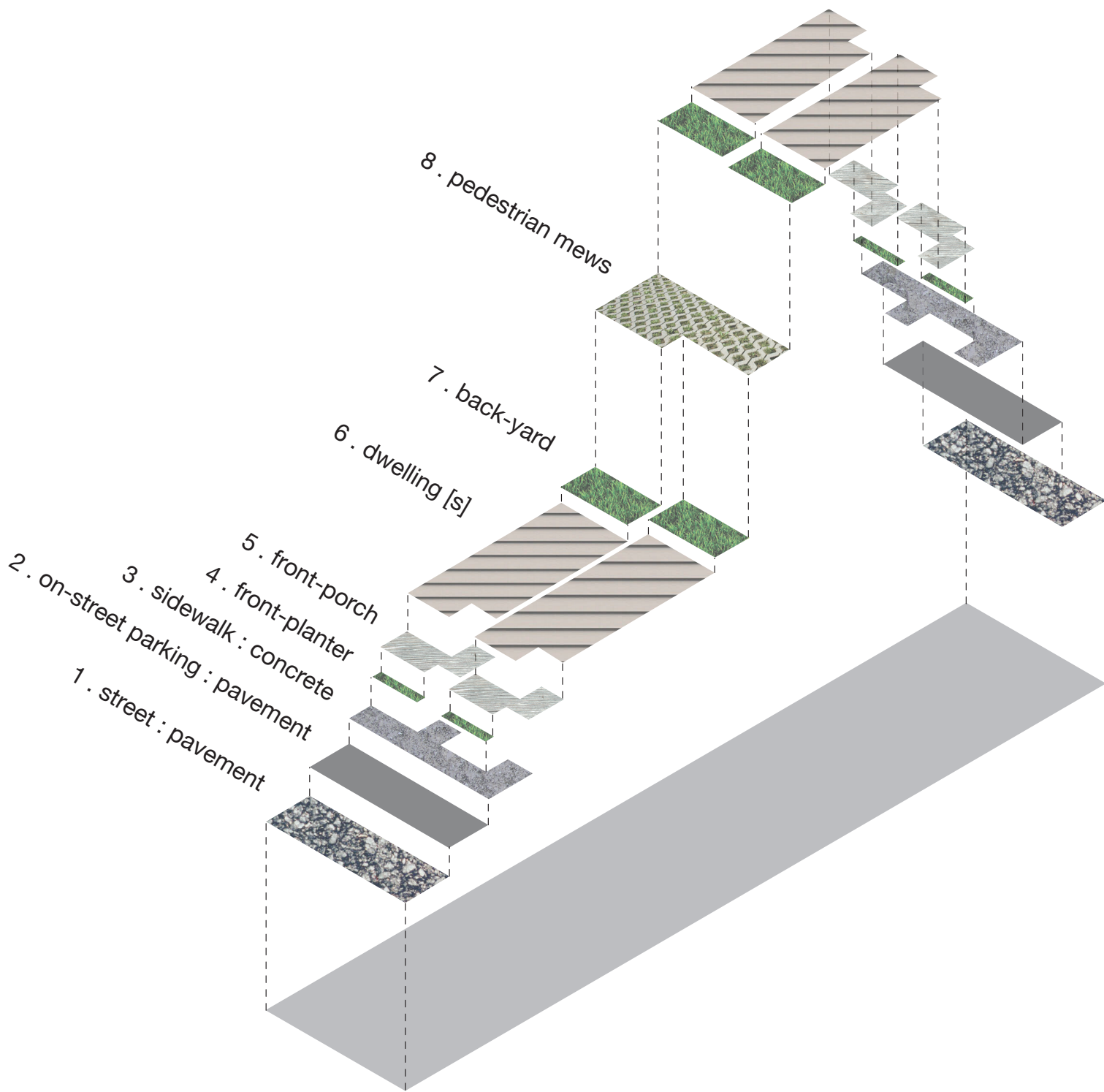
proposed market housing lot

urban lot : 5,495 sf
 total structure : 2,800 sf [50 %]
 total open space : 2,695 sf [50 %]

proposed market housing strategy .

I first propose an alternative to the average size lot of market housing in the NWS. Replacing the individual dwelling with 4. The percentage of structure vs. open space now becomes even. Each dwelling is decreased in size in order to increase density allowing for greater energy efficiency and in turn decreasing the amount of unsustainable open space. Two units share a common wall decreasing the heating load throughout the winter months and the back-yard size is reduced to decrease time and cost for maintenance. A second automobile street divides the block in half and creates an additional front porch façade that promotes interaction between residents and the surrounding community. Also a pedestrian mews is added to promote interaction and identity between residents on the backside of each unit. This proposed small urban block structure promotes interaction between individuals.





- 1 . street : pavement
- 2 . on-street parking : pavement
- 3 . sidewalk : concrete
- 4 . front-planter
- 5 . front-porch
- 6 . dwelling [s]
- 7 . back-yard
- 8 . pedestrian mews

public housing lot alterations .

lot size : decreased in order to eliminate unused space

lot division : one existing lot is divided into 4 proposed lots in order to increase density

dwelling size : decreased in order to increase dwelling density by providing two dwellings per width of each lot

dwelling quantity : increased to reduce unsustainable open space and reduce the amount of exposed walls which will decrease heating costs

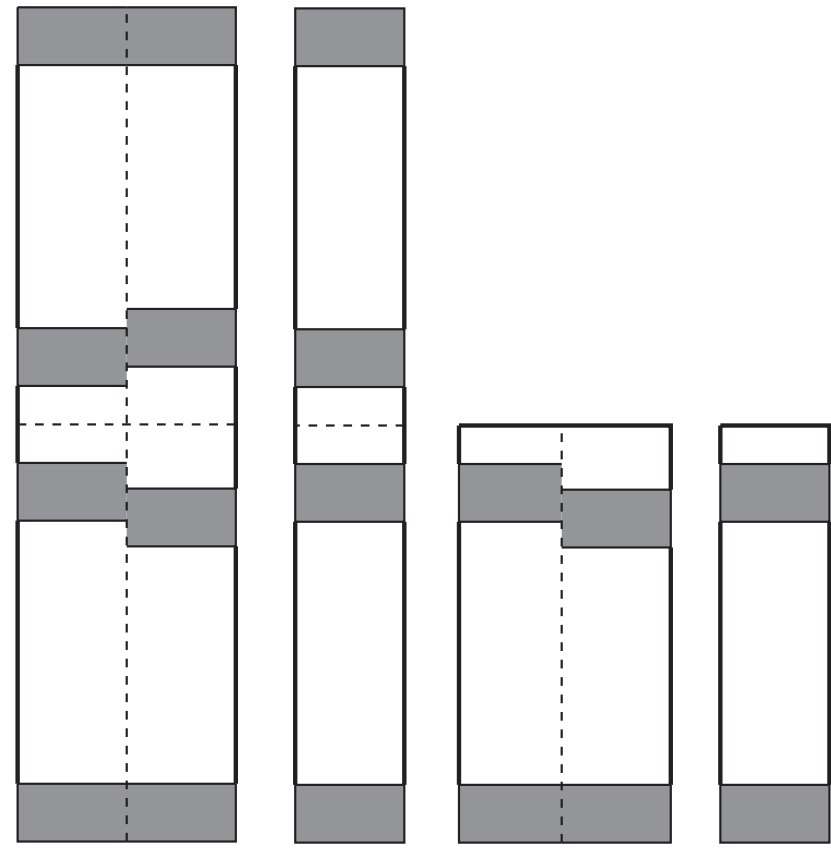
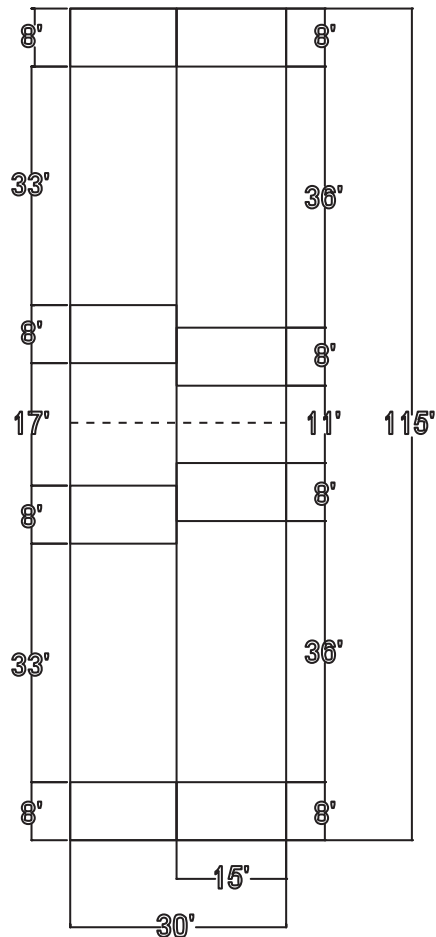
back-yard size : decreased in order to reduce the cost and time for maintenance

pedestrian mews : added to promote interaction between residents on the backside of each unit as well as provide a strong spatially defined ground plane



proposed public housing lot

urban lot : 3,450 sf
 total structure : 2,070 sf [60 %]
 total open space : 1,380 sf [40 %]



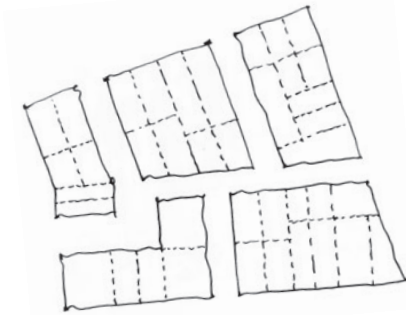
public housing lot variations .



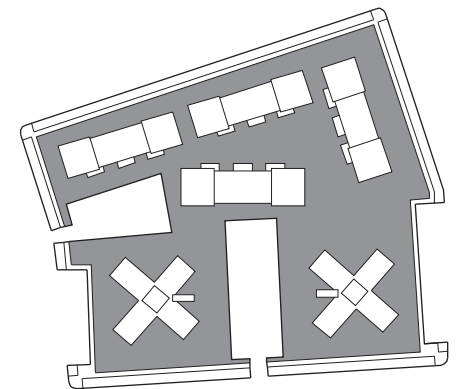
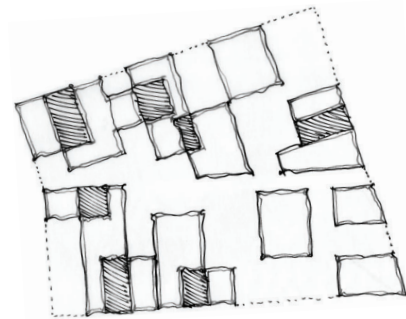
proposed public housing lot definition .

I then applied these alterations of the market housing lot to public housing, which produced an average lot measuring 30' x 115' and containing 3,450sf. The same spatial sequence as found and adapted in the market lot, is also applied, but with further reduced dimensions in order to provide economical sustainable living for low income single parents. The public housing lot is applied to my site in 4 variations. The lot lines from 1924 are applied to the existing block for structure. They are then divided and altered to provide for the maximum amount of units on the site. A site that currently contains 82% undefined open space now is composed of 65% defined and livable space. Through this strategy a total of 103 units are provided. Four different unit plans are designed to respond to the high percentage of low-income single parents.

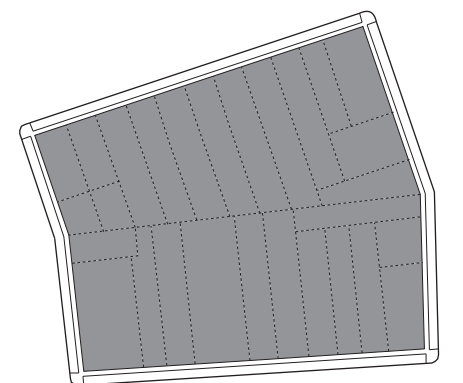
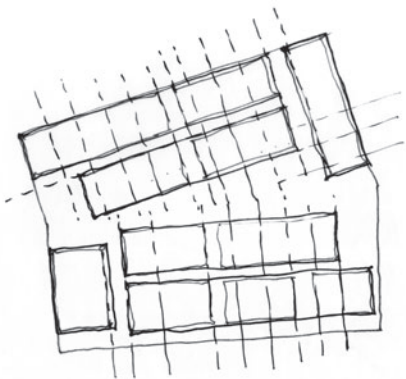




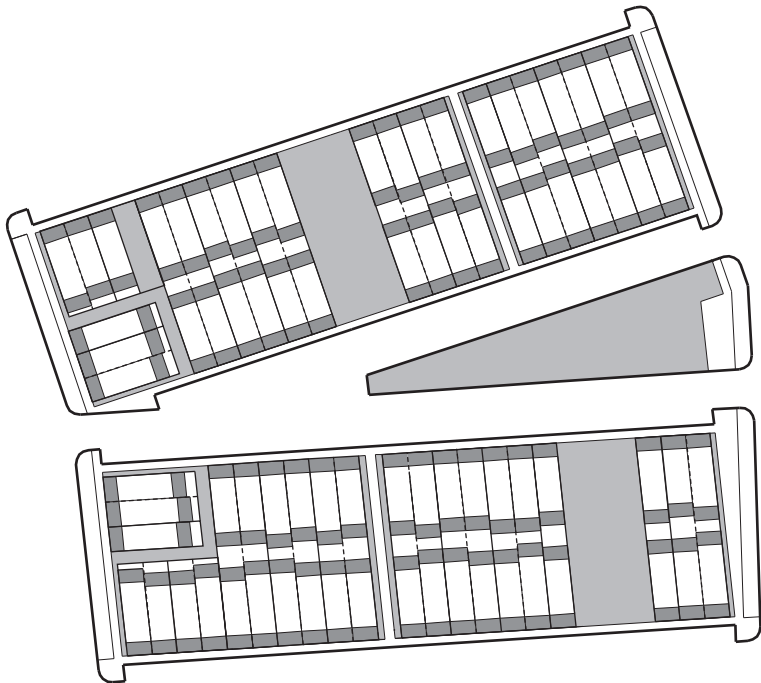
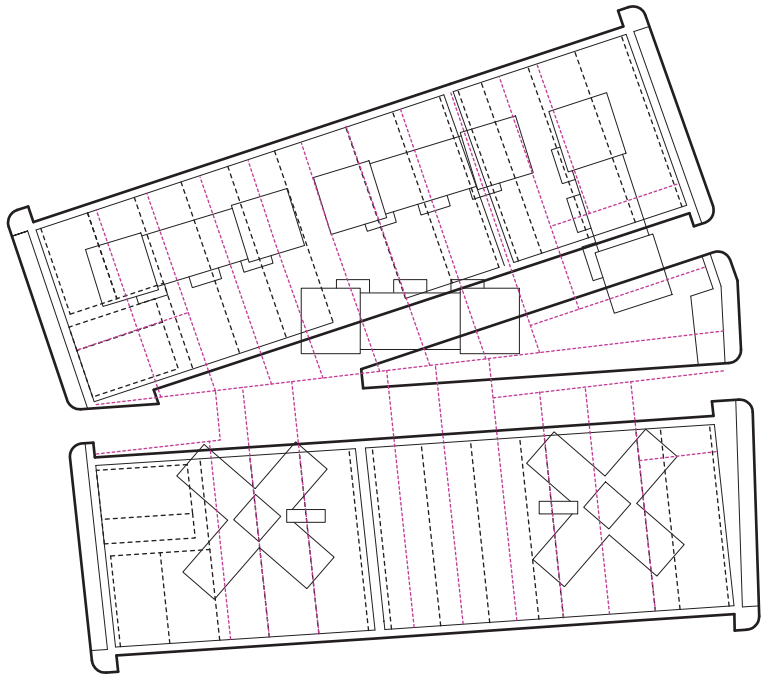
site . 1924



site . 2011



1924 lot divisions .

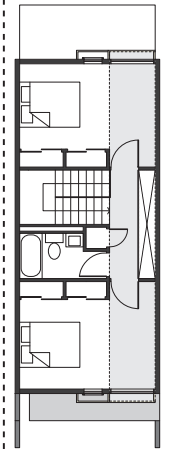


proposed public housing strategy .

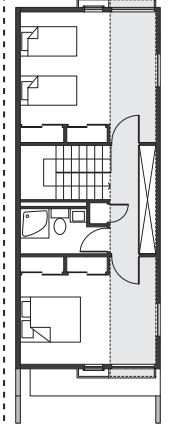
site . proposed

urban block :	120,607 sf	
total structure :	42,767 sf	[35 %]
total open space :	77,840 sf	[65 %]

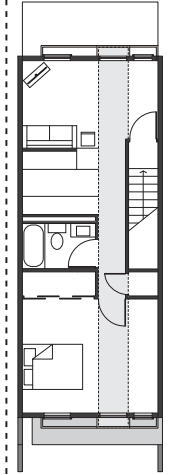




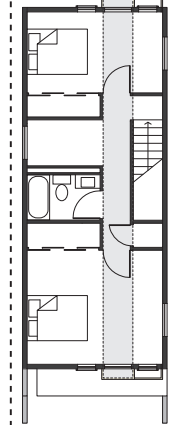
n
 unit plan A .
 scale : 3/16" = 1'-0"
 2 bedroom .
 39 total units .
 990 sq ft each .



n
 unit plan B .
 scale : 3/16" = 1'-0"
 3/4 bedroom .
 16 total units .
 1,670 sq ft each .



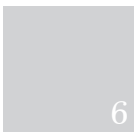
n
 unit plan C .
 scale : 3/16" = 1'-0"
 2 - 1 bedroom .
 9 total units .
 bottom unit : 425 sq ft .
 top unit : 640 sq ft .



n
 unit plan D .
 scale : 3/16" = 1'-0"
 1 - 1 bedroom .
 1 - 2 bedroom .
 15 total units .
 bottom unit : 425 sq ft .
 top unit : 1,224 sq ft .

TOTAL : 103
 1 bedroom units : 33
 2 bedroom units : 54
 3/4 bedroom units : 16

EXISTING TOTAL : 144
 1 bedroom units : 116
 2 bedroom units : 20
 3 bedroom units : 8



units .

UNIT A : is a duplex with 2 bedrooms / 1 bath / 990 sf / 39 total.

UNIT B : consists of 3/4 bedrooms / 2 baths / 1,670 sf / 16 total.

UNIT C : provides 2 – 1 bedroom flats each with 1 bath / bottom unit 425 sf / top unit 640 sf / 9 total.

UNIT D is a duplex above a flat each with 1 bath / bottom unit 425 sf / top unit 1,224 sf / 15 total.

Each unit is equipped with stacked laundry.



This low-rise housing model provides : 33 – one bedroom, 54 – two bedroom, and 16 – three to four bedroom units.
The units are varied in the site plan in order to create differentiation within the facades.

additional program .
[based on local demographics]

- E** scattered urban farms [4]. 144 sq ft each
- F** bus stop [2]. 150 sq ft each
- G** computer lab . 350 sq ft
- H** learning facility . 600 sq ft
- I** day-care center . 1600 sq ft





1



2



3



4



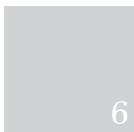
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5

n
site plan .
scale : 1/16" = 1'-0"





facade research .

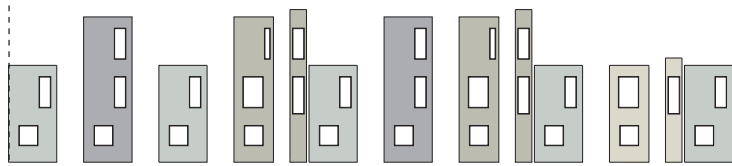
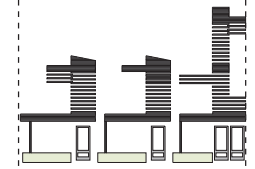
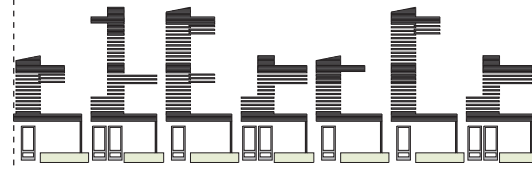
At the beginning stages of façade design I took a photo inventory of surrounding residential facades. I examined similar elements and studied how to incorporate them into the design :

1. covered front porch
2. columns
3. off centered entry
4. pitched roof

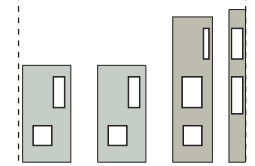
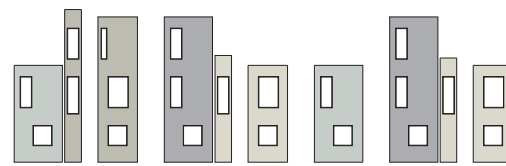




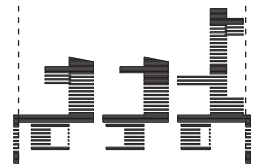
facade elements : column . off centered entry . pitched roof . covered porch . planter dividing public and private space



element of identity : color



element of identity : operable unit screen



section .



1

2

3

4

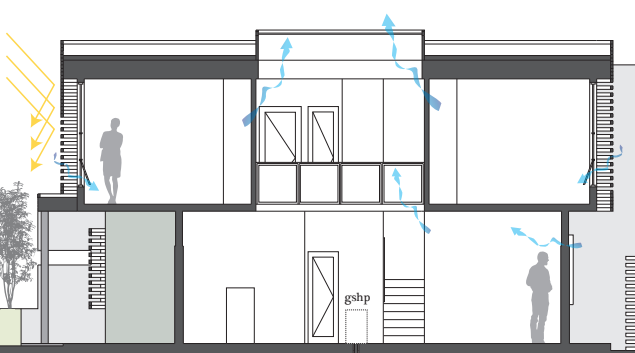
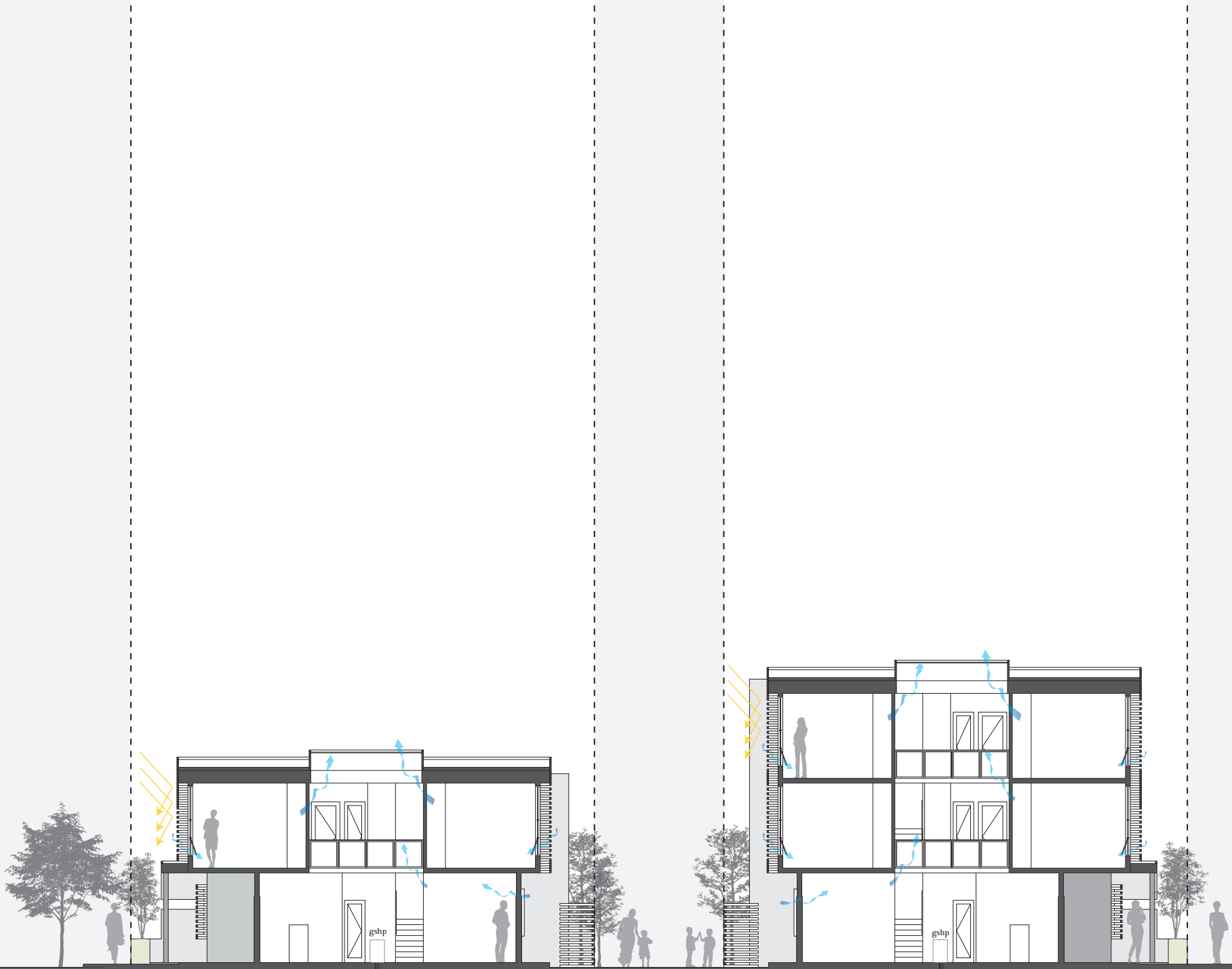
6


facade + components .

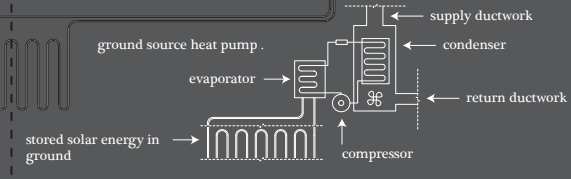
In public housing there are issues surrounding a sense of identity among the residents as well as a sense of control. Social housing is known for stripping residents of both. In my proposed design I begin to give back this loss of identity and control through the use of color and an operable façade screen that allows each resident to influence the appearance of his or her unit. Planters are also used in the front of each dwelling in order to help individualize the structures and create a transparent boundary between public and private spaces. The operable screen not only provides a sense of control for the occupant, but also acts as a sun screen and visually expresses on the exterior the ventilation/mechanical zone of each unit. This zone allows for stack ventilation to occur for all floors through the above skylight.



5




 section .
 scale : 3/16" = 1'-0"



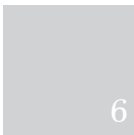
12346

natural ventilation + sun shading .

Active heating for each unit is provided by ground source heat pumps that create an alternative to fossil fuel use. The system uses natural energy below the ground to provide heating and hot water. Advantages to using this system in social housing includes : reduction in fuel poverty for tenants, no regular maintenance (every 25 years), reduces carbon footprint, and provides a constant supply of stable warmth. The vertical piping is installed under the backyard garden for each unit. The pipes move stored natural energy from the ground into the home. A heat transfer medium (glycol/water) circulates through underground piping collecting the stored energy. The liquid then transfers the energy to the refrigerant, which evaporates. The refrigerant is compressed causing the temperature to rise. The heat is then transferred to the heating and hot water system within the unit.

5





pedestrian street .







1

2

3

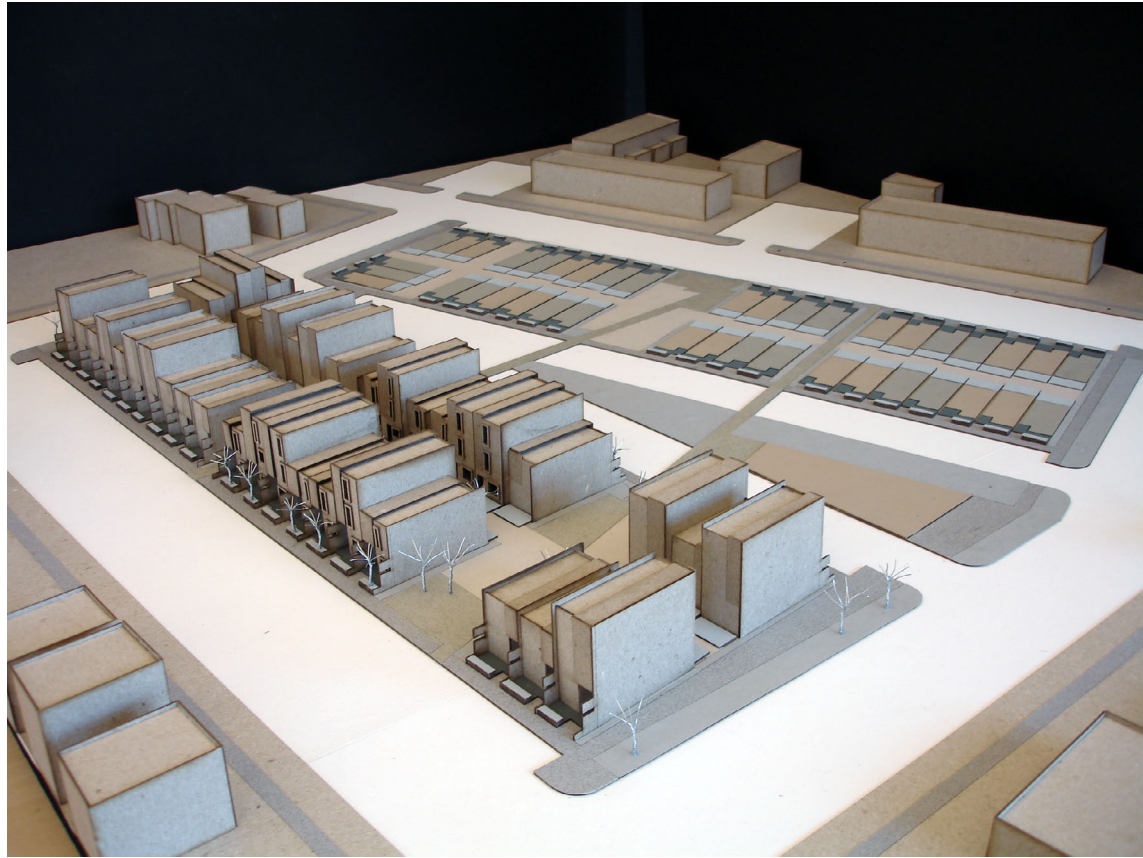
4

6

resident - community interaction .

5





1

2

3

4

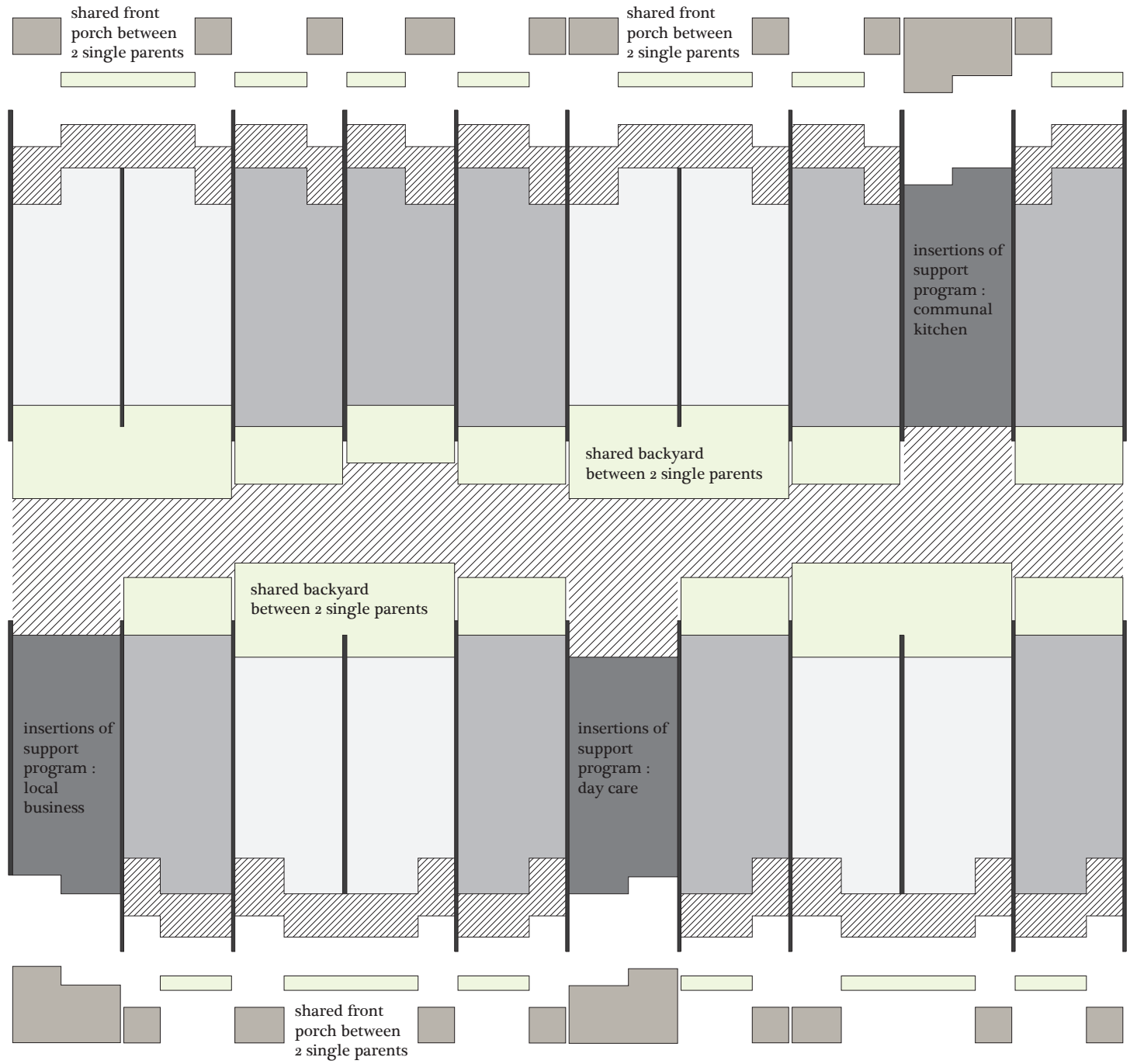
6

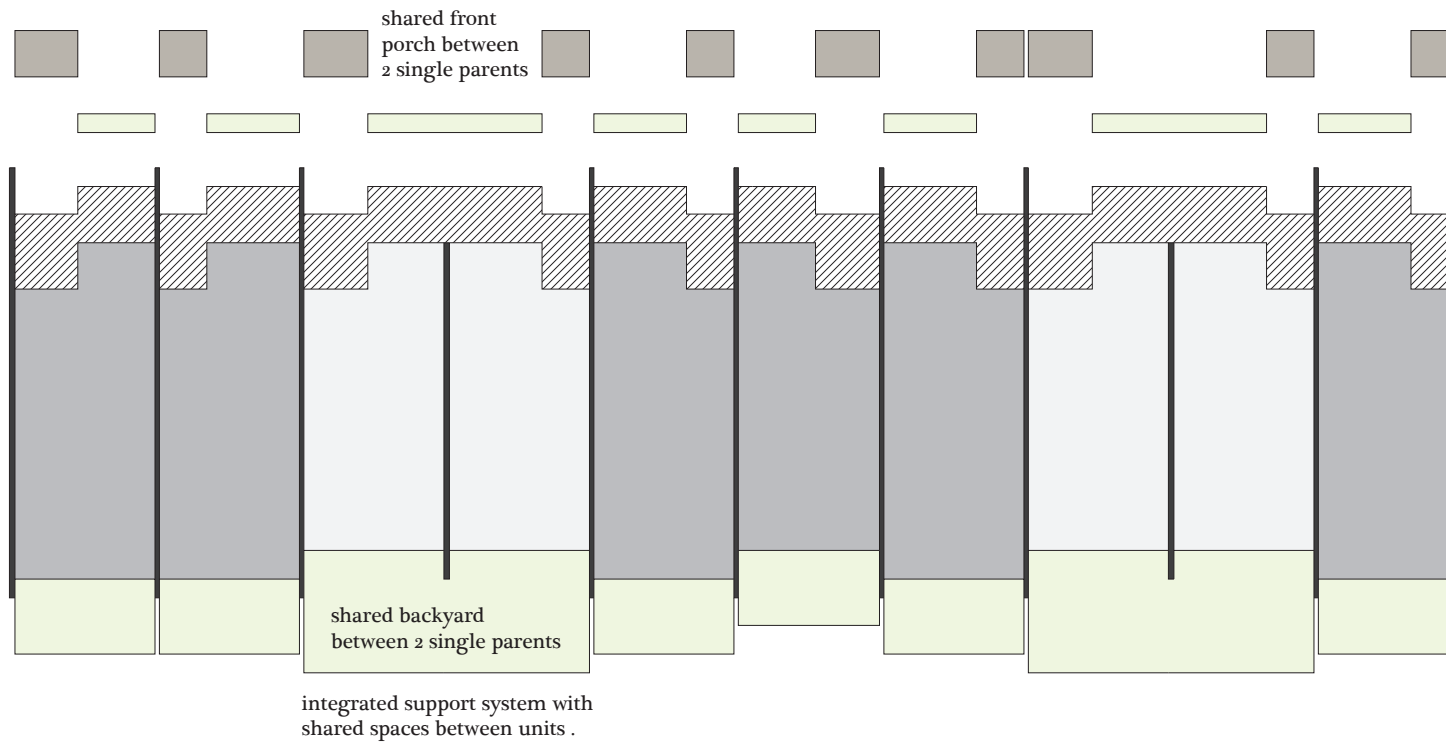
urban planning strategy .

My thesis project proposes an urban planning strategy that can be used for both social housing as well as for market housing blocks with modifications between the two as indicated earlier. The specific architectural design presented here USES the proposed strategy on a social housing block in the NWS neighborhood. The strategy attempts to create a re-integrated identity for the block through a spatially defined and sequenced ground plane that is activated through a program response to current demographics within the NWS.

5

ground plane studies influenced by the needs of single parents .





- 1
- 2
- 3
- 4
- 5

further design studies . post thesis

I have begun to further study and understand the support systems needed for single parents and how these systems can influence design. Through diagrams I have explored the beginning of this research and with further investigation I can begin applying it to the site.

There becomes shared spaces between units (front porch and back yard), and insertions of support program (communal kitchen for holidays) BUT this will lead to a decrease in the overall unit quantity.