

# **TRANSIT + DENSITY + DESIGN = AFFORDABILITY**

**Can a Transit-Oriented Development in Atlanta promote social change through equity?**

# AGENDA

## BACKGROUND

Critical Position  
Thesis  
Thesis Abstract  
Site  
Housing  
Transit-Oriented Development  
Bus Rapid Transit



## SITE

Programmatic Strategies

## AFFORDABLE HOUSING

Site Breakdown  
Housing Types  
Housing Precedent

Median Income (% of AMI)	Max. Owner Sales Price (3 x Income)	Max. Rent/Month
60%	\$111,780	\$832
80%	\$149,040	\$1,142
100%	\$186,300	\$1,453
120%	\$223,560	\$1,763

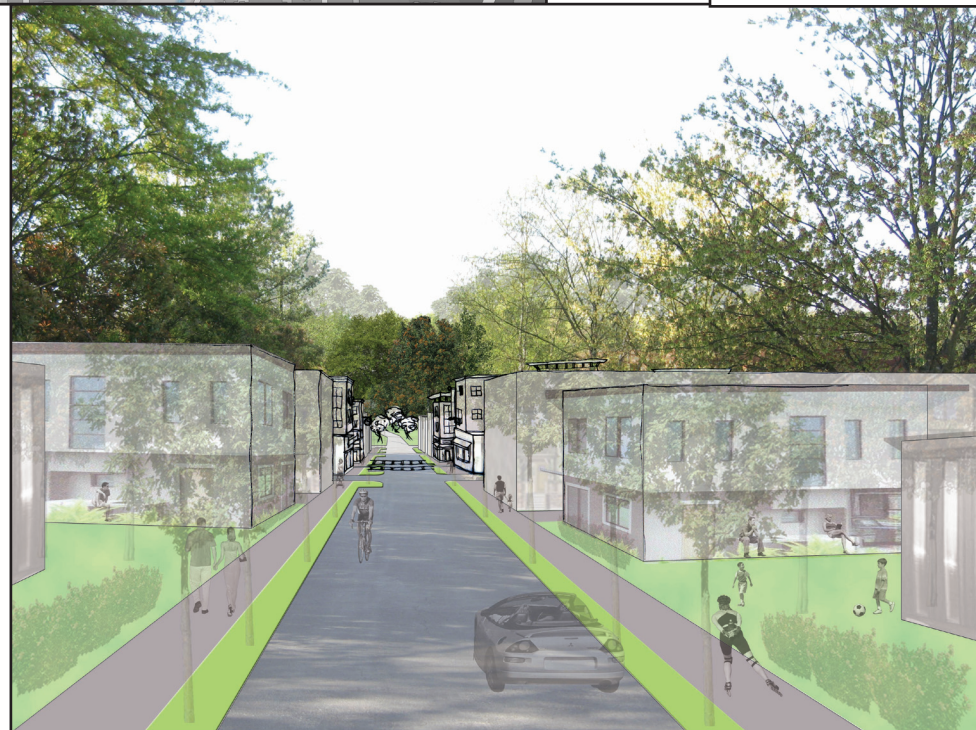
\*figures in the above chart are based on a study done by the Urban Land Institute's Terwilliger Center

## PERSPECTIVES

Transit  
Density  
Design

## CONCLUSION

## BIBLIOGRAPHY



## CRITICAL POSITIONS STATEMENT

As an architect in the early twenty-first century emerging from this historic recession I think it is imperative that driving factors of the profession are rethought. One of the most critical aspects that must be addressed in order to move forward within the profession is reducing architecture's dependency on the financial markets in favor of more socially responsible and culturally sensitive architecture. Too often, bottom-lines, FAR, leasing depths and bidding wars define architecture rather than the true reasons people get into this profession, to inspire people and improve the world around us. In recent years there has been a push for sustainability, and architects are seen as "stewards of the environment," but to most architects this means certifying your building through LEED and becoming an accredited professional. However, true sustainability is more than a plaque on the wall, it is a mindset and a way of life, one that architects must lead by example. Sustainable solutions are not just found on green roofs and recycled interiors; they are solutions to problems that improve people's everyday lives whether it is better air quality or better pedestrian networks. But as architects we must understand that to be successful "stewards of the environment" we must consider the social aspects of sustainable design and put these issues at the forefront of our work in order to be truly successful.

## THESIS STATEMENT

Retrofitting suburban properties through the extension of transit to suburban areas provides opportunities to also extend affordable housing into otherwise less income-diverse neighborhoods. I will demonstrate how BRT accessible, car-free, mixed-use living when combined with, smaller units and an enhanced public realm as well as increased FAR on an underperforming commercial property can vastly reduce housing costs in an otherwise non-affordable neighborhood.

## THESIS ABSTRACT

Through the work of my thesis I am looking to further explore issues of gentrification, increasing equity in otherwise mono-income communities and better serving the least advantaged people within our society. Specifically I am proposing to challenge the long existing racial divides in Atlanta by introducing a new population to the existing, predominately white population of North Druid Hills. Rather than trying to encourage upper income levels to relocate in a redeveloped site, as is typically the case, I would like to test the success of bringing lower income residents to a well established upper to middle class site.

The racial divides that exist in the city of Atlanta are directly related to the urban planning decisions made in the postwar period and on into the 1960s. Today the systems that were installed to prevent mobility by undesirable populations, such as, through street configuration, street naming and selective neighborhood incorporation are still very visible. The foundation of the Metropolitan Atlanta Rapid Transit Authority (MARTA) in 1971, Atlanta's first modern public transportation system became another arena for racial segregation. From the onset, MARTA was geared towards serving the less advantaged populations; therefore more affluent groups rejected proposals for MARTA to enter their communities. As a result, MARTA became the preferred and in some cases only mode of travel for the non-white and lower income populations within the city.

Yet, in recent years Atlanta's sprawl has grown out of control. According to Forbes.com Atlanta ranked #4 in a list of the "Worst Cities for Traffic" in 2006 and just two years later in 2008, Atlanta ranked #1 in a survey of the "10 Worst Cities for Commuters." Atlanta commuters spend over 60 hours a year stuck in traffic, only 29% of drivers get to and from work in less than 20 minutes, and 13% of commuters spend

more than an hour getting to work. Since MARTA does not service the entire immediate metropolitan region, it has failed to relieve the pressure. Currently in Atlanta 90% of low-to-moderate income workers drive a private vehicle to work, only 5% take public transit, 2% bike or walk, while 3% work from home and Atlantans spend on average \$10,890 on transportation.<sup>1</sup> There are many reasons Atlantans typically drive alone to work, which include, but are not limited to, convenience, commuting time, limited access and service of MARTA. In Atlanta it generally takes twice as long to commute via public transit than by private car.<sup>2</sup>

Race and transportation issues continue to plague Atlanta, which is why I am interested in trying to mitigate these issues through my thesis. The question remains, can transportation be the equalizer in an existing neighborhood when a new population is introduced? "The average working Atlantan family spends 61% (4% greater than the national average) on their combined housing (29%) and transportation (32%) costs."<sup>3</sup> According to Reconnecting America's Center for Transit Oriented Development study, "Hidden in Plain Sight", the likely demand for housing will occur within a half-mile radius of fixed guideway transit stations over the next 25 years. Reconnecting America also estimates as many as 14.6 million households could be looking for housing in this radius by 2030 nationwide.<sup>4</sup>

The intentions of this project are to provide better access through public transportation within the city of Atlanta and the metro-area, provide greater opportunity to a less advantaged population by integrating them with a well established existing population and to urbanize an urban neighborhood strategically located adjacent to the city of Atlanta. The site I have chosen to study is the Toco Hill Shopping Center located along North Druid Hills Road between LaVista Road and Clairmont Road in DeKalb County. DeKalb County is Georgia's most densely populated county with 720,000 residents, yet fewer than 15% of the county's residents live in incorporated areas. The population of DeKalb County grew by over 50% between 1980 and 2008.<sup>5</sup>

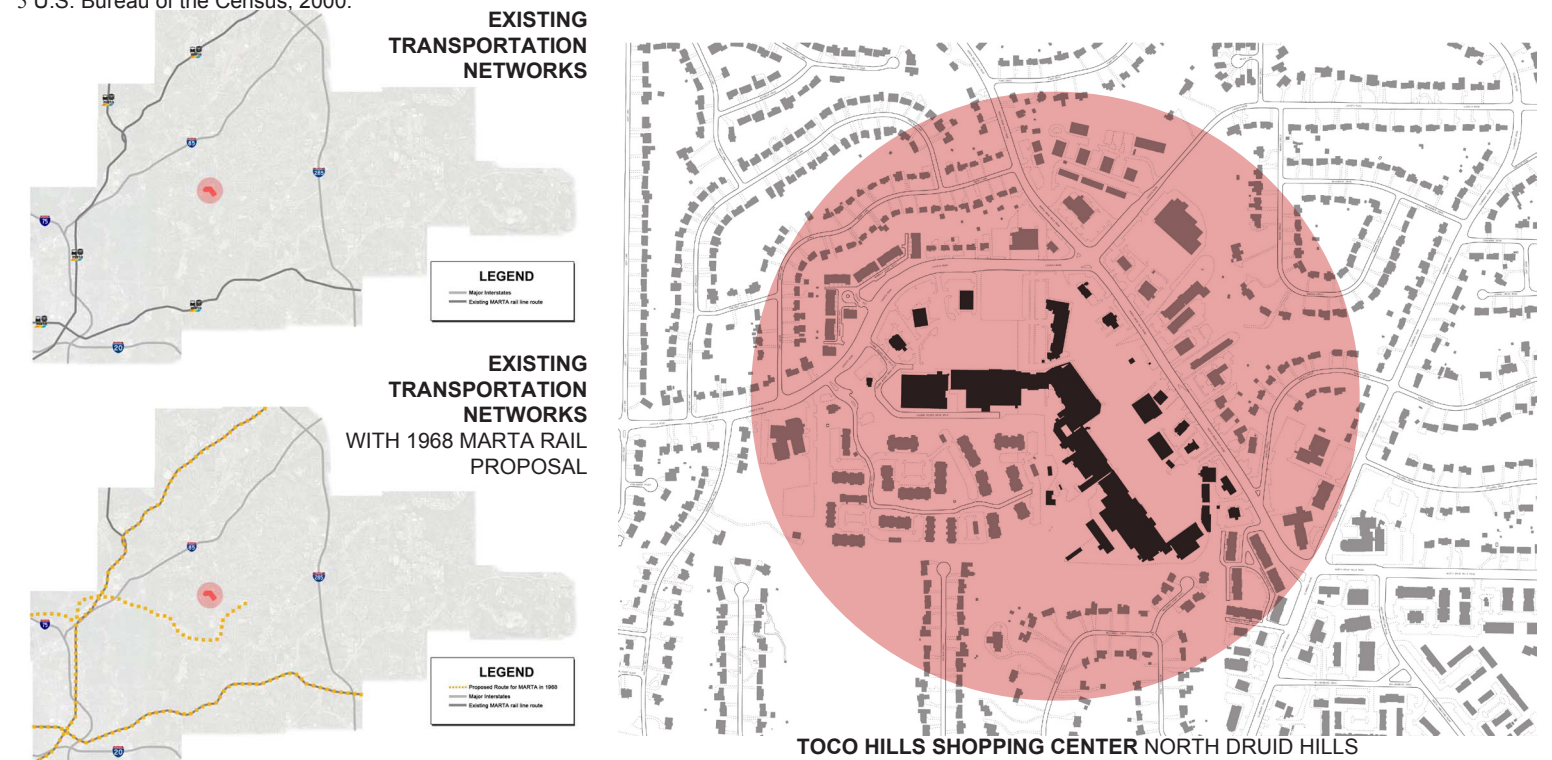
1 "A Heavy Load: The Combined Housing and Transportation Burdens of Working Families." A study done by the Center for Housing Policy. Washington DC, 2006: 1-32.

2 "A Heavy Load: The Combined Housing and Transportation Burdens of Working Families." A study done by the Center for Housing Policy. Washington DC, 2006: 1-32.

3 "A Heavy Load: The Combined Housing and Transportation Burdens of Working Families." A study done by the Center for Housing Policy. Washington DC, 2006: 1-32.

4 "Hidden in Plain Sight: Capturing The Demand for Housing Near Transit." A study done by Reconnecting America's Center For Transit-Oriented Development. Oakland, CA, 2004: 1-40.

5 U.S. Bureau of the Census, 2000.



## BACKGROUND INFORMATION

### Site

North Druid Hills has a total population of 18,852 of which 83% of the population is White and two-thirds of the area is between the ages of 20 and 54, with a median age of 33.2. The median household income is \$48,530 according to the 2000 US Census. The average household size is 1.84 and of the residential units in North Druid Hills, one-third are single-family detached houses, while another third are in structures with 20 or more units. A quarter of the total number of housing units were built between 1990-2000, during which time the population in North Druid Hills increased by over 30 percent.<sup>1</sup> These demographics alone situate North Druid Hills as a young, affluent, growing community.

Of the existing population, 69% over the age of 3, enrolled in school, is either enrolled in college or graduate school and 65% of the population over 25 has a Bachelor's, Graduate or Professional degree. Sixty-eight percent of the population 16 years and over are employed and 82% of workers are private wage and salary workers. There are 11,311 commuters in the North Druid Hills community of which, 81% drive alone, 7% carpool, and 5% take public transportation.<sup>2</sup> The previous numbers suggest affluence in this community, however, 17% of North Druid Hill's homeowners pay over 30 percent of their household income to rent, while 39% of renters' pay over 30 percent of their household income to rent, which means 32% of the population is paying beyond their means in housing costs to live in this area.<sup>3</sup> Yet if only 26% of the existing daily commuters in the area took public transportation this would provide the minimum peak ridership to justify a dedicated busway for Bus Rapid Transit as well as offset the greater housing costs for the portion of the population that is currently overspending on housing in the area.

The existing 1960s Toco Hill Shopping Center is approximately 46 acres, which includes 1,782 parking spaces, no sidewalk connections from the main roads to programs within the site, and 15 curbs cuts into the property from its two bounding streets. In 2007 there were 34,360 vehicles reported traveling along North Druid Hills Road between LaVista Road and Azalea Circle/day.<sup>4</sup> The shopping center is divided between two stakeholders, Edens & Avant and Toco Properties. Edens & Avant comprises 154,284 square feet of retail, divided between 36 retailers and Toco Properties owns and manages 243,850sf of retail divided between 54 retailers.

The site is located less than two miles from Executive Park, Children's Healthcare of Atlanta, Emory University, and Loehmann's Plaza. It is also strategically located within the city, just 1.7 miles from Interstate 85, 2 miles from Buford Highway, and 2.8 miles from US 78. In terms of public transportation, the MARTA rail stations near the site include Lindbergh City Center (3.7 miles), Lenox station (3.8 miles), and Buckhead station (4.6 miles). Two of Georgia's largest employers are located minutes from the site, Emory University which is Georgia's 5th largest employer, employing over 10,000 employees and Emory University Hospital, which is Georgia's 7th largest employer, providing jobs to over 9,000 people.

This project proposes a medium density mixed-use development. My intention is to keep the current retailers on the site, but increase the retail density, incorporate housing, add a transportation node at the center of the site, give the Georgia Department of Labor a more prominent location within the site and increase and improve the quality of the site's green space. Currently there is 398,134sf of retail on the site and I am proposing to increase the retail amount at this site to about 125% of what is currently there. The site has been broken down into 19 parcels. Of which 18 have a combination of housing and retail. Of the 1,007 housing units planned for this development 786 of them are intended to be affordable housing (priced between 60%-120% of Atlanta's Average Median Income (AMI) of \$64,100.<sup>5</sup> The incorporation of Bus Rapid Transit to this site, is a way to promote density on the site as well as curb the existing traffic congestion in the area by providing a convenient and reliable alternative mode of transportation and allow for car-free living to be possible.

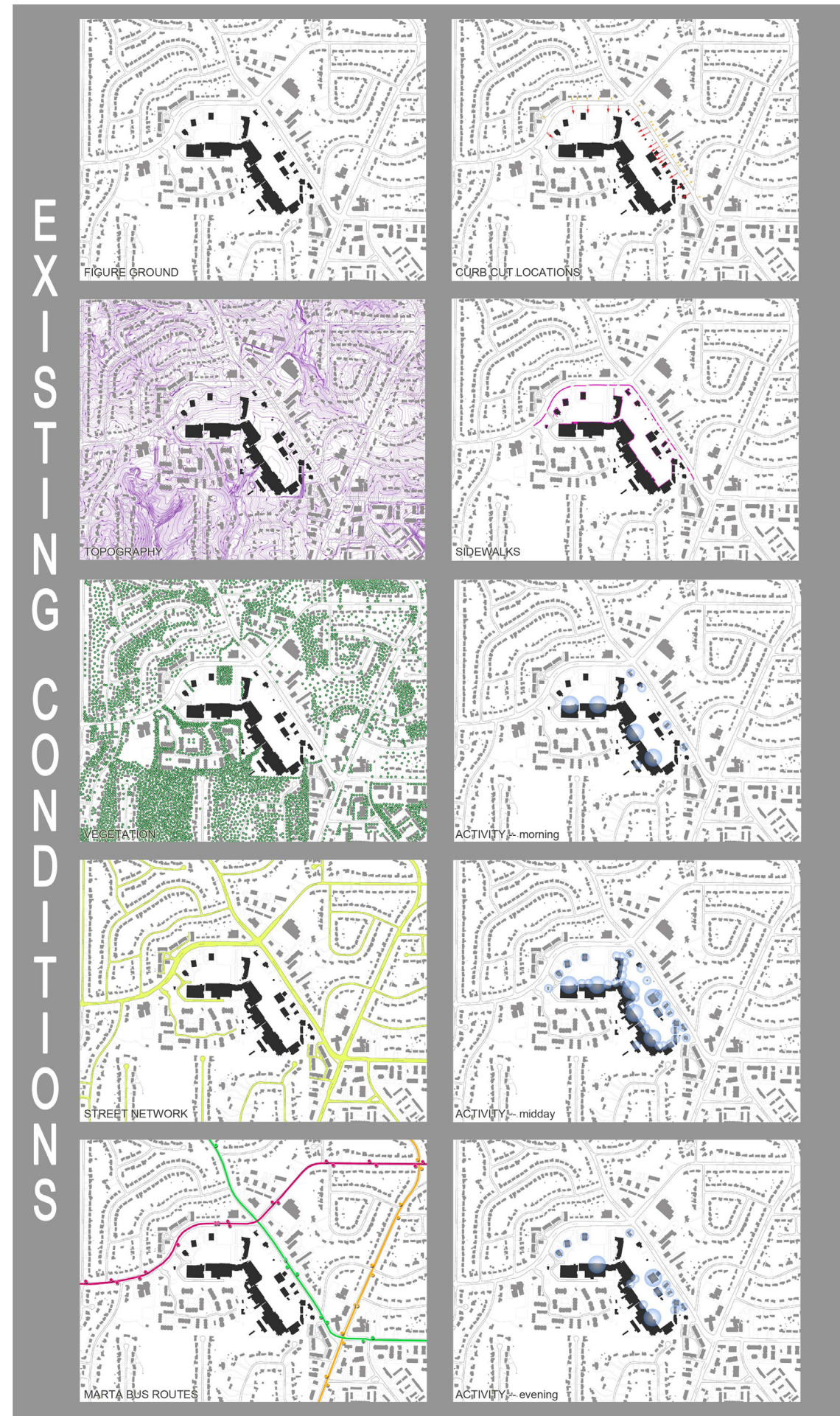
<sup>1</sup> U.S. Bureau of the Census, 2000.

<sup>2</sup> U.S. Bureau of the Census, 2000.

<sup>3</sup> U.S. Bureau of the Census, 2000.

<sup>4</sup> "North Druid Hills Road Corridor: Buford Highway-Clairmont Road 2009 LCI Application." A study done by DeKalb County Department of Public Works, Transportation Division. Atlanta, GA, 2009: 1-30.

<sup>5</sup> "Defining the Need for Workforce Housing in Atlanta: Recent Trends and Policy Recommendations" A study done by the Urban Land Institute's Terwilliger Center for Workforce Housing. Washington DC, 2009: 1-30



The two most critical components of my design are the BRT hub and the affordable housing component. These are the two aspects I intend to fully develop. I see the transportation hub as the main space for social mixing and interaction within my project. The affordable housing component is almost as significant a piece to the overall project because the population I am trying to integrate are the ones who will live in these housing units. The challenge will be to create space and places that are desirable, promote social interaction and are affordable. I hope that this could one day be a model for future developments.

## BACKGROUND INFORMATION

### Housing

Neighborhood environment contributes significantly to the socio-economic mobility of families. In addition, the de-concentration of poverty improves the life-chances of the poor.<sup>1</sup> Thus the focus of affordable housing should be on building market rate housing with an affordable component integrated seamlessly. “When low-income housing assisted families are given access to quality affordable housing in neighborhoods of greater opportunity, their self-sufficiency increases significantly.”<sup>2</sup>

### Transit-Oriented Development (TOD)

Why walkability and car-free living are so important

#### *Better health*

- A study in Washington State found that the average resident of a pedestrian-friendly neighborhood weighs 7 pounds less than someone who lives in a sprawling neighborhood
- Residents of walkable neighborhoods drive less and therefore suffer fewer car accidents, which is a leading cause of death between the ages of 15–45.

#### *Reduction in greenhouse gasses*

- Cars are a leading cause of global warming. Your feet are zero-pollution transportation machines

#### *More transportation options*

- Compact neighborhoods tend to have higher population density, which leads to more public transportation options and bicycle infrastructure. Not only is taking the bus cheaper than driving, but riding a bus is ten times safer than driving a car

#### *Increased social capital*

- Walking increases social capital by promoting face-to-face interaction with your neighbors. Studies have shown that for every 10 minutes a person spends in a daily car commute, time spent in community activities falls by 10%.

#### *Stronger local businesses*

- Dense, walkable neighborhoods provide local businesses with the foot traffic they need to thrive. It's easier for pedestrians to shop at many stores on one trip, since they don't need to drive between destinations.<sup>3</sup>

One of the goals of a Transit-Oriented Development (TOD) is to provide choices in terms of mobility, housing, shopping, and recreation. A TOD is a development anchored with transit. Recent case studies have shown that Bus Rapid Transit (BRT) stations that are designed to meet the needs of a specific community and provide a connection to other forms of transit, such as local bus routes and rail can successfully anchor a TOD. TODs typically include areas for housing, shopping, public gathering, working, and recreation. Pedestrians ensure the success of TODs. Ideally, residents and visitors should be able to navigate the area by walking or biking instead of relying on driving. Further, parks and open space provide a critical quality of life component for community building and become a place to relax and gather. These areas can also enhance the natural systems existing on a site.

The density of a TOD is also critical to its success, in Oregon's Washington County, the bus-served, neighborhood TOD zone has a minimum density of eight units per acre and in the City of Portland, densities for TODs with bus service employ 24 units per acre within one-eighth of a mile from the station and housing density at 12 units per acre between one-eighth and one-quarter of a mile from the station. This development I am proposing has an average density of 18 dwelling units per acre. Although density is important, the scale of a TOD should complement its existing surroundings and communities.

<sup>1</sup> Boston, Thomas. “Environment Matters: The Effect of Mixed-Income Revitalization on the Socio-economic Status of Public Housing Residents: A Case Study of Atlanta.” Atlanta, GA, 2005: 1-115.

<sup>2</sup> Boston, Thomas. “Environment Matters: The Effect of Mixed-Income Revitalization on the Socio-economic Status of Public Housing Residents: A Case Study of Atlanta.” Atlanta, GA, 2005: 1-115.

<sup>3</sup> “H+T Affordability Index.” A study done by the Center for Neighborhood Technology. Chicago, IL, 2008: 1-2.

## Additional Information on TODs

- Residents living near transit stops are five times more likely to commute by transit.
- Regions, such as Atlanta, with extensive and growing transit systems offer the greatest TOD potential. 30% of people indicated they wanted to live near transit, with only 2% of housing construction being put there. Low and very low income households are projected to make up 40% of TOD demand. 58% of TOD demand is likely to come from single person households (the majority of household types in North Druid Hills)
- AARP reported that 71% of older households want to live within walking distance of transit, because the Toco Hills area is also an aging community this is useful to take into account when designing for this area
- Neighborhoods near transit today are more racially and economically diverse than their surrounding region<sup>1</sup>

<sup>1</sup> “Transit-Oriented Development: A Tool for Promoting Regional Equity.” A study done by Reconnecting America Center for Transit-Oriented Development. Washington DC, 2008: 1-45.



***Density and Connectivity are at the core of successful TODs***

## BACKGROUND

### Bus Rapid Transit

“A BRT can meet or achieve the capacity and economic development potential of rail, but at a fraction of the cost”<sup>1</sup>

#### A BRT is characterized by

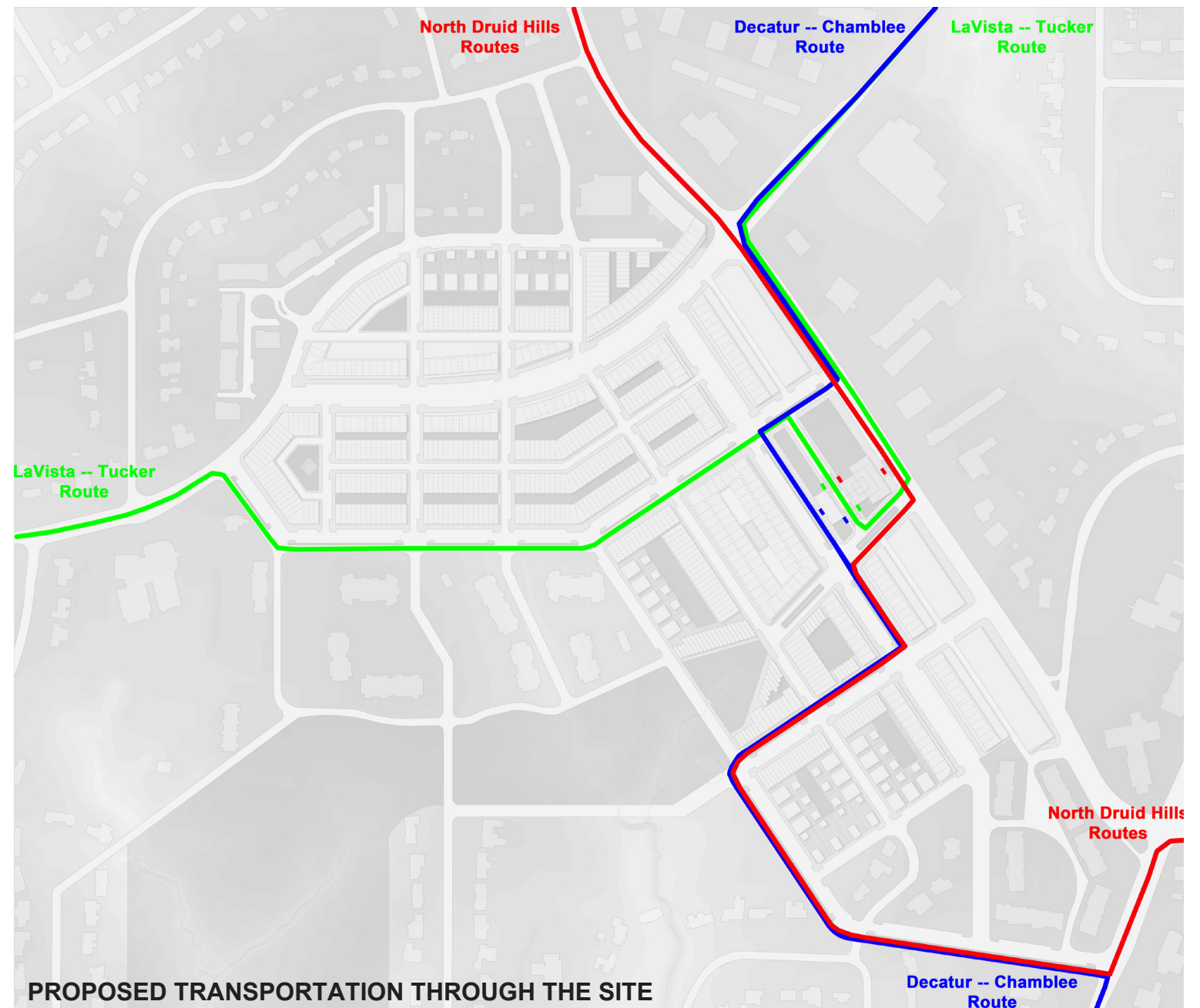
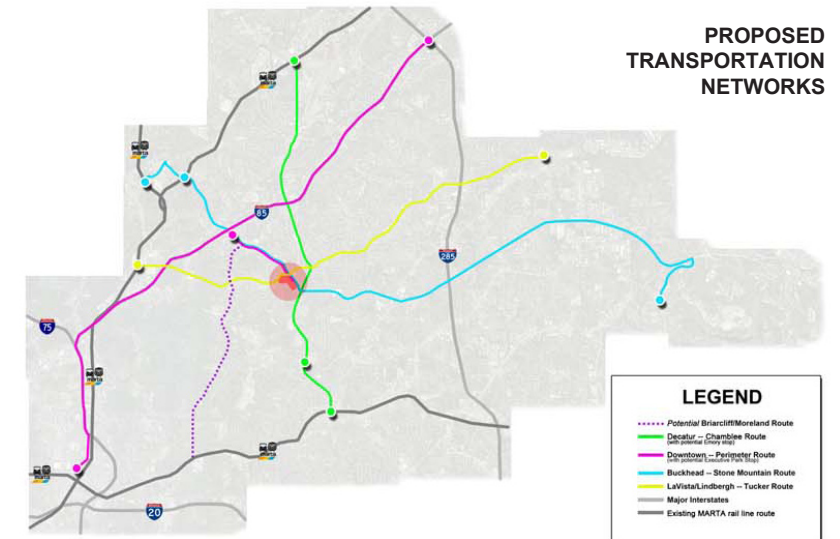
- Dedicated right-of-way
- Rail-like stations
- Low floor, low emissions vehicles
- Off-vehicle fare collection
- Frequent service
- Multimodal access

#### 8 Key Factors for Attaining BRTOD<sup>2</sup>

1. Interconnectedness of Public transit services
2. Location/alignment of stations and busways
3. Degree to which decisions about public transit and land-use are integrated
4. Existence/effectiveness of land-use policies that promote station area development
5. Existence/effectiveness of policies to promote walkability at station areas
6. Extent of public financial investment in station area development
7. Extent of public financial investment in transit system
8. Degree of regional planning/coordination

<sup>1</sup> Vincent, Bill. “Bus Rapid Transit: The US Experience” A study done by the Breakthrough Technologies Institute. Washington DC, 2004.

<sup>2</sup> Judy, Meredith. “The Potential for Bus Rapid Transit to Promote Transit-Oriented Development: An Analysis of BRTOD in Ottawa, Brisbane and Pittsburgh.” PhD diss., Massachusetts Institute of Technology, 2007.





**SITE PLAN**

**PROGRAMMATIC STRATEGIES**

1. Develop the site as a transportation node as well as a destination
2. Generate mixed-income housing
3. Provide the Georgia Department of Labor a more prominent site location as well as provide its visitors better access through new transportation networks

The program of this project is driven by the successful linkage between transportation and the built environment. I am investigating the possibility to successfully introduce a new population to an existing neighborhood to increase density and social and economic diversity without jeopardizing the character of the community.

**IMPROVED INFRASTRUCTURE**

The rerouting of LaVista through the site as well as implementing dedicated busways, improve traffic flows in and around the development.

**INCREASED CONNECTIVITY**

Increased connections into and out of the development both locally and regionally by connecting existing right-of-ways and adding a BRT transportation center to this site.

**RETAIL EMPHASIS**

The redistribution of existing and new retail along LaVista and North Druid Hills Roads allows for greater retail exposure.

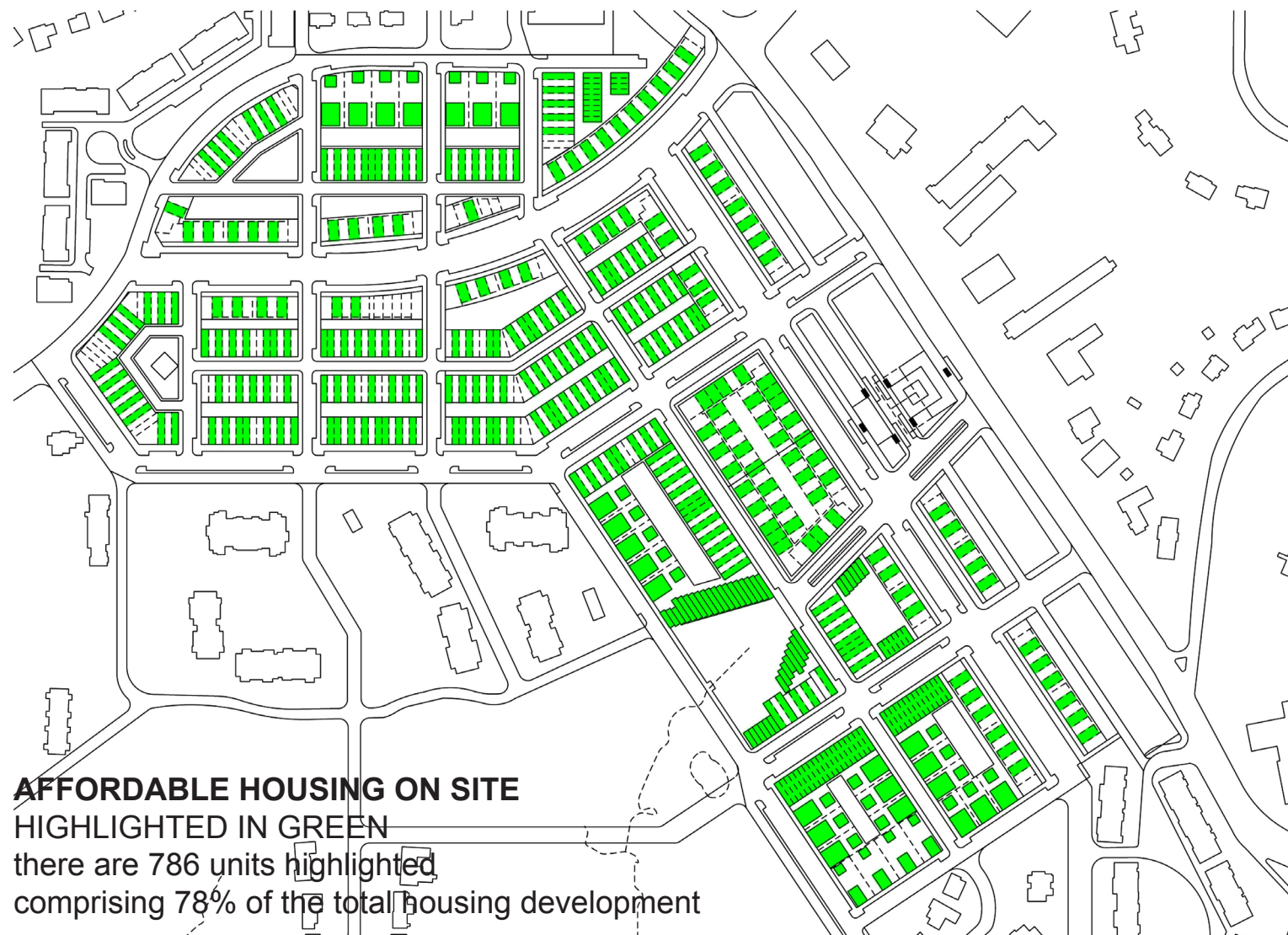
**PARK INTEGRATION**

Through a connection from the existing Thompson Park into the site allowed for an existing ravine on the site to become an asset. Also emphasis was placed on green space through a series of pocket parks and improved pedestrian networks.

**AFFORDABLE HOUSING**

A variety of affordable housing options are available within this site with the intention of providing access to this community to people who may otherwise not be able to afford it. In addition, providing these new residents with housing choices rather than one affordable housing model.

- RETAIL  
The existing site had a total of 398,134sf of retail and I am proposing to relocate the existing as well as add some additional retail for a new total of 492,995sf
- HOUSING  
The existing site had no housing, but I am proposing to add 1,007 units of housing comprised of townhomes, apartments, duplexes and neighborhood lots
- GEORGIA DEPARTMENT OF LABOR  
A branch of the Department of Labor existed on this site, however it was indistinguishable from the retail therefore I am proposing to move it to it's own parcel to give it a more prominent location and give it direct access to the transit center



**AFFORDABLE HOUSING ON SITE**  
**HIGHLIGHTED IN GREEN**  
 there are 786 units highlighted  
 comprising 78% of the total housing development

**AFFORDABLE HOUSING BREAKDOWN**

BUILDING TYPE	stories (building)	stories (unit)	sf w/o patio	total sf	# of bdrms	cost/sf	cost of unit/sf	% of AMI Qualification	owner sales price	surplus/ unit	# unit type on site	total savings	total spent by owner
townhome													
12 x 40	2	2	-	887	2	110	\$97,570.00	60%	\$111,780	\$14,210	38	\$539,980	\$4,247,640
12 x 60	2	2	-	1,335	2	110	\$146,850.00	80%	\$149,040	\$2,190	52	\$113,880	\$7,750,080
15 x 40	2	2	1,539	1,676	2	110	\$184,360.00	100%	\$186,300	\$1,940	107	\$207,580	\$19,934,100
15 x 70	2	2	1,747	1,912	2	110	\$210,320.00	120%	\$223,560	\$13,240	61	\$807,640	\$13,637,160
15 x 60	3	3	2,101	2,238	3	110	\$246,180.00	Market-Rate	\$246,180	\$246,180	107		\$26,341,260
15 x 70	3	3	2,427	2,539	3	110	\$279,290.00	Market-Rate	\$279,290	\$279,290	46		\$12,847,340
apartments													
45 x 22	2	1	888	938	1	110	\$103,136.00	60%	\$111,780	\$8,644	136	\$1,175,584	\$15,202,080
45 x 22	2	1	888	938	2	110	\$103,136.00	60%	\$111,780	\$8,644	136	\$1,175,584	\$15,202,080
40 x 25	4	1	885	950	1	110	\$104,445.00	60%	\$111,780	\$7,335	102	\$748,170	\$11,401,560
40 x 25	4	1	885	950	2	110	\$104,445.00	60%	\$111,780	\$7,335	102	\$748,170	\$11,401,560
larger	4	1		1,000	2+	110	\$110,000.00	Market-Rate	\$110,000	\$110,000	68		\$7,480,000
duplexes													
40 x 50	2	1	-	2,000	3	110	\$220,000.00	120%	\$223,560	\$3,560	48	\$170,880	\$10,730,880
neighborhood lots													
25 x 40	2	1	-	1,000	2	110	\$110,000.00	60%	\$111,780	\$1,780	4	\$7,120	\$447,120
											1007	\$5,694,588	\$156,622,860

Median Income (% of AMI)	Max. Owner Sales Price (3 x Income)	Max. Rent/Month
60%	\$111,780	\$832
80%	\$149,040	\$1,142
100%	\$186,300	\$1,453
120%	\$223,560	\$1,763

\*figures in the above chart are based on a study done by the Urban Land Institute's Terwilliger Center

purchase price (total development)	construction cost (infrastructure + housing + retail)	net development cost (ideal is 0)
\$156,622,860	\$170,819,725	-\$14,196,865
avg unit cost on entire site	\$155,534.12	
avg parking savings/unit	\$20,004.19	
% savings/unit	11%	

**SITE DEVELOPMENT BREAKDOWN**

RETAIL	SF/# of Units	% of total
Stand Alone	114,195	23%
Under Housing	378,800	77%
Existing	398,134	81%
<b>TOTAL</b>	<b>492,995</b>	
HOUSING		
Neighborhood Lots	4	0.4%
Duplexes	48	4.8%
12' wide Townhomes	90	8.9%
15' wide Townhomes (60' depth)	214	21.3%
15' wide townhomes (70' depth)	107	10.6%
Apartments over retail (single-loaded)	322	32.0%
Apartments over retail (double-loaded)	222	22.0%
<b>TOTAL</b>	<b>1,007</b>	
PARKING		
Carpport*	52	3%
On Street	685	46%
2-Level Deck	750	50%
<b>TOTAL</b>	<b>1,487</b>	

parking spaces\*\*/1000 square feet of retail 2.9  
 \*for neighborhood lots and duplexes  
 \*\*all provided parking other than carports

	acres	du/acre
total development size	56.44	18

**CONSTRUCTION COST + SAVINGS BREAKDOWN**

\*for neighborhood lots and duplexes  
 \*\*all provided parking other than carports

	acres	du/acre
total development size	56.44	18

By not providing parking for housing other than duplexes and neighborhood lots, this development saves between \$14,000,000 - \$27,000,000

savings calculations	low	high
12' wide townhome	1,440,000	2,520,000
15' wide townhome	3,852,000	7,704,000
apartments (w/o pkg)	3,864,000	7,728,000
apartments (w/pkg)	4,440,000	6,660,000

per unit calculations w/pkg	low	high	average	avg savings/unit
calculations w/pkg	\$14,236.65	\$25,771.73	\$19,104.00	\$20,004
calculations w/o pkg	\$12,491.13	\$24,491.13	\$13,554.00	

Housing Construction*	# of du	gsf/unit	cost/gsf	cost/du	total cost/gsf	total cost/du
neighborhood lot	4	1,000	\$67.50	\$175,000	\$270,000	\$700,000
duplex	48	2,000	\$67.50	\$119,000	\$6,480,000	\$5,712,000
townhouse (2-storey)	258			\$119,000		\$30,702,000
12 x 40	38	960	\$67.50		\$2,462,400	
12 x 60	52	1,440	\$67.50		\$5,054,400	
15 x 60	107	1,800	\$67.50		\$13,005,500	
15 x 70	61	2,100	\$67.50		\$8,646,750	
townhouse (3-storey)	153			\$185,000		\$28,305,000
15 x 60	107	2,700	\$70.00		\$20,223,000	
15 x 70	46	3,150	\$70.00		\$10,143,000	
medium apartment	322	990	\$75.00	\$75,000	\$23,908,500	\$24,150,000
texas donut	222	1,000	\$92.50	\$85,000	\$20,535,000	\$18,870,000
parking cost	955					\$19,104,000
total	1,007				\$110,723,550	\$89,335,000

\*based on housing type

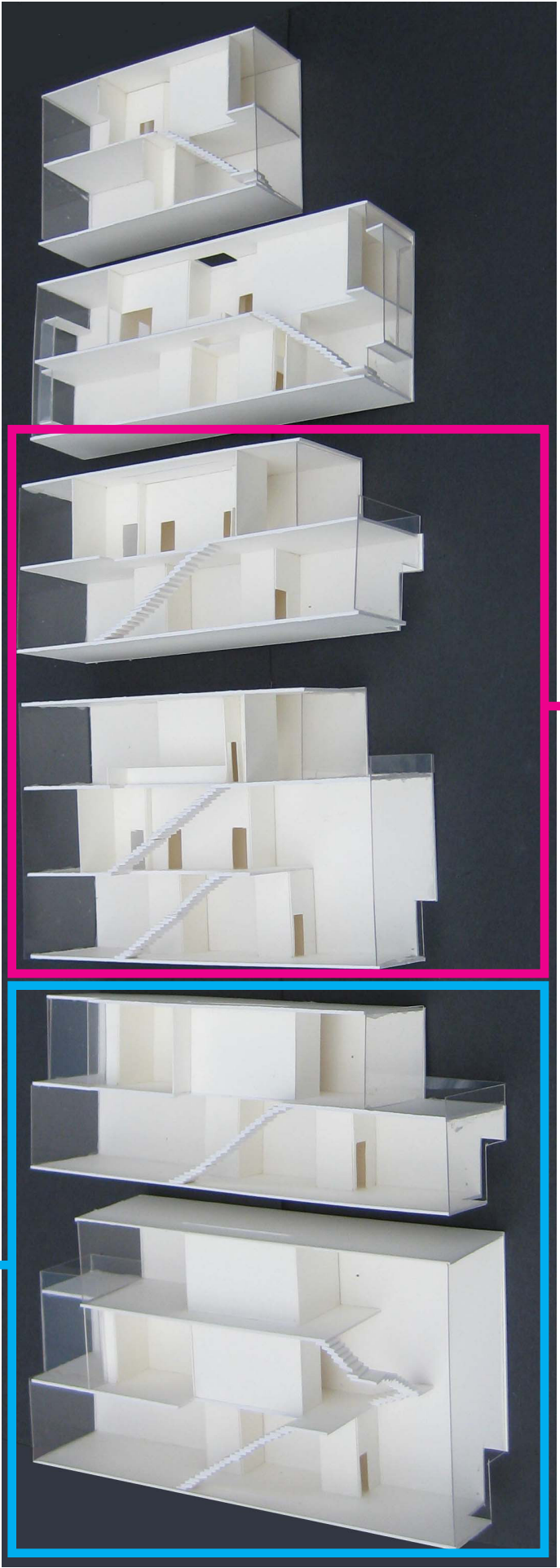
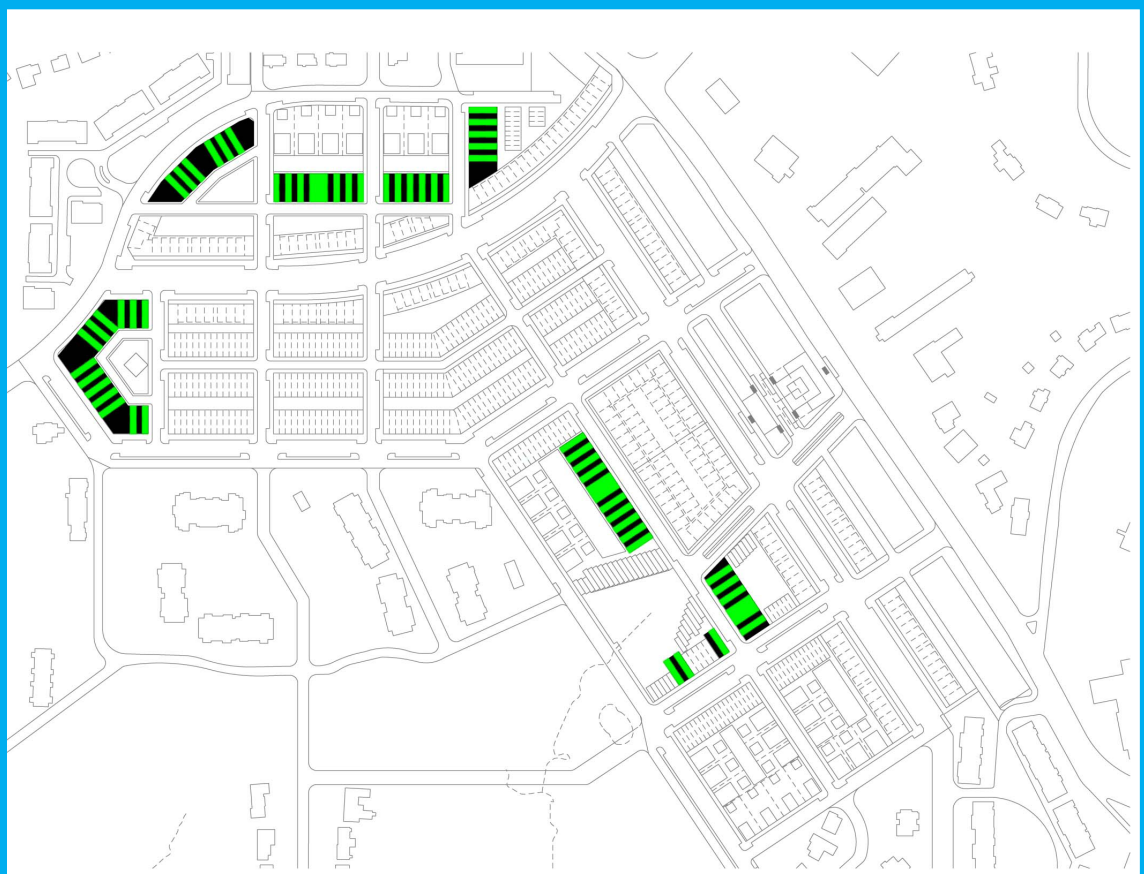
Retail Construction	retail revenue/month	retail revenue/du	retail revenue/du/month
	492,995	\$105.00	\$51,764,475
	492,995	\$40.00	\$19,719,800

Total Development Construction Cost \$170,819,725  
 \*figures in the above chart are based on 2002 Washington DC market figures from a chart in Retrofitting Suburbia

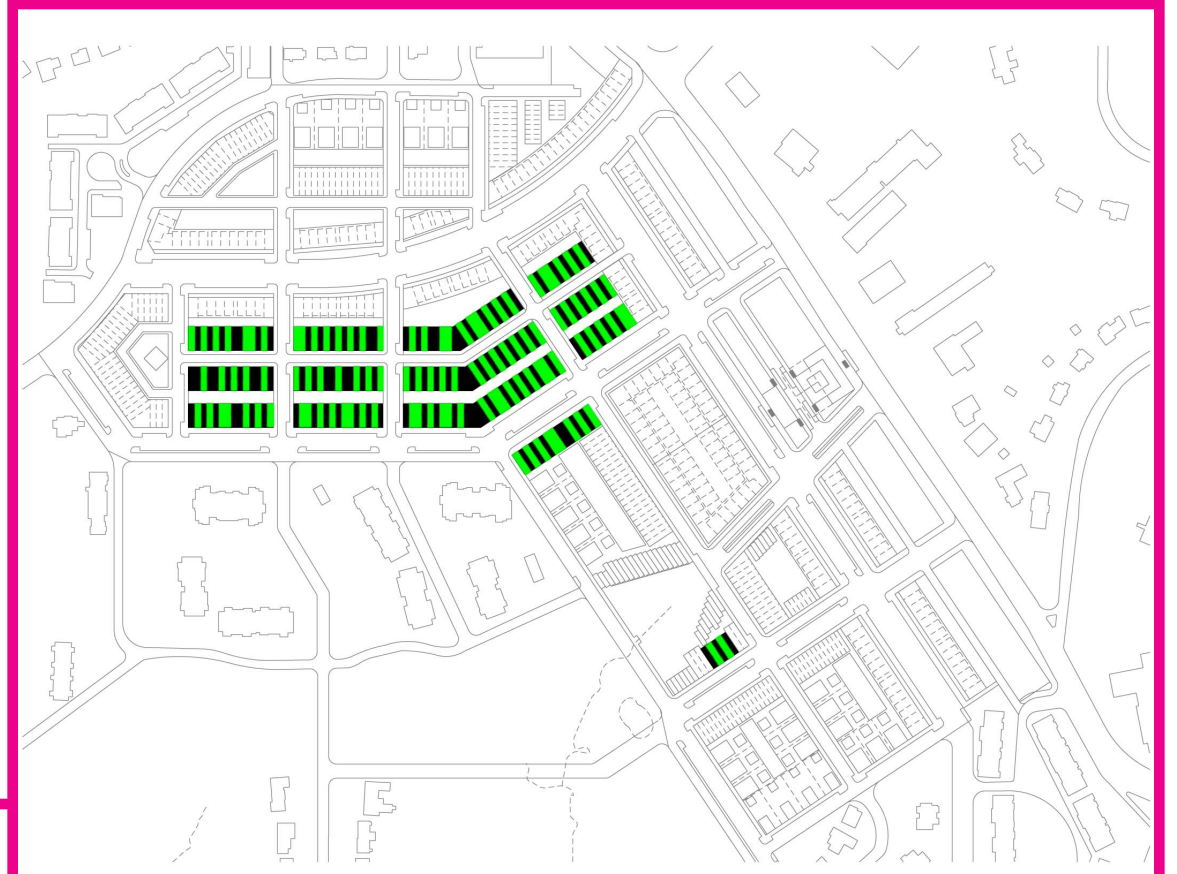
Average savings per unit \$20,004



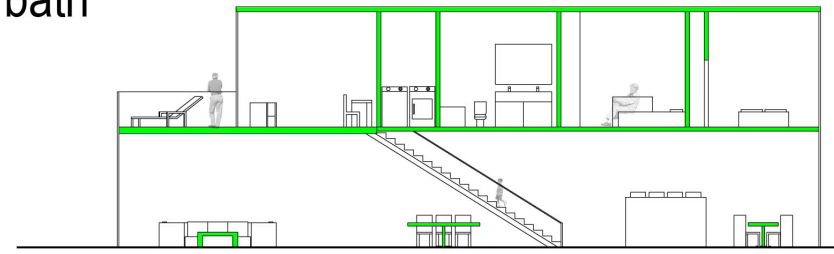
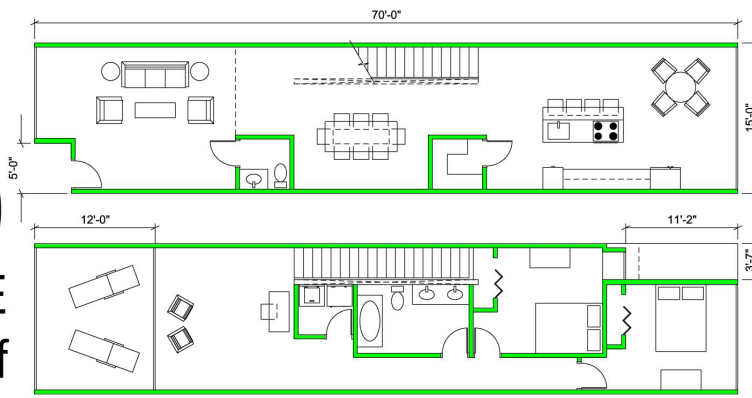
AFFORDABLE HOUSING -- TOWNHOMES



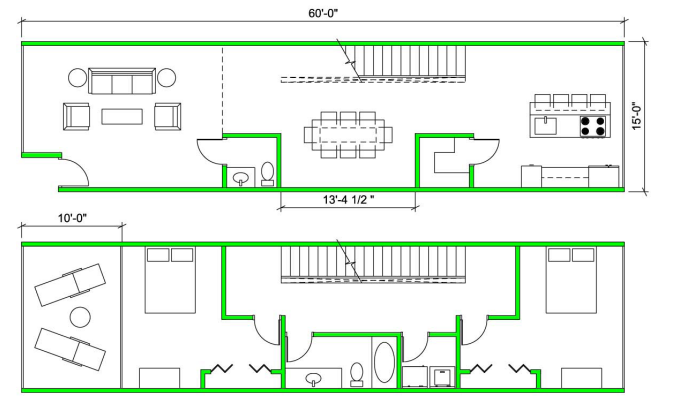
AFFORDABLE HOUSING -- TOWNHOMES



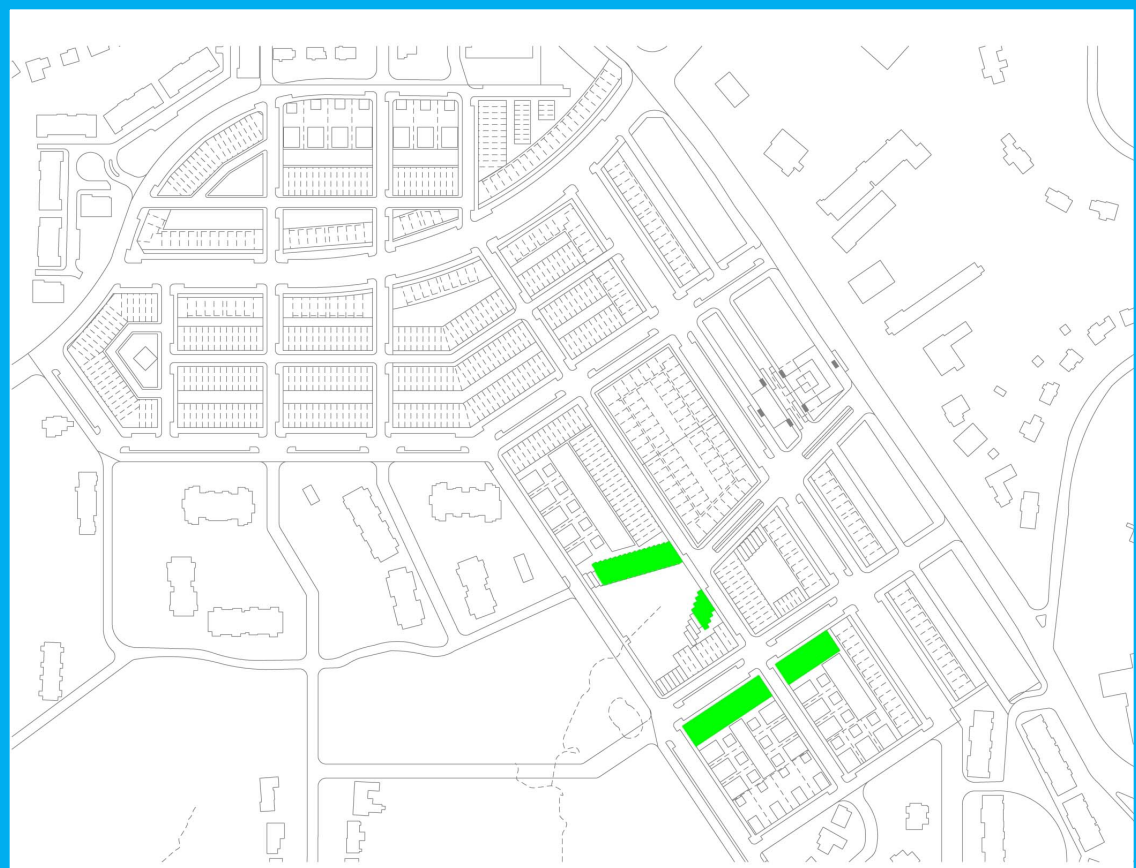
**15 x 70**  
TOWNHOME  
1,912 sf  
2 stories  
2 bedroom  
2.5 bath



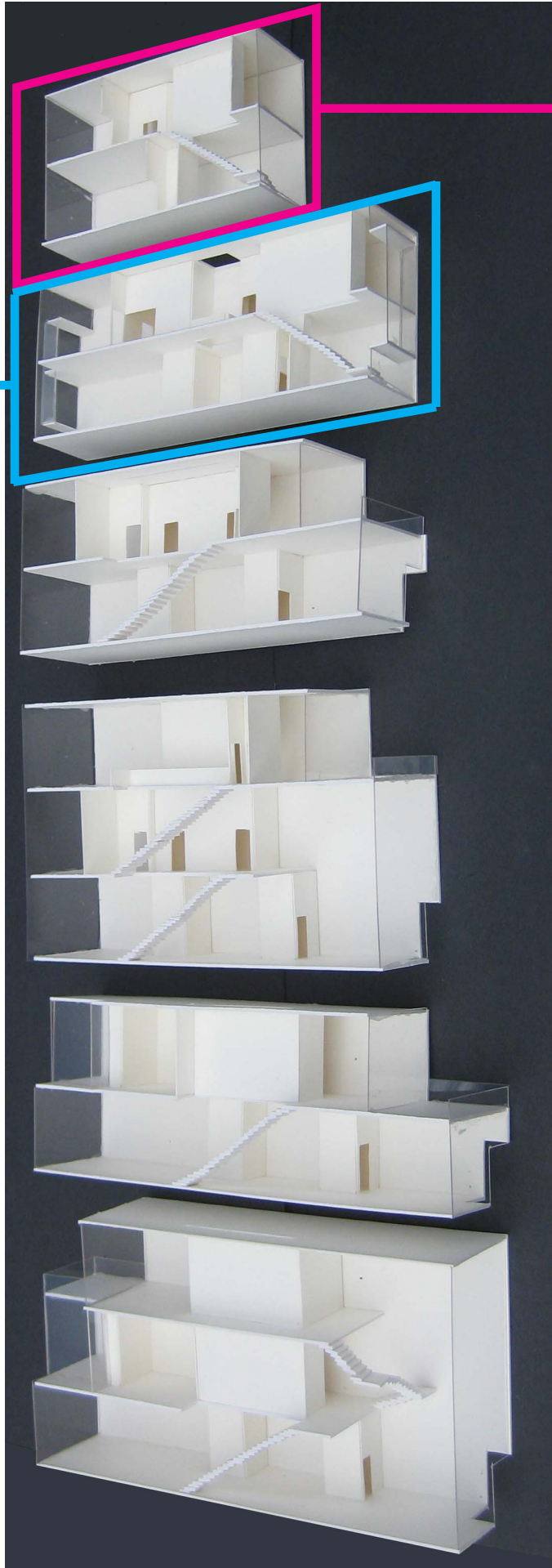
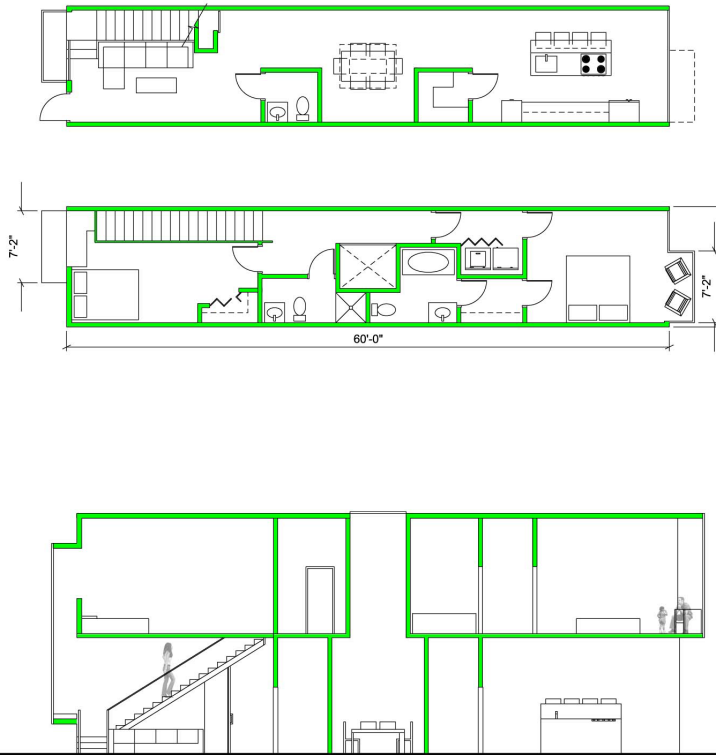
**15 x 60**  
TOWNHOME  
1,676 sf  
2 stories  
2 bedroom  
2.5 bath



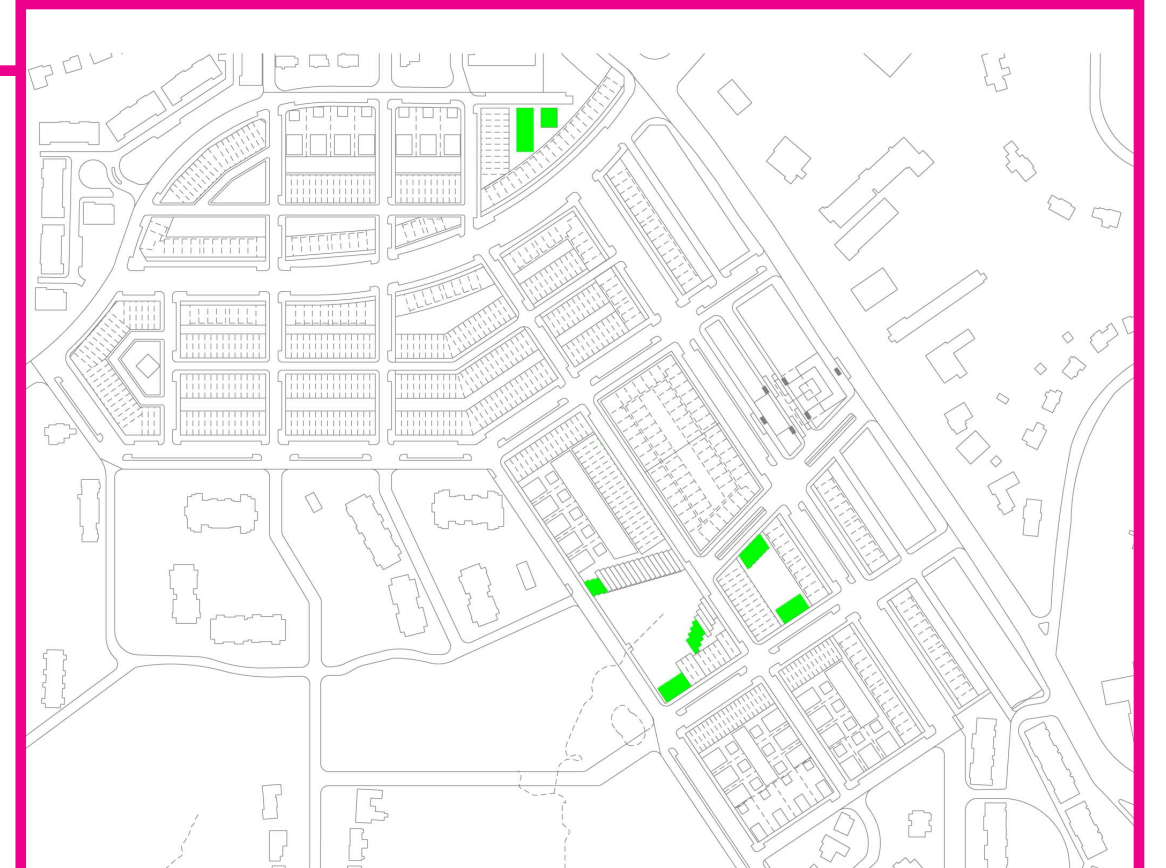
**AFFORDABLE HOUSING -- TOWNHOMES**



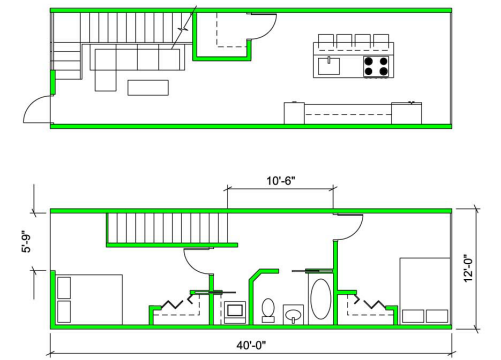
**12 x 60**  
TOWNHOME  
1,335 sf  
2 stories  
2 bedroom  
2.5 bath



**AFFORDABLE HOUSING -- TOWNHOMES**



**12 x 40**  
TOWNHOME  
887 sf  
2 stories  
2 bedroom  
1 bath



**AFFORDABLE**



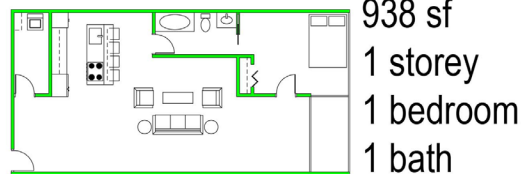
**22 x 45**

APARTMENT OVER RETAIL

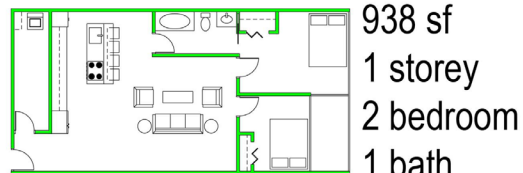
**272 UNITS**

ON SITE  
SALES PRICE

**\$111,780**  
(60% AMI)

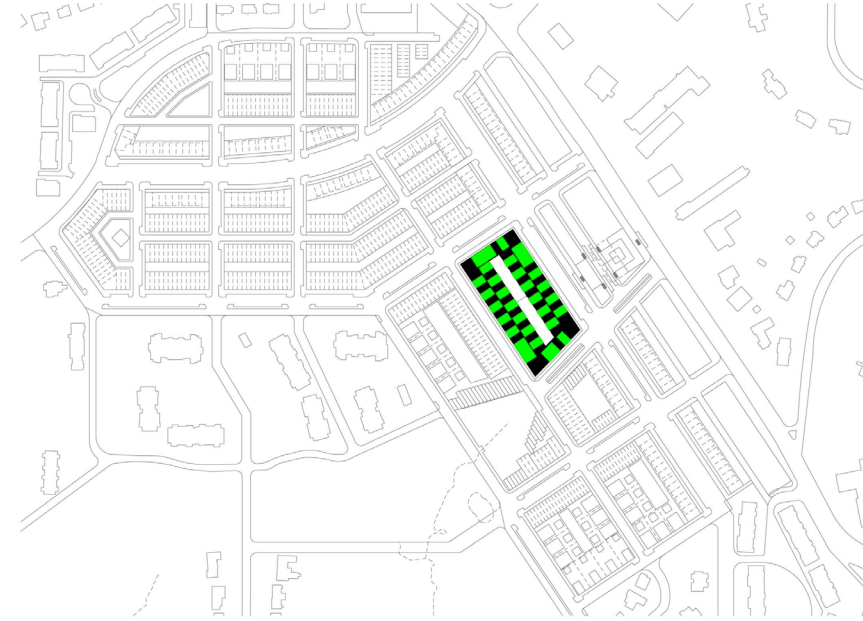


938 sf  
1 storey  
1 bedroom  
1 bath



938 sf  
1 storey  
2 bedroom  
1 bath

**AFFORDABLE**



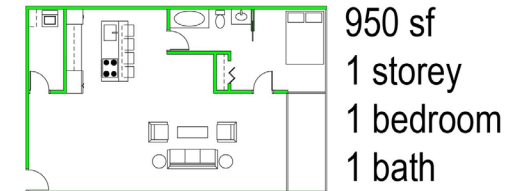
**25 x 40**

APARTMENT OVER PARKING

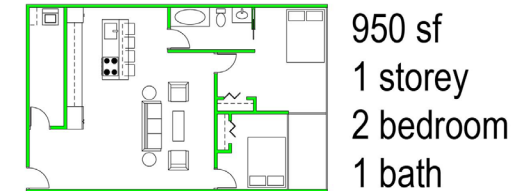
**204 UNITS**

ON SITE  
SALES PRICE

**\$111,780**  
(60% AMI)



950 sf  
1 storey  
1 bedroom  
1 bath



950 sf  
1 storey  
2 bedroom  
1 bath

**AFFORDABLE**

**40 x 50**

DUPLEXES

1 storey  
3 bedroom  
1 bath

**48 UNITS**

ON SITE  
SALES PRICE

**\$223,560**  
(120% AMI)



**AFFORDABLE**

**25 x 40**

NEIGHBORHOOD LOTS

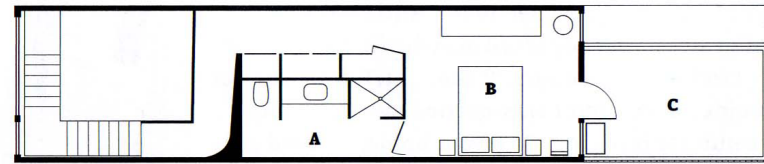
2 stories  
3 bedroom  
1.5 bath

**4 UNITS**

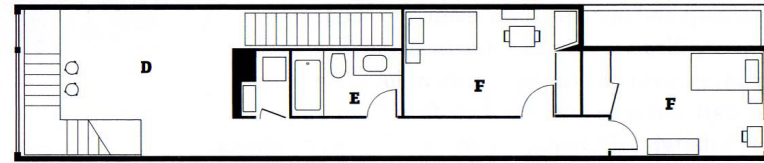
ON SITE  
SALES PRICE

**\$111,780**  
(60% AMI)

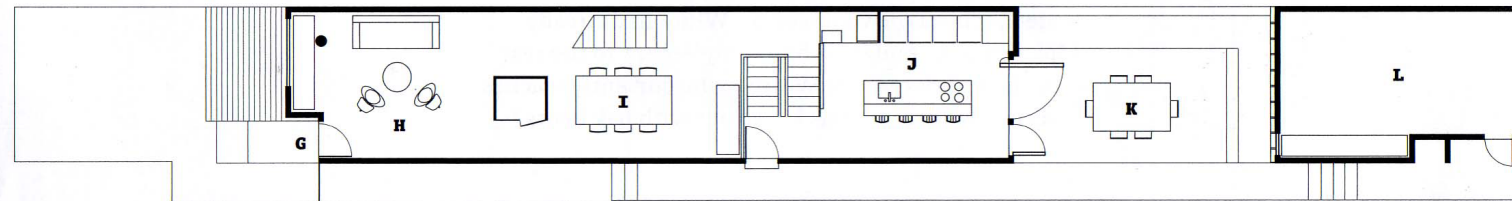




Third Floor



Second Floor



Ground Floor

**Galley House  
Floor Plans**

- A Master Bathroom
- B Master Bedroom
- C Deck
- D Family Room
- E Bathroom
- F Bedroom
- G Entry
- H Living Area
- I Dining Area
- J Kitchen
- K Courtyard
- L Garage

## 12 X 62 PRECEDENT

The December/January issue of *Dwell* featured an infill townhome that due to site constraints could not exceed 12' in width. I used this townhome as a model for the 12' wide affordable units I designed. I understand there is criticism for such a narrow and long unit, which is why they are not the most prevalent on the development. However, seeing a townhome of this size's success in the real world is definitely helpful. Yet I did keep in mind that light penetration will still be an issue in such a narrow unit even with light wells, therefore, I also designed a 12' x 40' deep unit to better allow light to penetrate the unit from both sides.

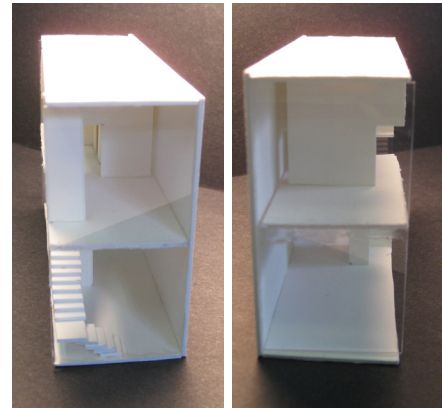


Dwell



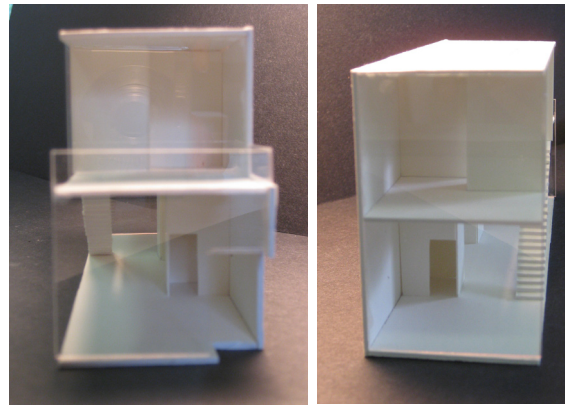
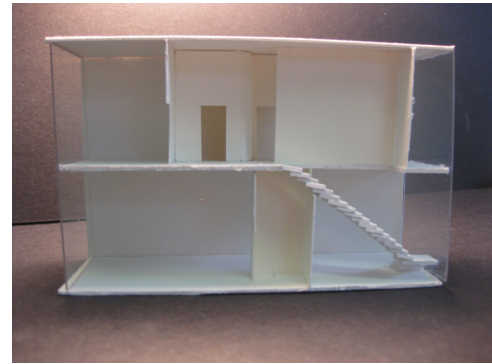
Facing tight building codes and an even tighter space, Karen White and David MacNaughtan needed an architect who could turn lemons into lemonade. Donald Chong devised a refreshing solution.

HOUSING BREAKDOWN -- TOWNHOME MODELS



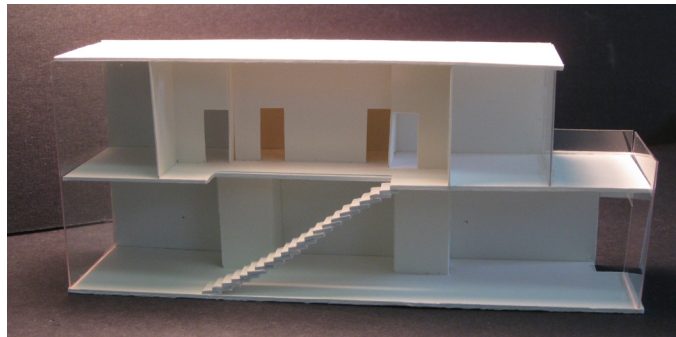
**12 X 40**  
**AFFORDABLE**

**38 UNITS**  
ON SITE  
SALES PRICE  
**\$111,780**  
(60% AMI)



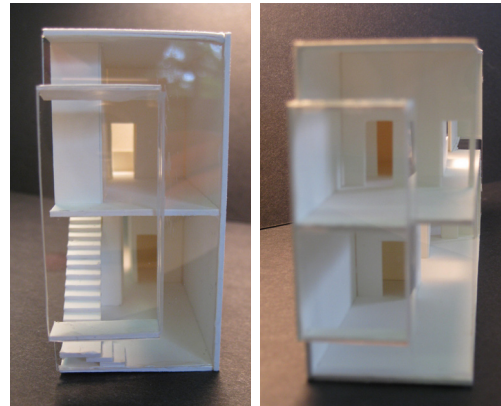
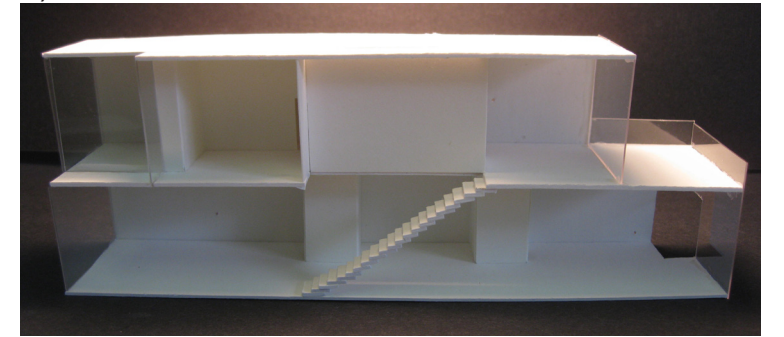
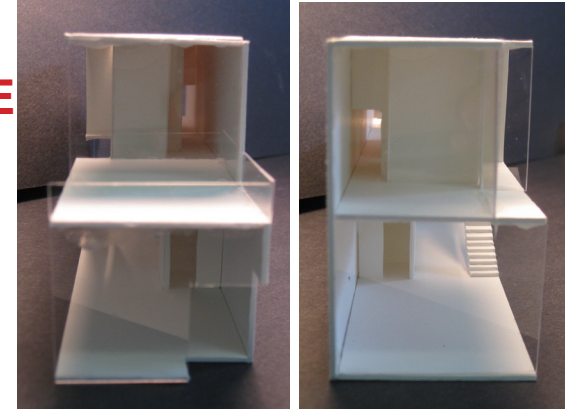
**15 X 70**  
**AFFORDABLE**

**61 UNITS**  
ON SITE  
SALES PRICE  
**\$223,560**  
(120% AMI)



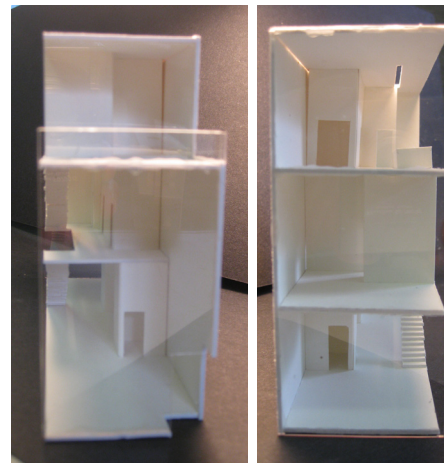
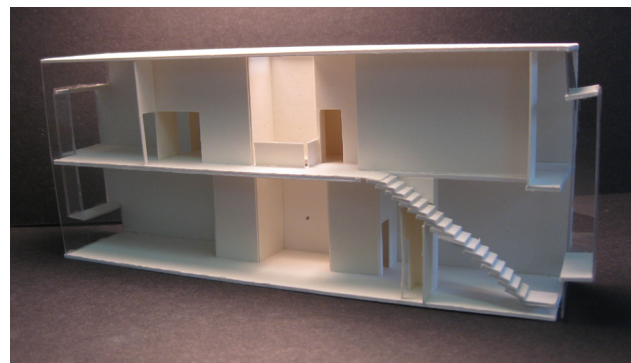
**15 X 60**  
**AFFORDABLE**

**107 UNITS**  
ON SITE  
SALES PRICE  
**\$186,300**  
(100% AMI)



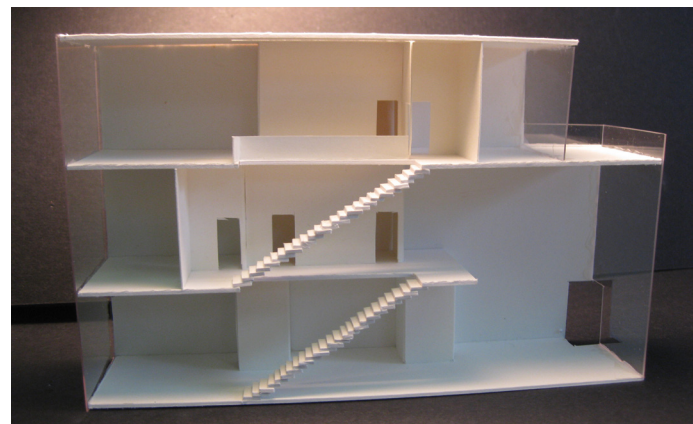
**12 X 60**  
**AFFORDABLE**

**52 UNITS**  
ON SITE  
SALES PRICE  
**\$149,040**  
(80% AMI)



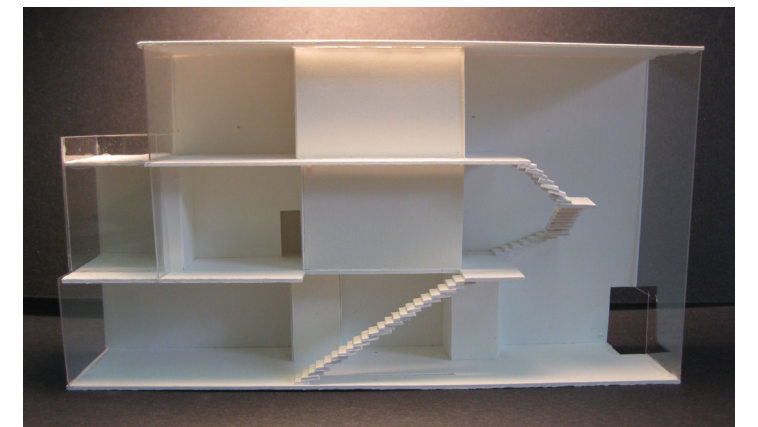
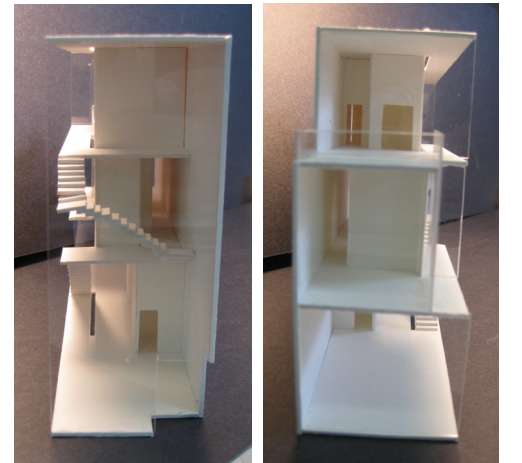
**15 X 70**  
**MARKET-RATE**

**46 UNITS**  
ON SITE  
SALES PRICE  
**\$279,290**



**15 X 60**  
**MARKET-RATE**

**107 UNITS**  
ON SITE  
SALES PRICE  
**\$246,180**

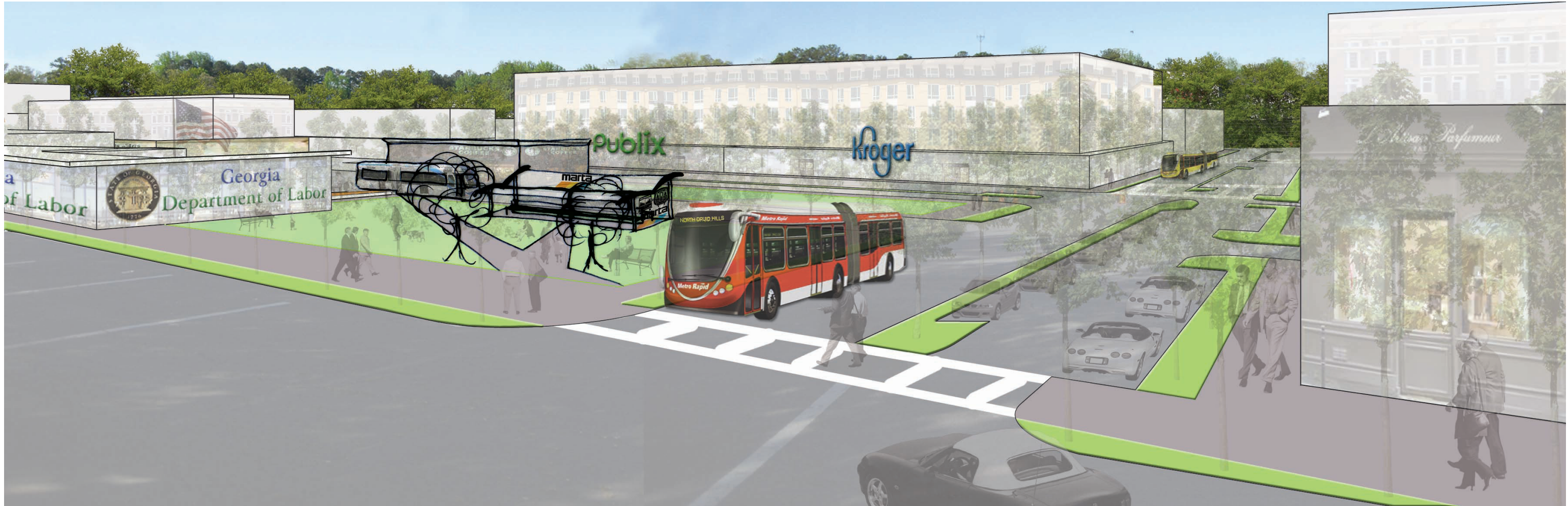


# IMAGINING A BETTER PLACE

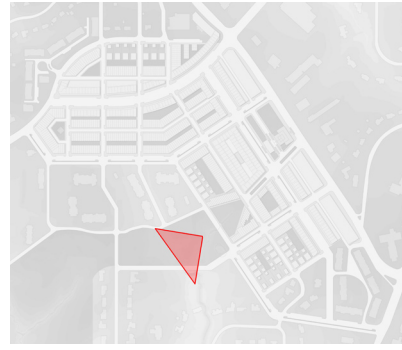


## Perspective 1 - TRANSIT

This view into the site demonstrates the driving ideas of the project, transportation, density and design and how introducing Bus Rapid Transit, pulling retail and to more prominent locations as well as highlighting the Department of Labor has transformed the existing underutilized retail development into a lively suburban retrofit

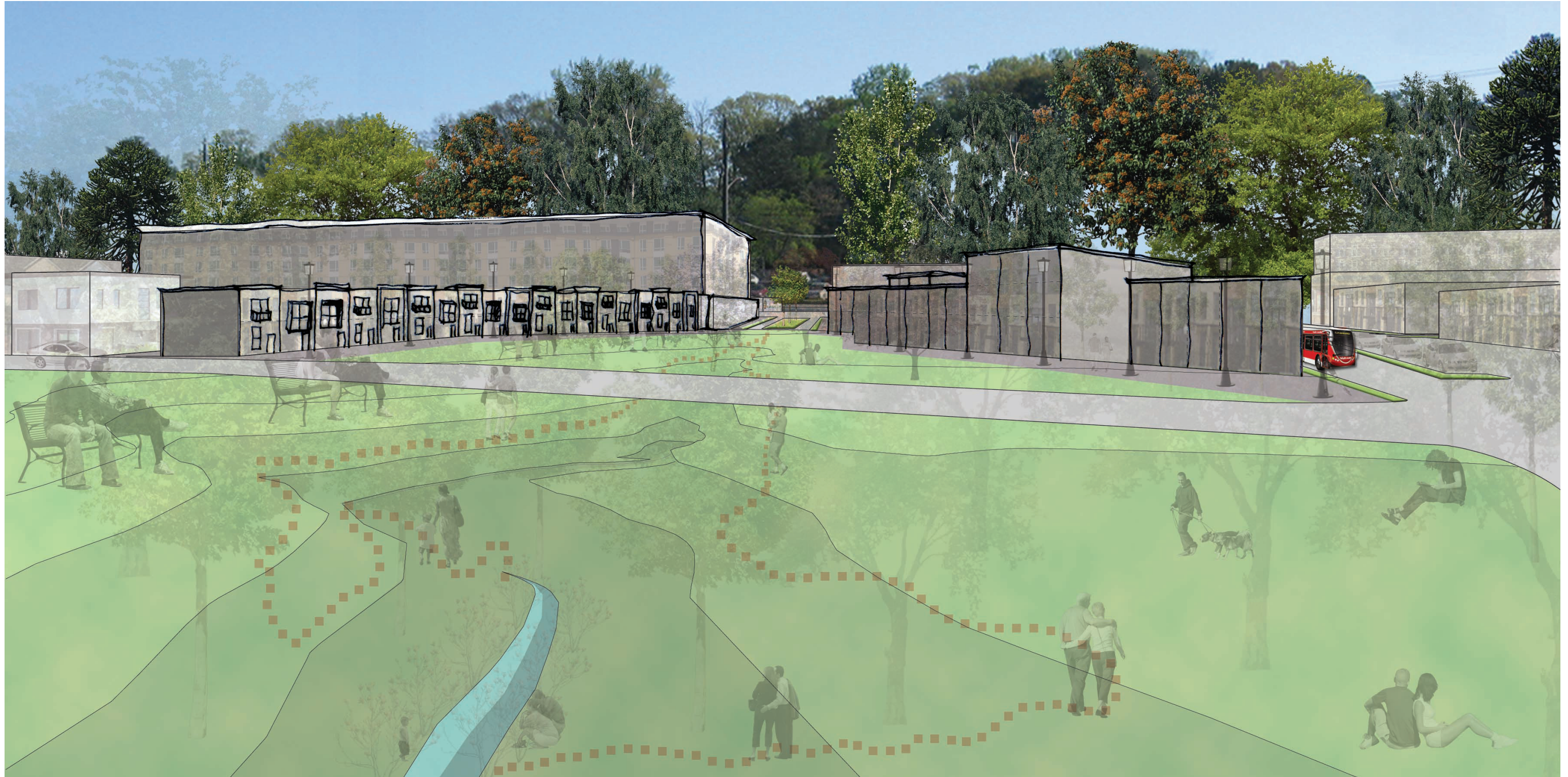
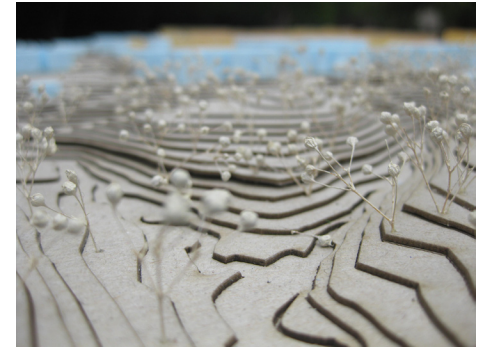


## IMAGINING A BETTER PLACE



## Perspective 2 - DESIGN

In this view one can begin to see how increased attention to the public realm greatly enhances an individual's experience of the space. In addition, one can see how an existing ravine in the site was transformed from a neglected, fenced in area into a popular development feature

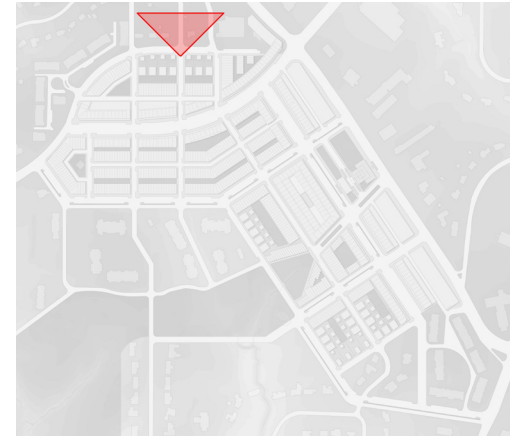


## IMAGINING A BETTER PLACE



### Perspective 3 - DENSITY

In this view one can start to imagine how density and pedestrian infrastructure begin to improve the pedestrian experience as well as transform the existing underutilized retail development into a lively suburban retrofit

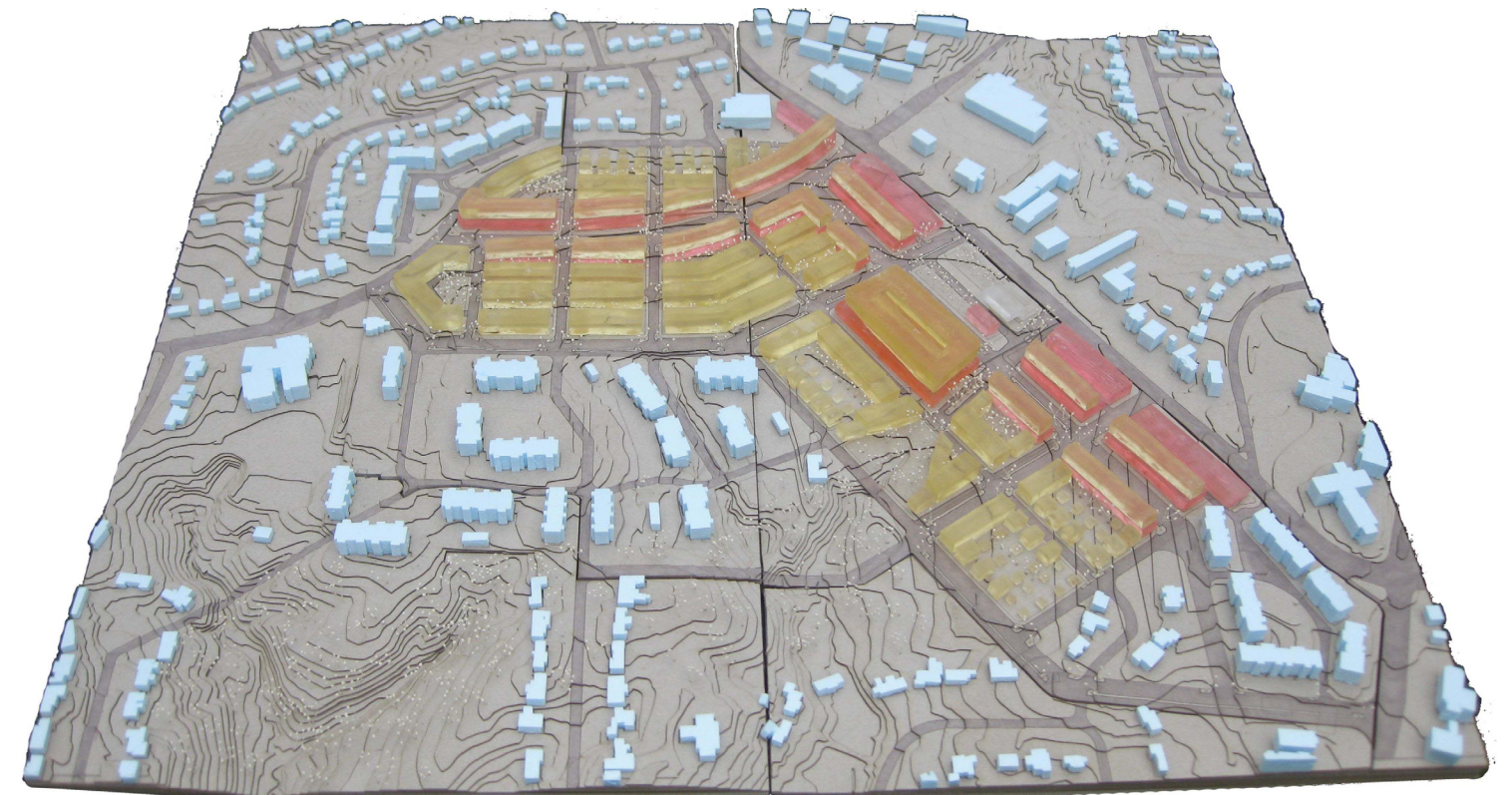
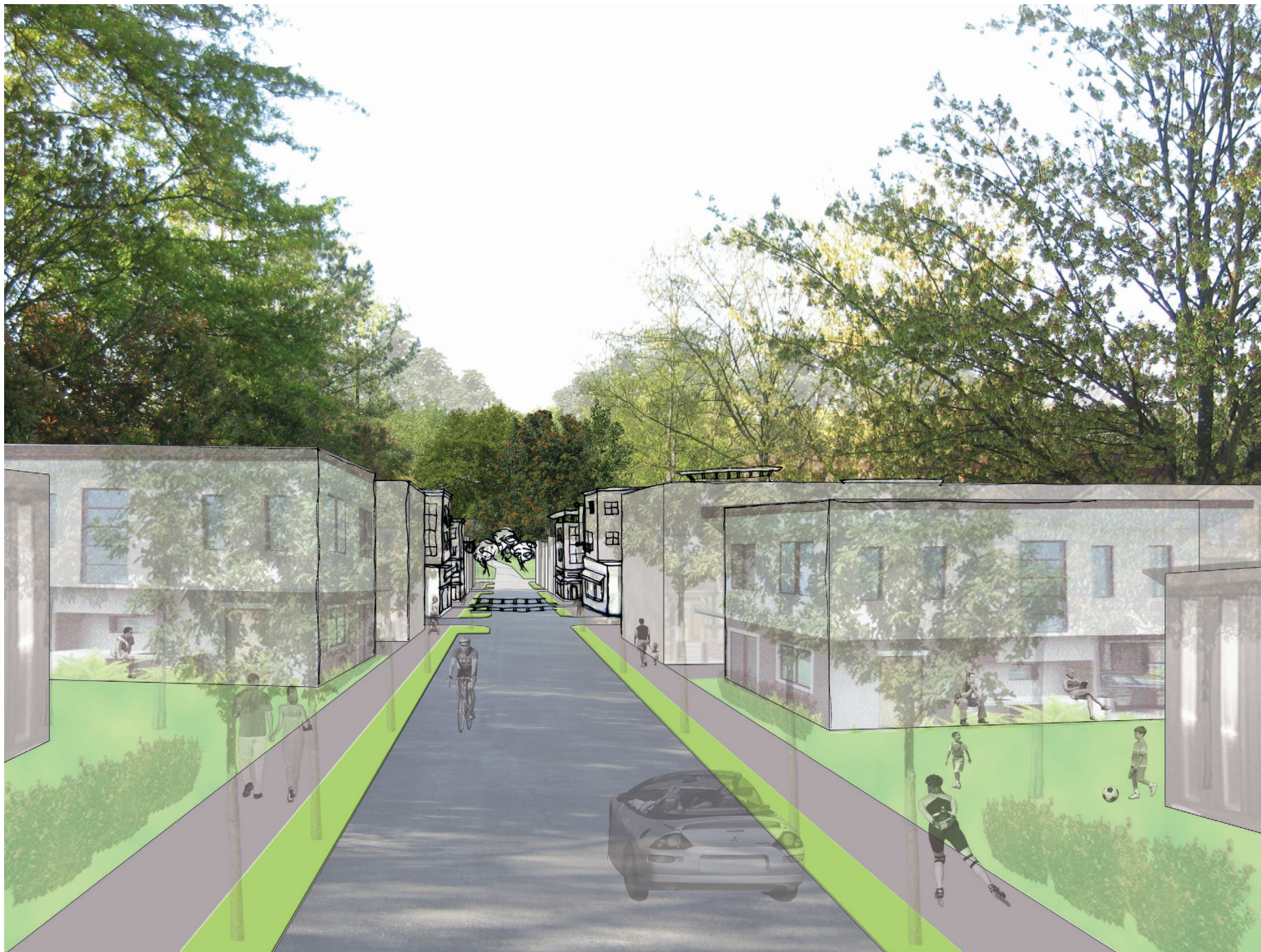


### CONCLUSIONS

My goal for this project was to demonstrate that affordability does not have to be difficult, costly, or architecturally unappealing and the same holds true for public transportation. It was through the investigation into retrofitting the typically suburban Toco Hills shopping Center that I aimed to illuminate my thesis. I proposed that through the extension of transit to suburban areas one could also provide opportunities to also extend affordable housing into otherwise less income-diverse neighborhoods. It is through this integration into a BRT accessible, car-free, mixed-use living development that when combined with, smaller units and an enhanced public realm as well as increased FAR on an underperforming commercial property that one begins to see vastly reduced housing costs in an otherwise non-affordable neighborhood. However, there is only so much a hypothetical project can attain or prove. The research and documentation supports the thesis, but until this project comes to fruition little can be known about its true success, especially in the less quantitative aspects, such as personal experience.

Yet as I embark on my architecture career I hope that the themes of this project stay with me. I hope to continue to strive for equity, both socially and economically. I want to provide people with an architecture that inspires more than awe. An architecture that is socially responsible and culturally sensitive.

Finally, as architects we must be true "stewards of our environment" and lead by example. Sustainable solutions are not just found on green roofs and recycled interiors; they are solutions to problems that improve people's everyday lives whether it is better air quality or better pedestrian networks. But as architects we must understand that to be successful "stewards of the environment" we must consider the social aspects of sustainable design and put these issues at the forefront of our work in order to be truly successful. These are the ideas that I carry forward from this thesis and on into my professional career.





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