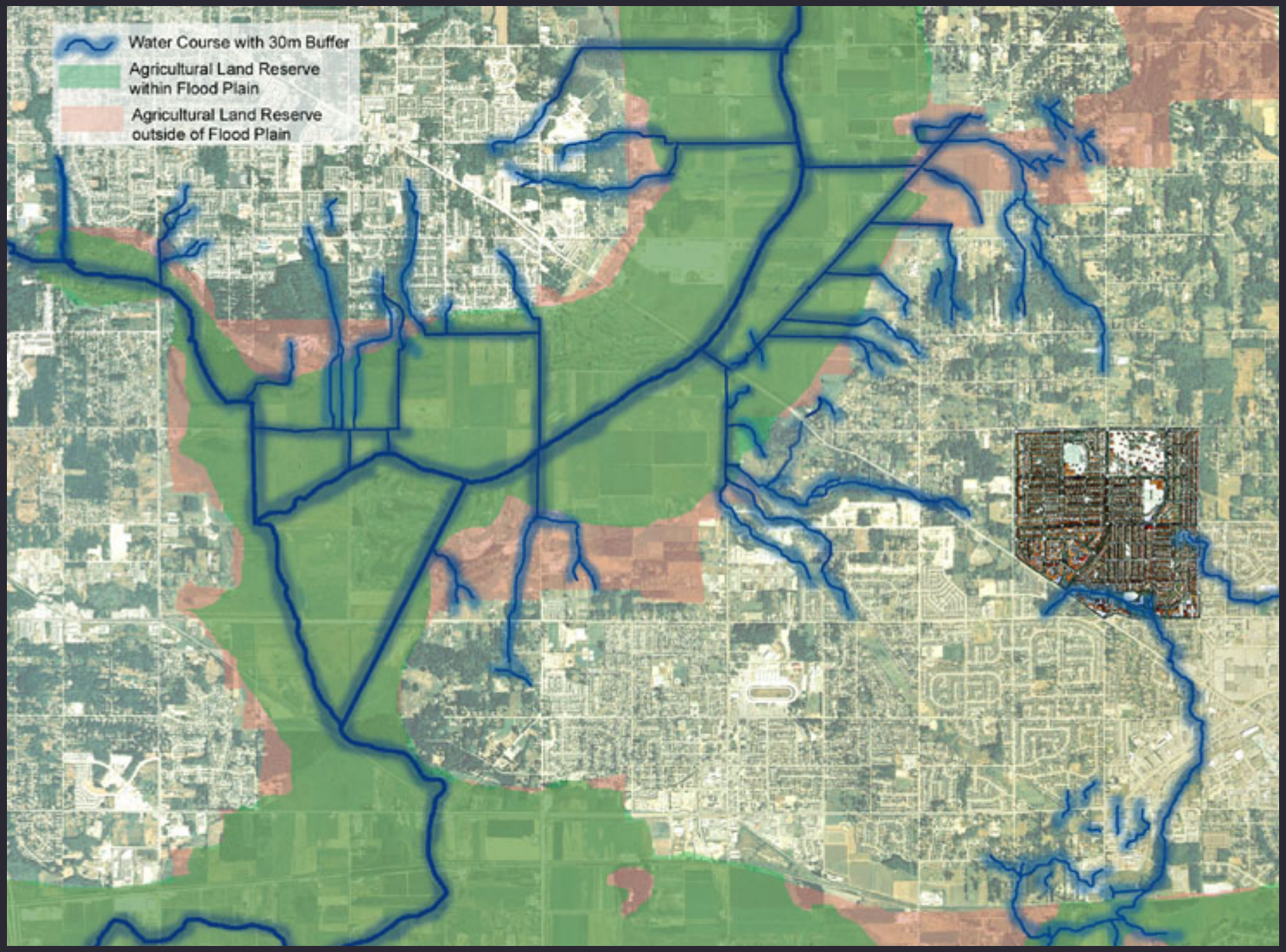
Case Studies for Sustainable Community

East Clayton - Surrey, BC

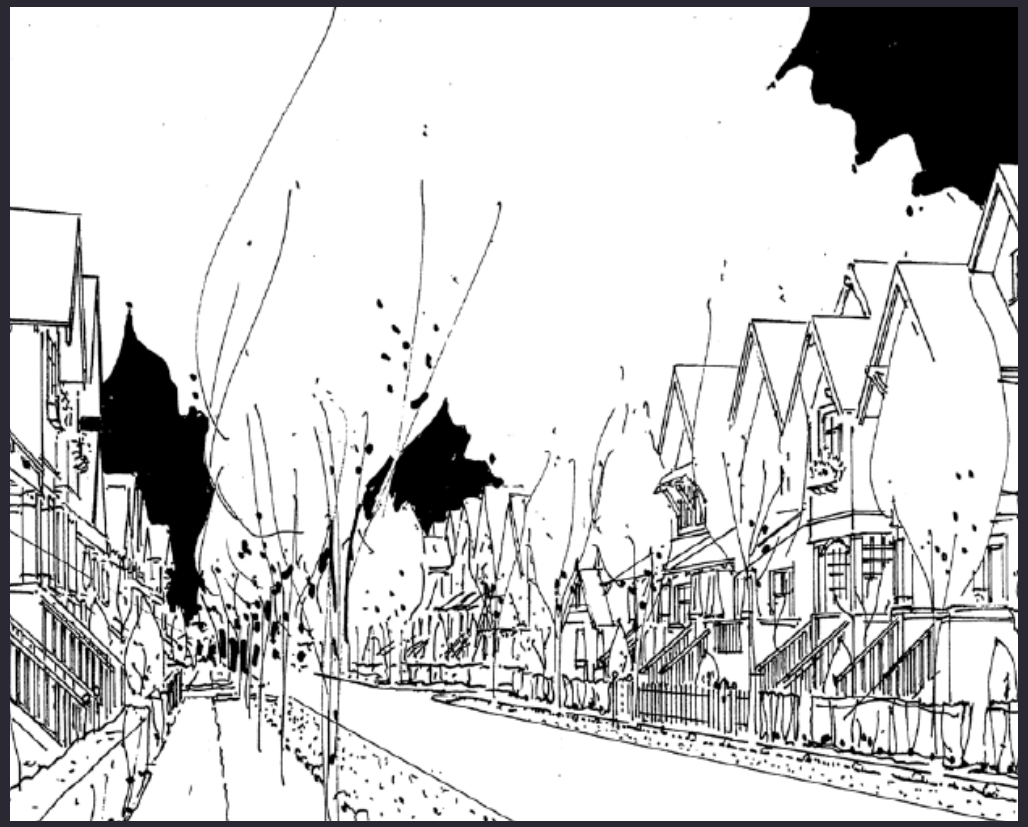


Case Studies for Sustainable Community

The Seven Principles for Sustainable Community Design

1. Conserve land and energy by designing compact walkable neighbourhoods. This will encourage pedestrian activities where basic services are within a five to six minute walk of their homes.

2. Provide different dwelling types (a mix of housing types, including a broad range of densities), in the same neighbourhood and even on the same street.

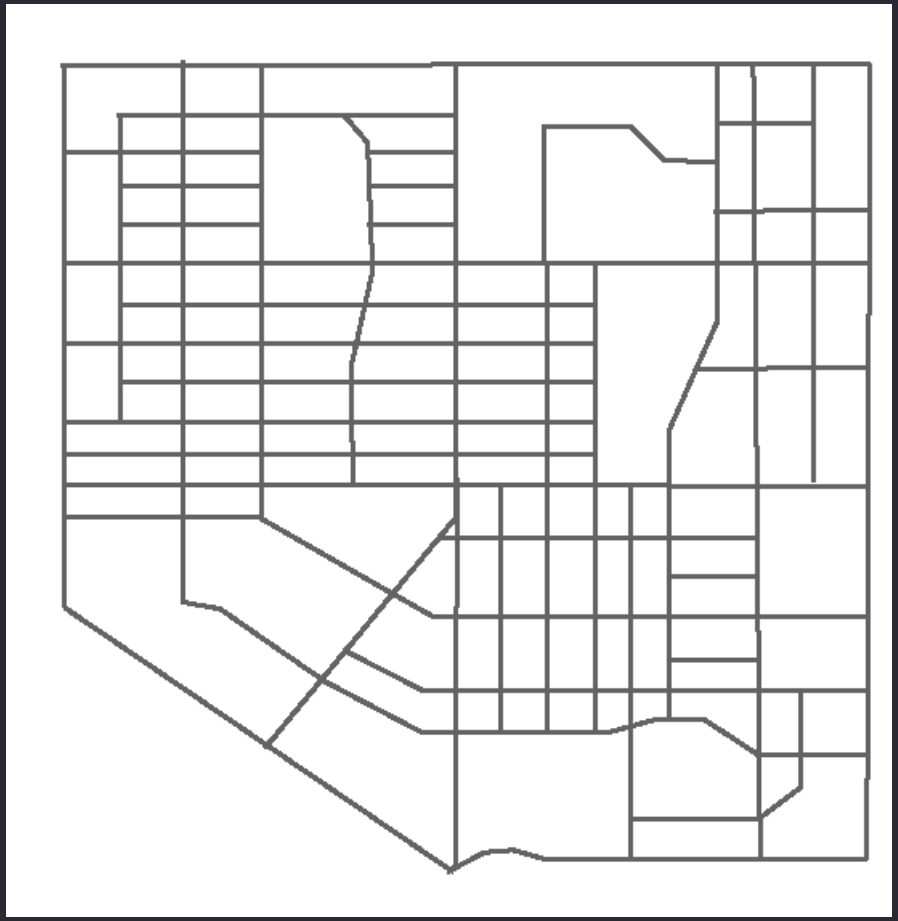


The Seven Principles for Sustainable Community Design

3. Communities are designed for people, therefore, all dwellings should present a friendly face to the street in order to promote social interaction.

4. Ensure that car storage and services are handled at the rear of the dwelling.

5. Provide an Interconnected street network, in a grid or modified grid pattern, to ensure a variety of itineraries and to disperse traffic congestion; and provide public transit to connect with the surrounding region.



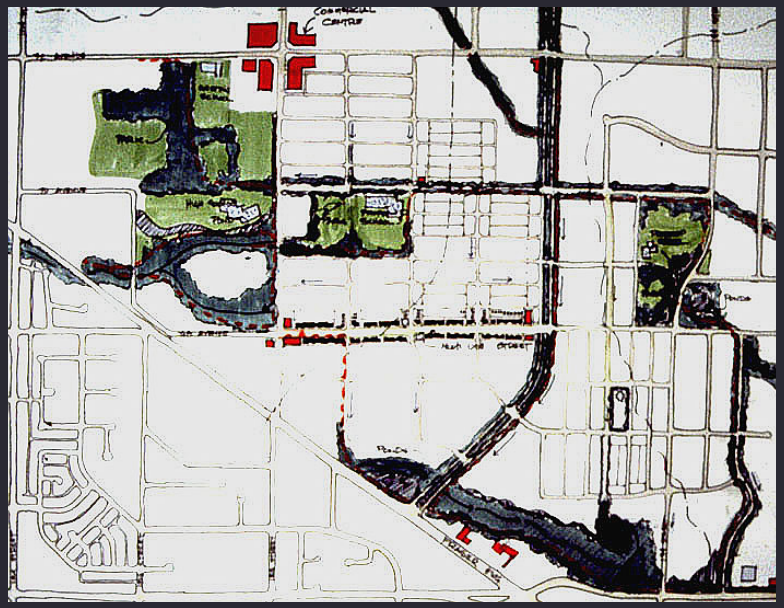
6. Provide narrow streets shaded by rows of trees in order to save costs and to provide a greener, friendlier environment.

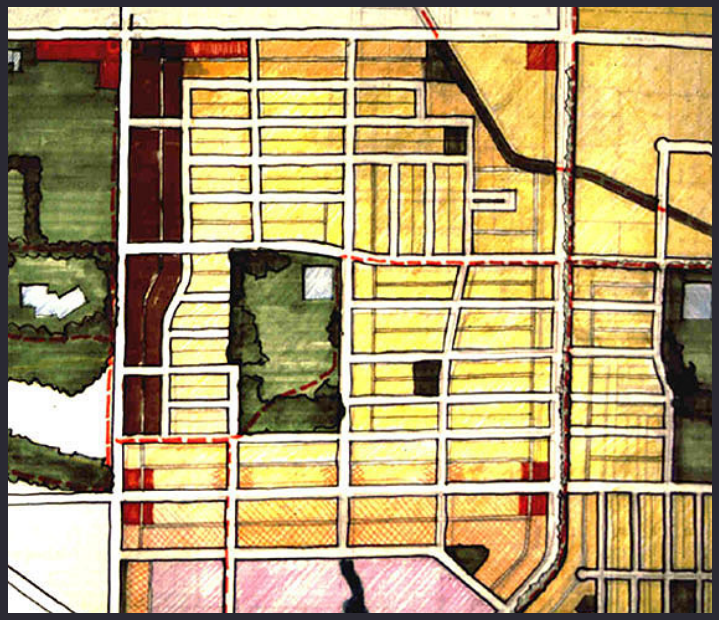
7. Preserve the natural environment and promote natural drainage systems (in which stormwater is held on the surface and permitted to seep naturally into the ground).

Case Studies for Sustainable Community

East Clayton

Designed at "Implementation" Charrette





Case Studies for Sustainable Community

The East Clayton Community Plan

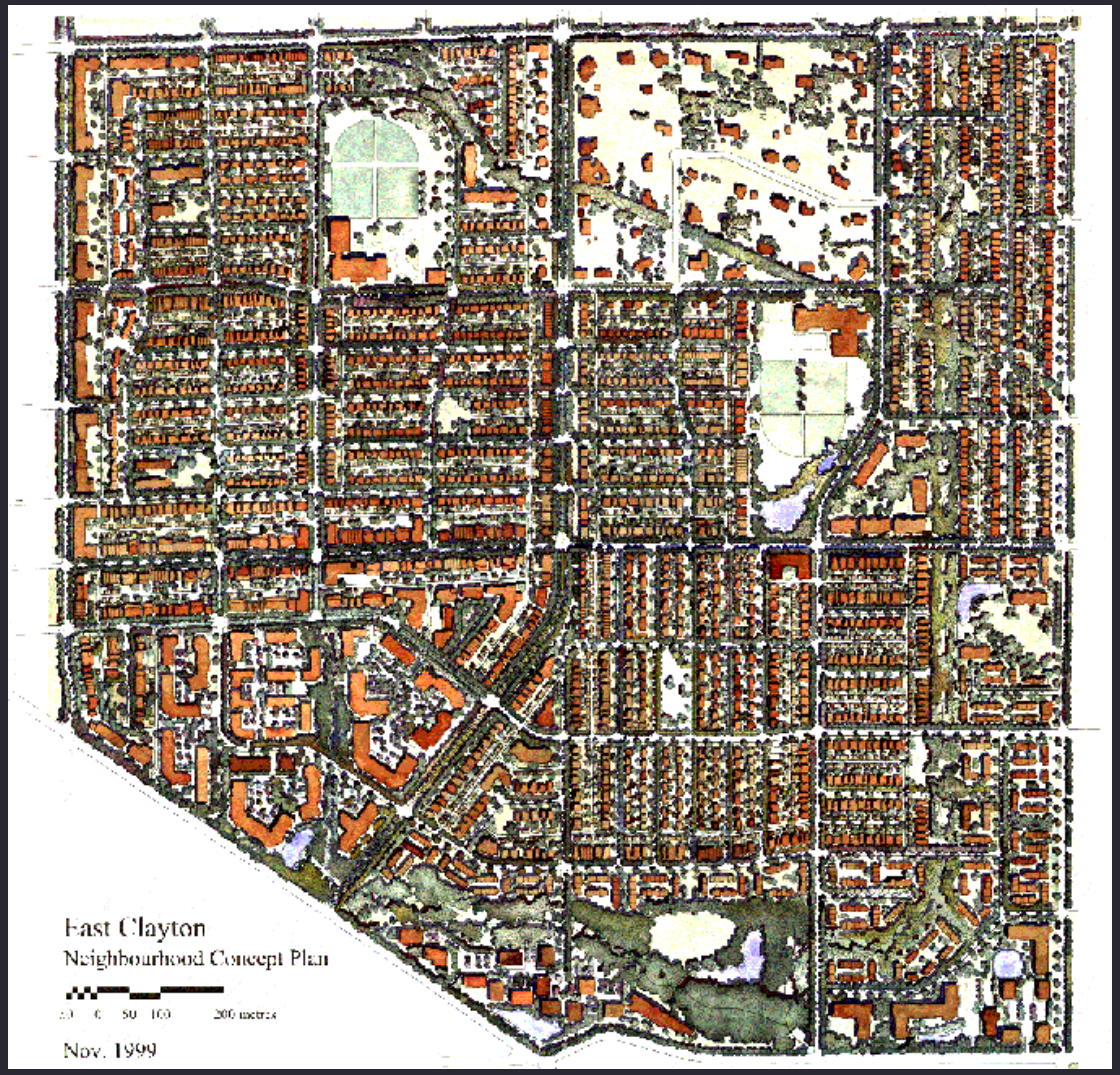
560 acres

5,000 units of housing

Over 5,000 jobs

13,000 residents

20 year build out

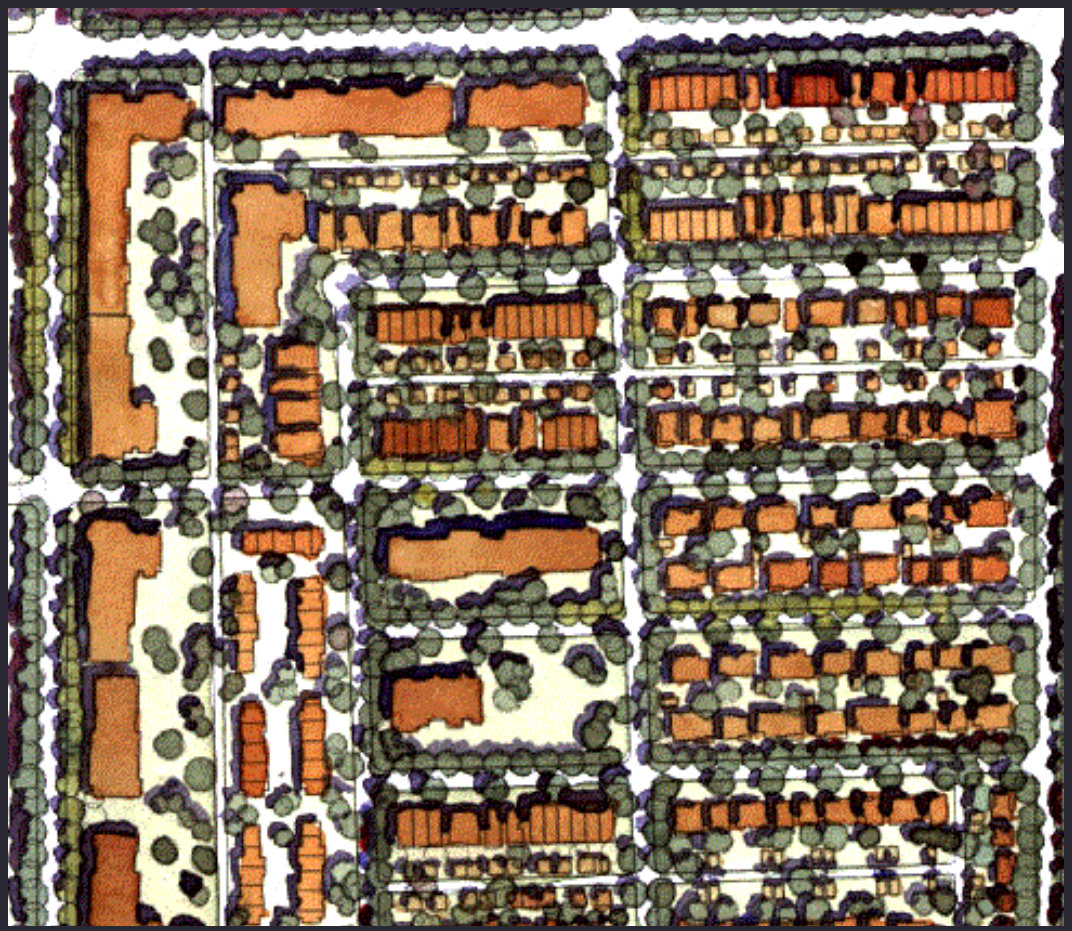


Case Studies for Sustainable Community

The East Clayton Community Plan

45 du/acre

25 du/acre



Mixed use and high density residential

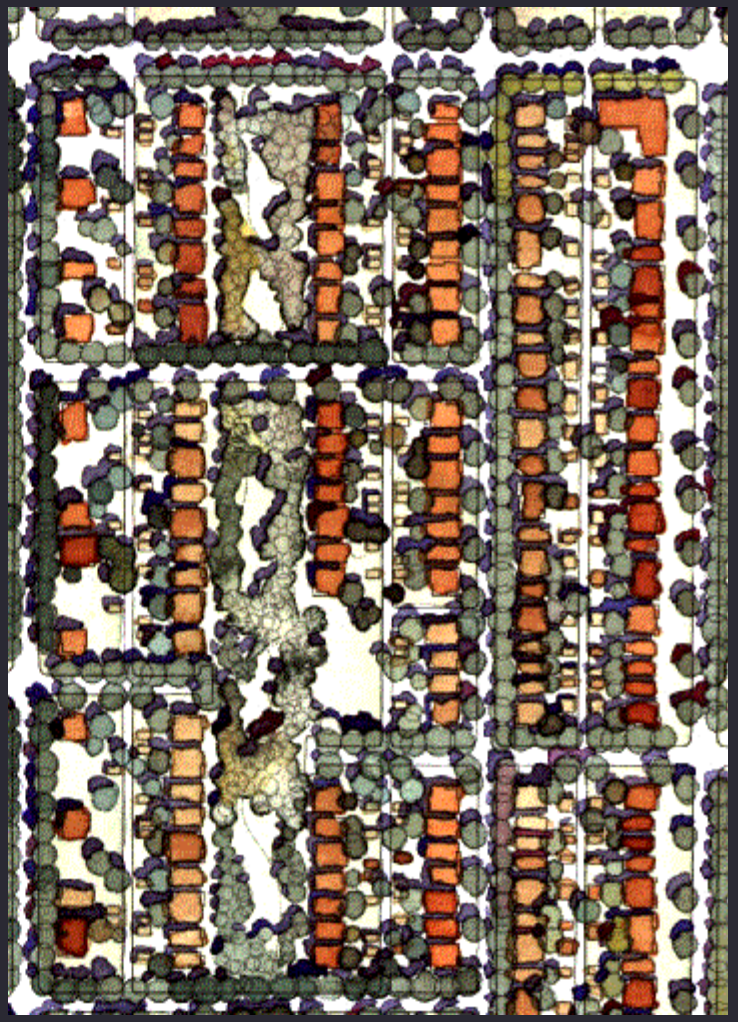
Case Studies for Sustainable Community

The East Clayton Community Plan

15 – 18 du/acre

Neighbourhood commercial with residential above 10 - 20 du/acre)

5 – 8 du/acre



Medium density residential with neighbourhood commercial

Case Studies for Sustainable Community

Office/Business FSR 1

Street friendly, open skin

The East Clayton Community Plan

Business Park

Case Studies for Sustainable Community

Live/Work FSR 1

Work/live FSR 1.5

The East Clayton Community Plan

Live Work…..Work Live

Case Studies for Sustainable Community

The East Clayton Community Plan

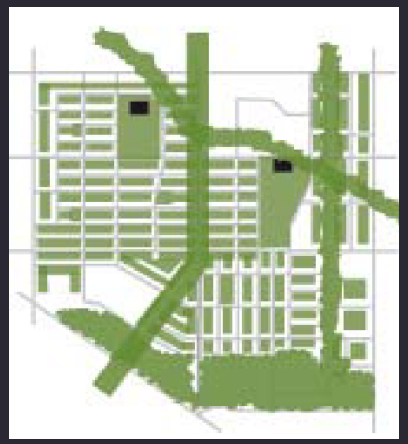
Highway oriented commercial

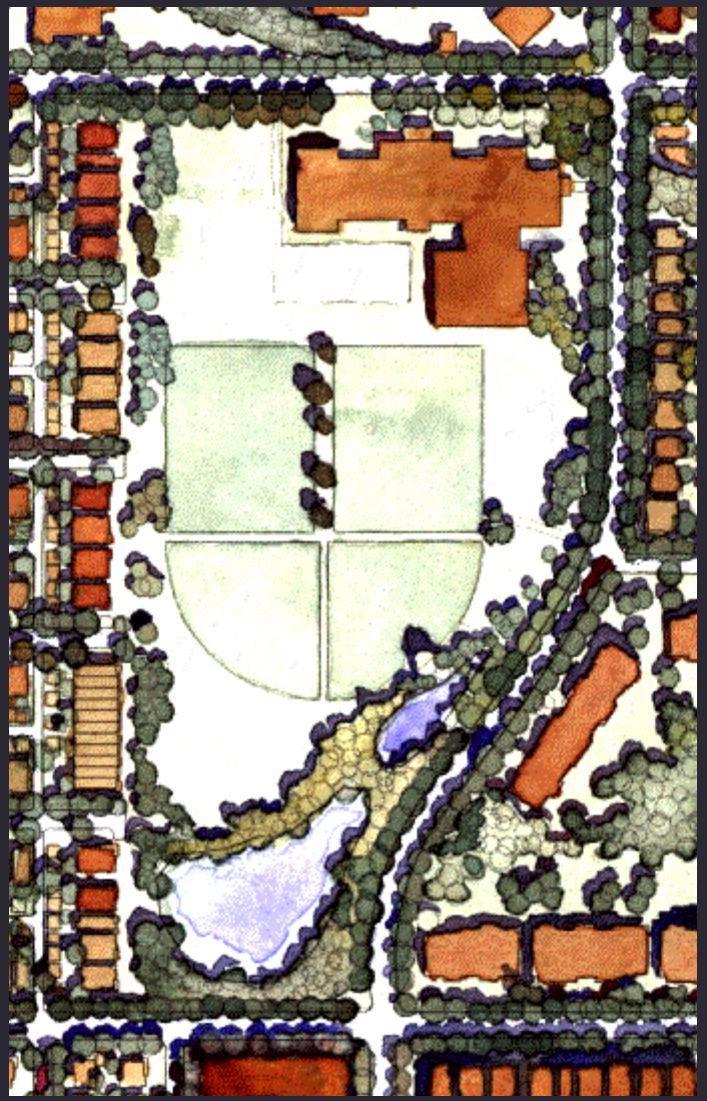
1 and 2 storey commercial - .3 to .6 FSR

Case Studies for Sustainable Community

The East Clayton Green Infrastructure Plan

School Sites

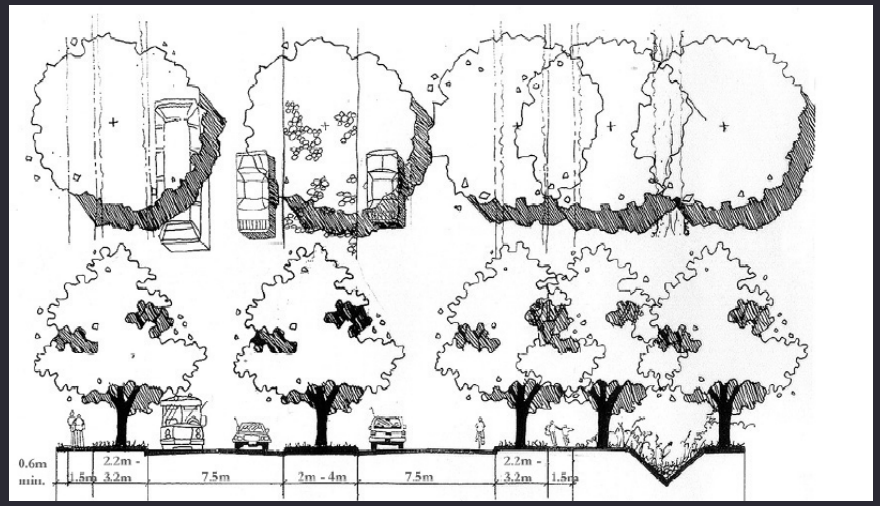




Case Studies for Sustainable Community

The East Clayton Green Infrastructure Plan

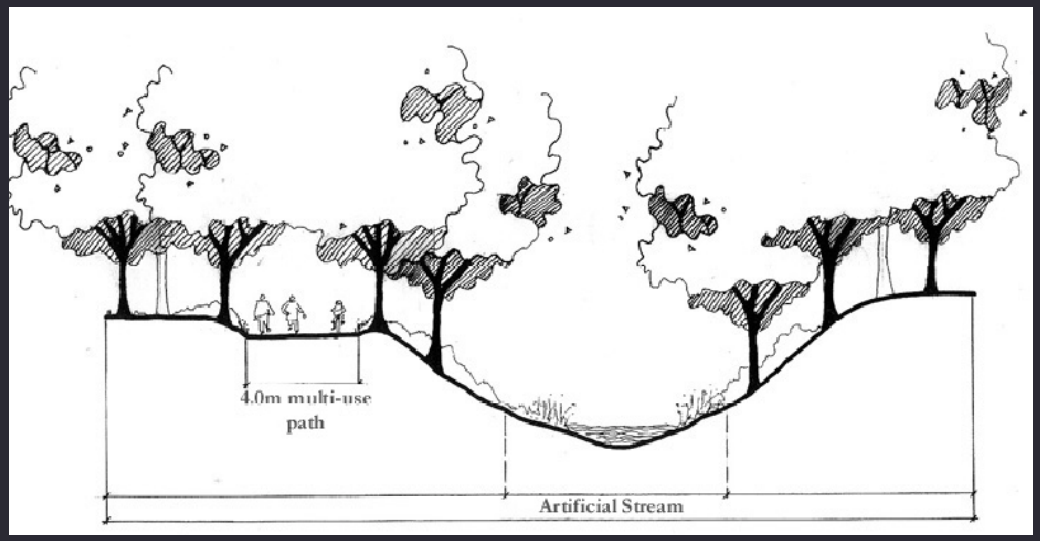
Riparian Parkways

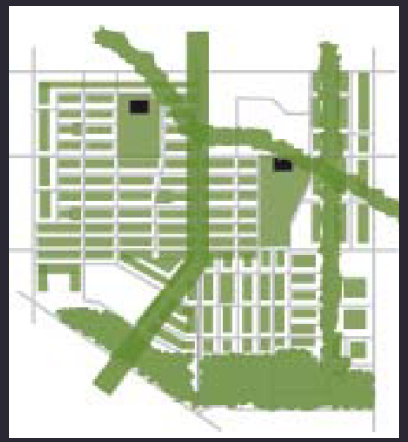


Case Studies for Sustainable Community

The East Clayton Green Infrastructure Plan

Car Free Greenways

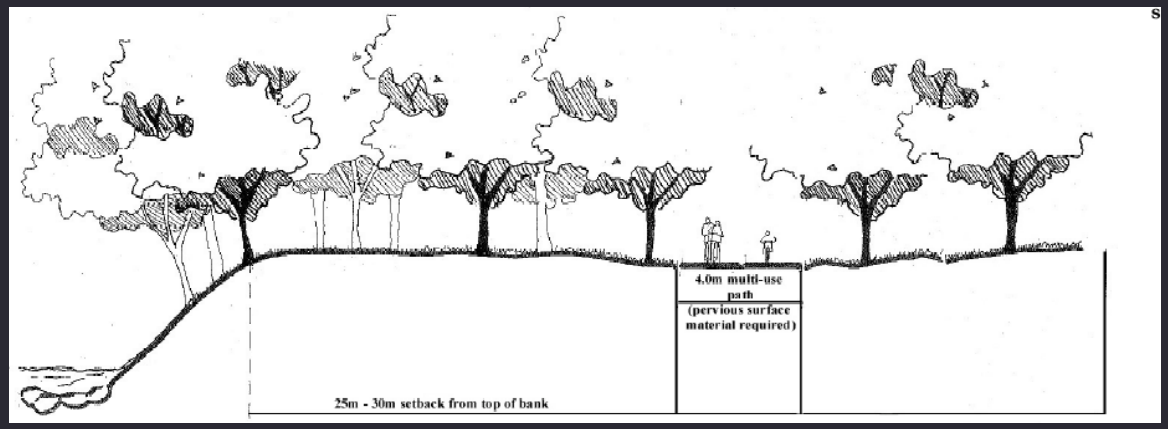


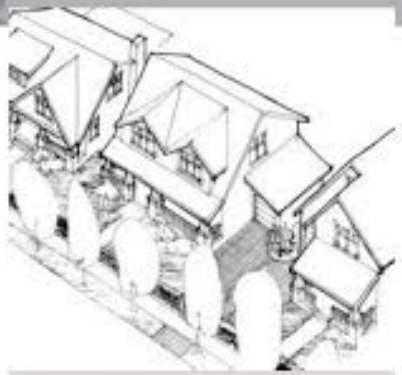
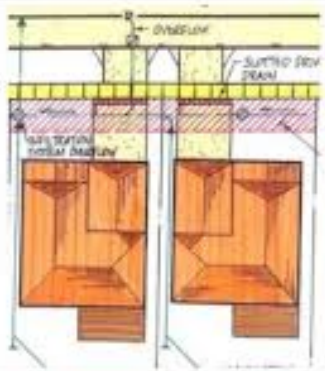


Case Studies for Sustainable Community

The East Clayton Green Infrastructure Plan

Protected Riparian Zones



NCP OBJECTIVES	PROJECT RESULTS	COMMENTS/LESSONS
1 Front yard setbacks should be reduced to 4 meters for single family lots and elevated front porches should be encouraged.	Achieved, as seen in picture above, 4 meter standard setbacks have been followed and front porches included.	•Residential development has taken place within the RF-12 Zone, which allows 4 meter setbacks, front porches and a further front setback of 2 meters in possible. •RF-12 also requires that front garages be designed to be ancillary in the overall house design, and a 2 meter setback was enforced for front access garages from the primary facade of a house.
2  For blocks with no lanes, shared driveways should be provided to reduce the number of curb cuts.	 Partially achieved; for blocks with no lanes, it was decided that driveways would instead by paired.	•Although paired driveways are a departure from shared driveways, they continue to minimize curb cuts. •The decision to provide paired instead of shared driveways was an attempt by the developer to compensate for the percieved risk involved in reduced front setbacks and lot sizes. •Success in sales so far, over 100 lots sold since January 2003, has encouraged developers in future phases to accept universal lane access and will eliminate environmental, social and transportation safety issues consequent to driveways.

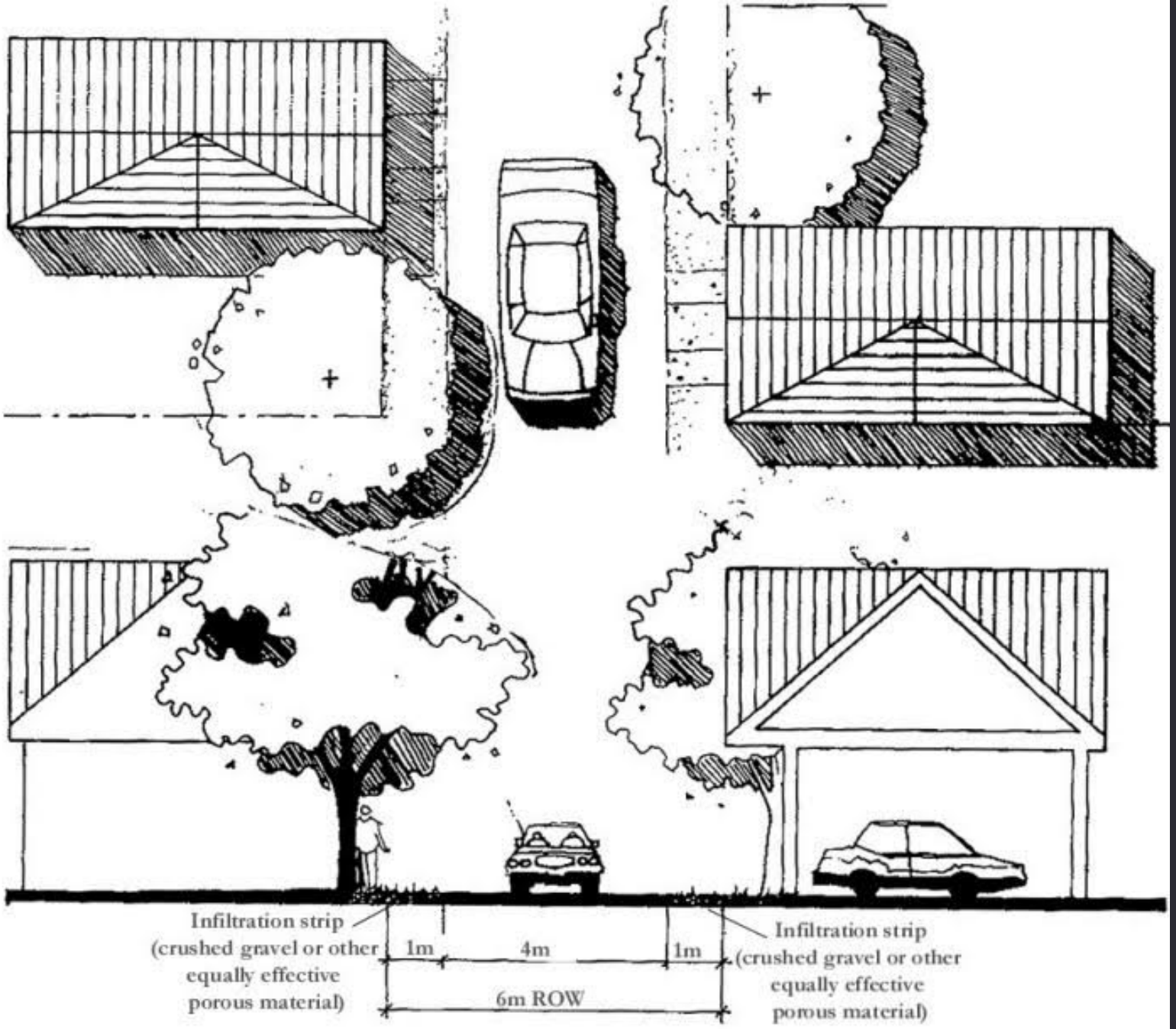
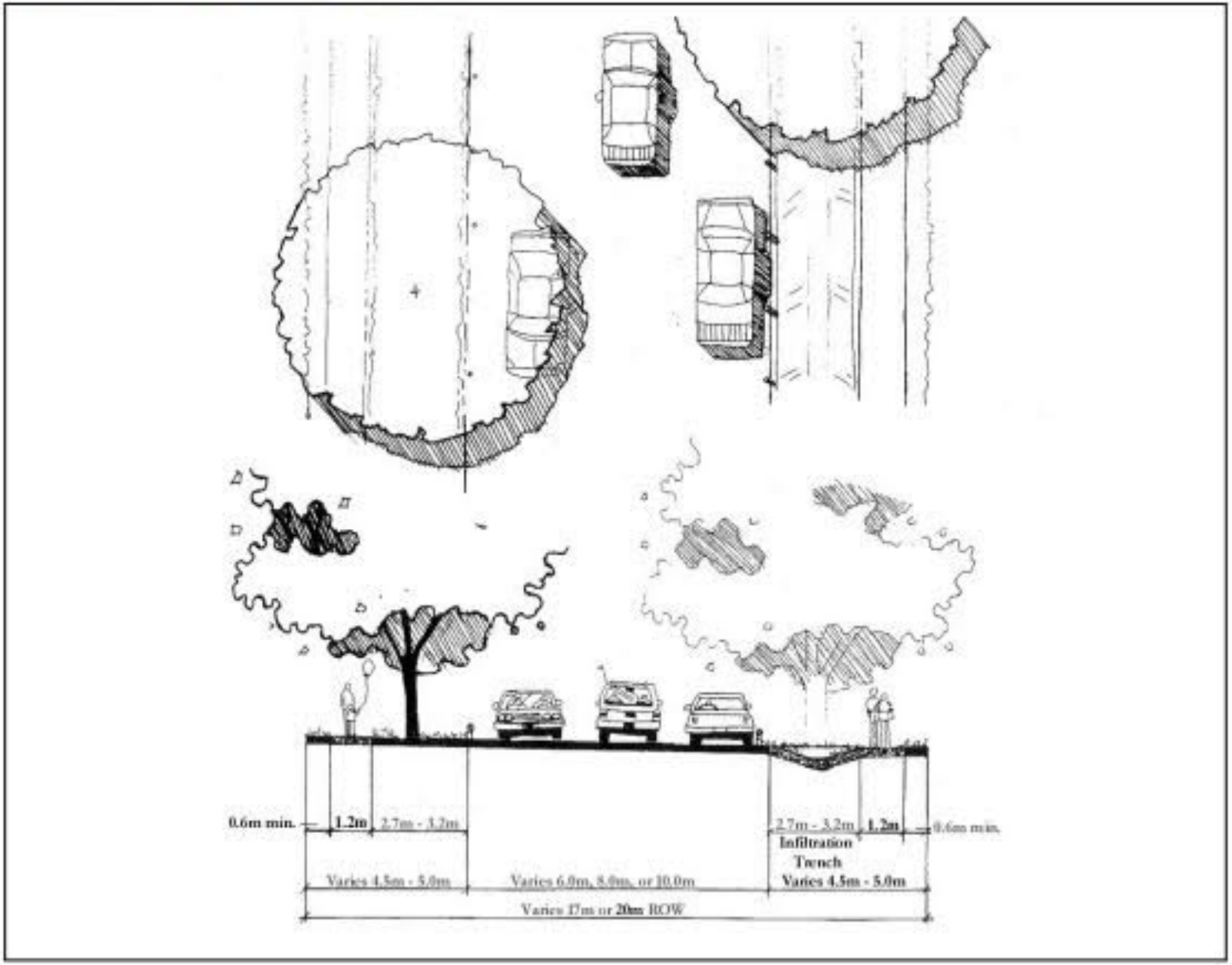


Diagram of rear lanes to be integrated into community.

Figure 5.2.3.1 Local Residential Road



189
69

TUTORING

Units
37-45

East Clayton

Sara Barron
PhD candidate
Forest Resources Management
University of British Columbia

Suburban
dreams

landuse

East Clayton Plan Area

240

High density

Med-high density

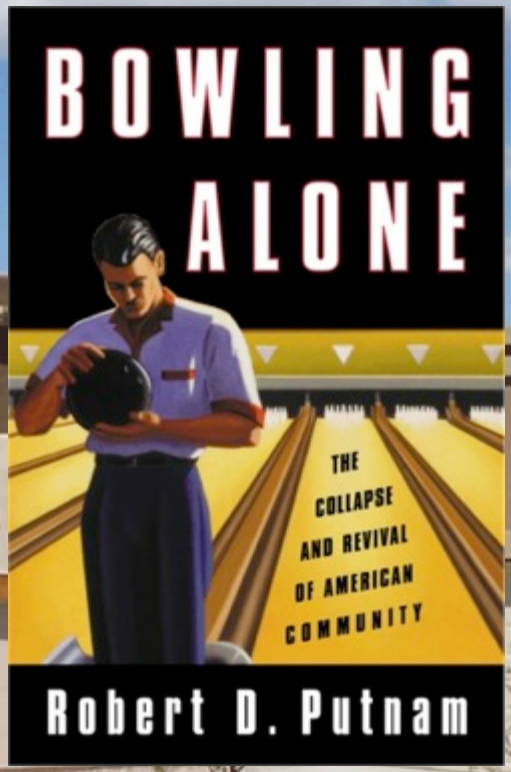
Medium density

Low density

1/2 acre

www.pinchot.org

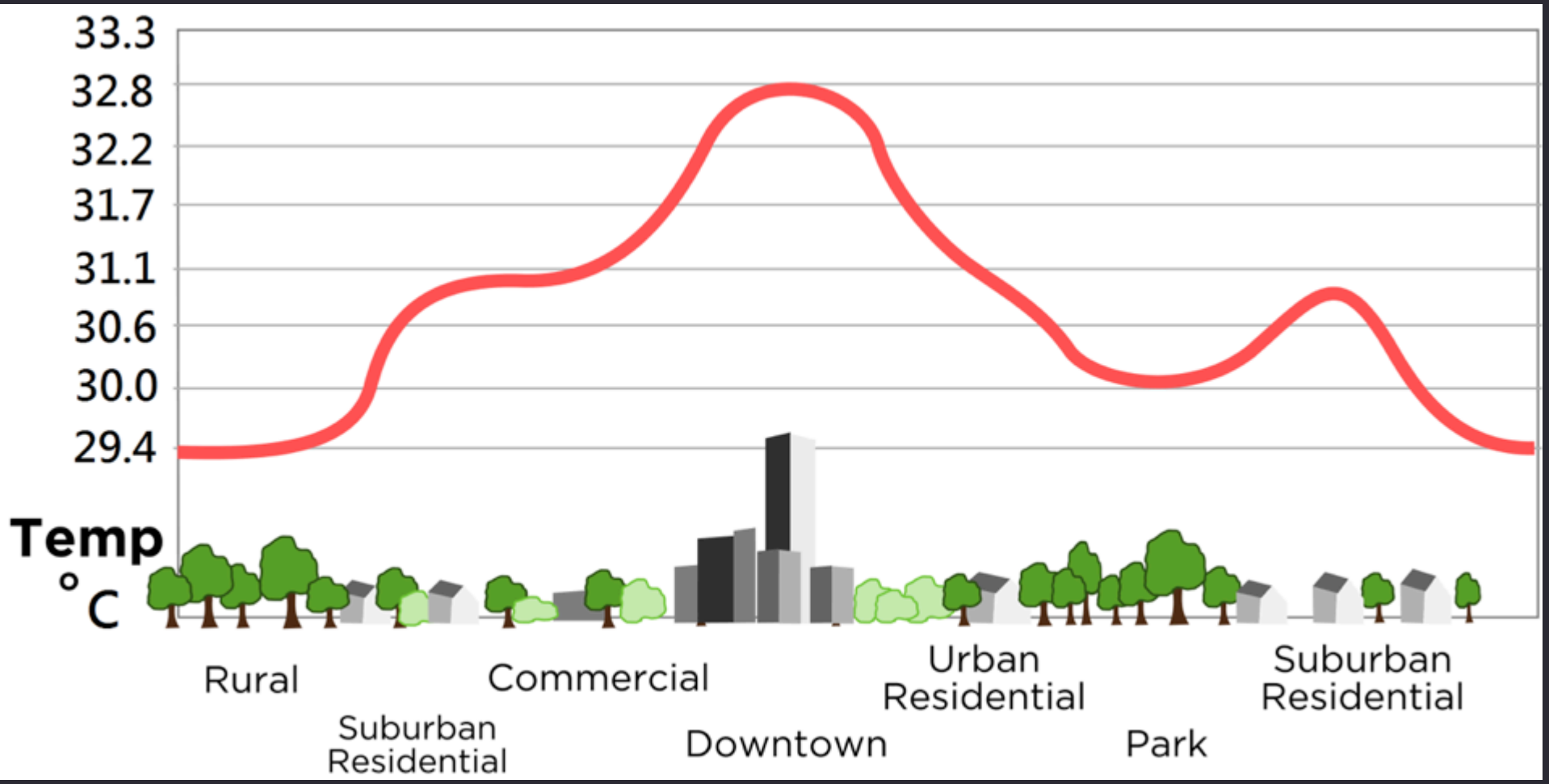
loneliness



Santa Fe
New Mexico

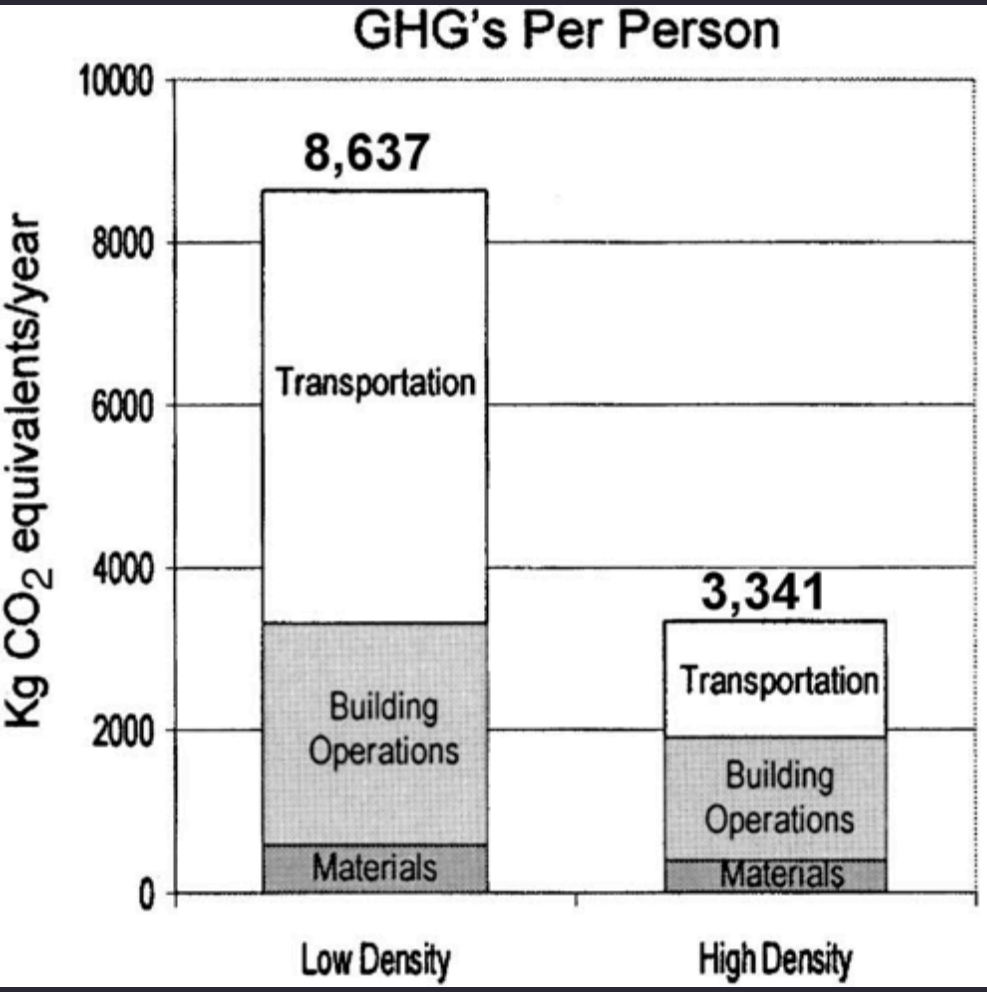
loneliness

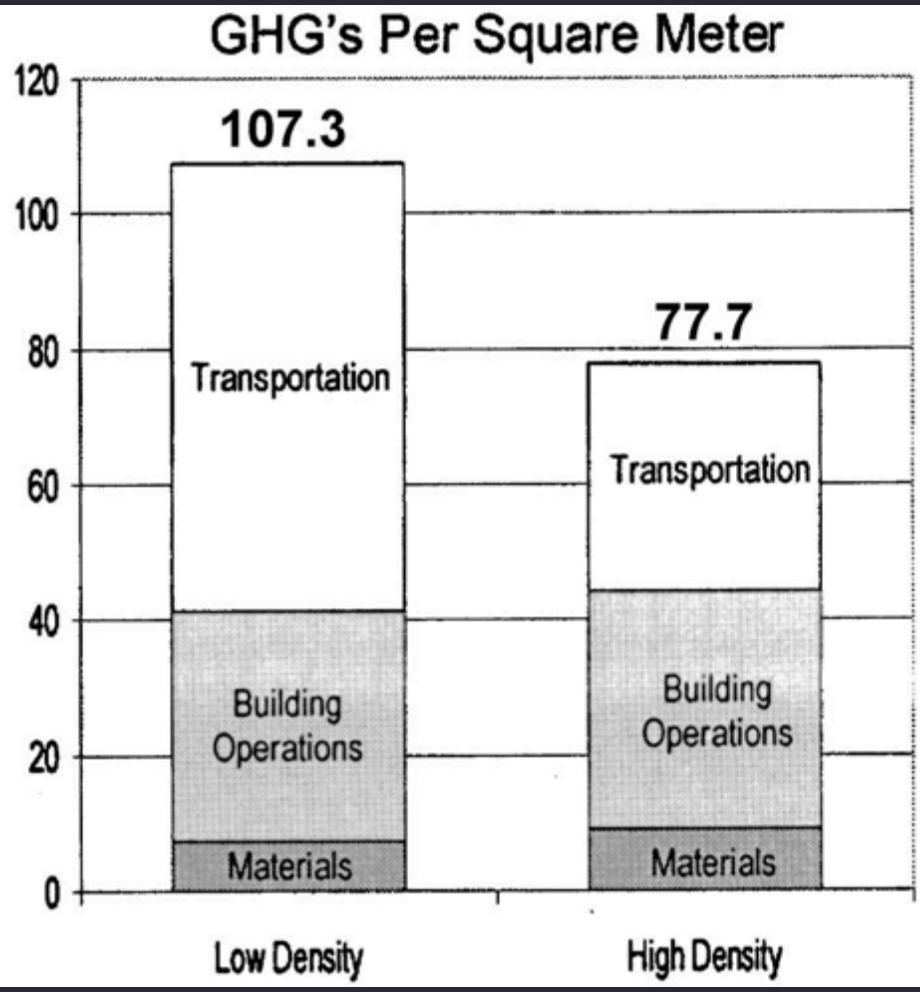
heat islands



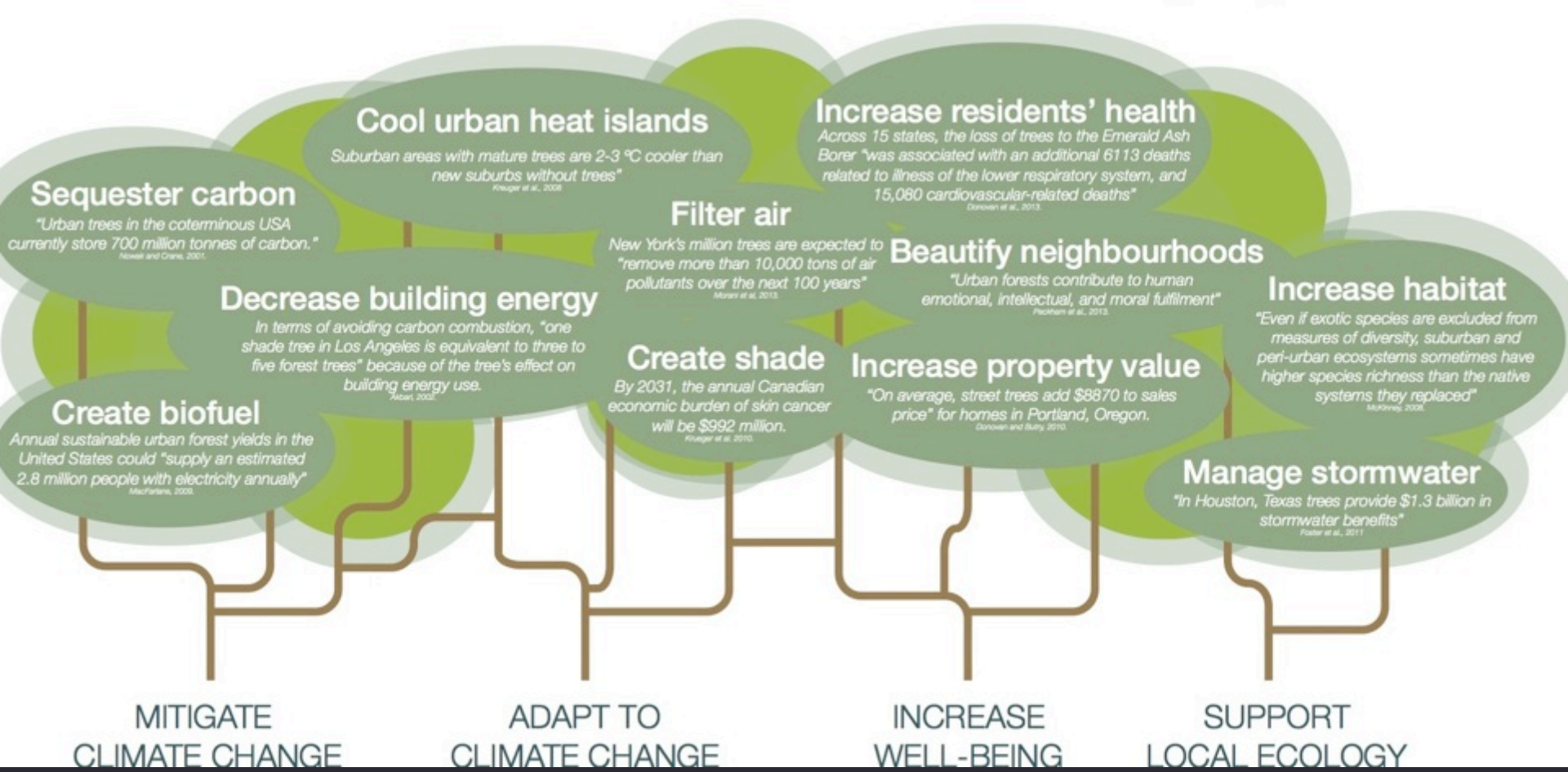
Source: National Oceanic and Atmospheric Administrati

pollution

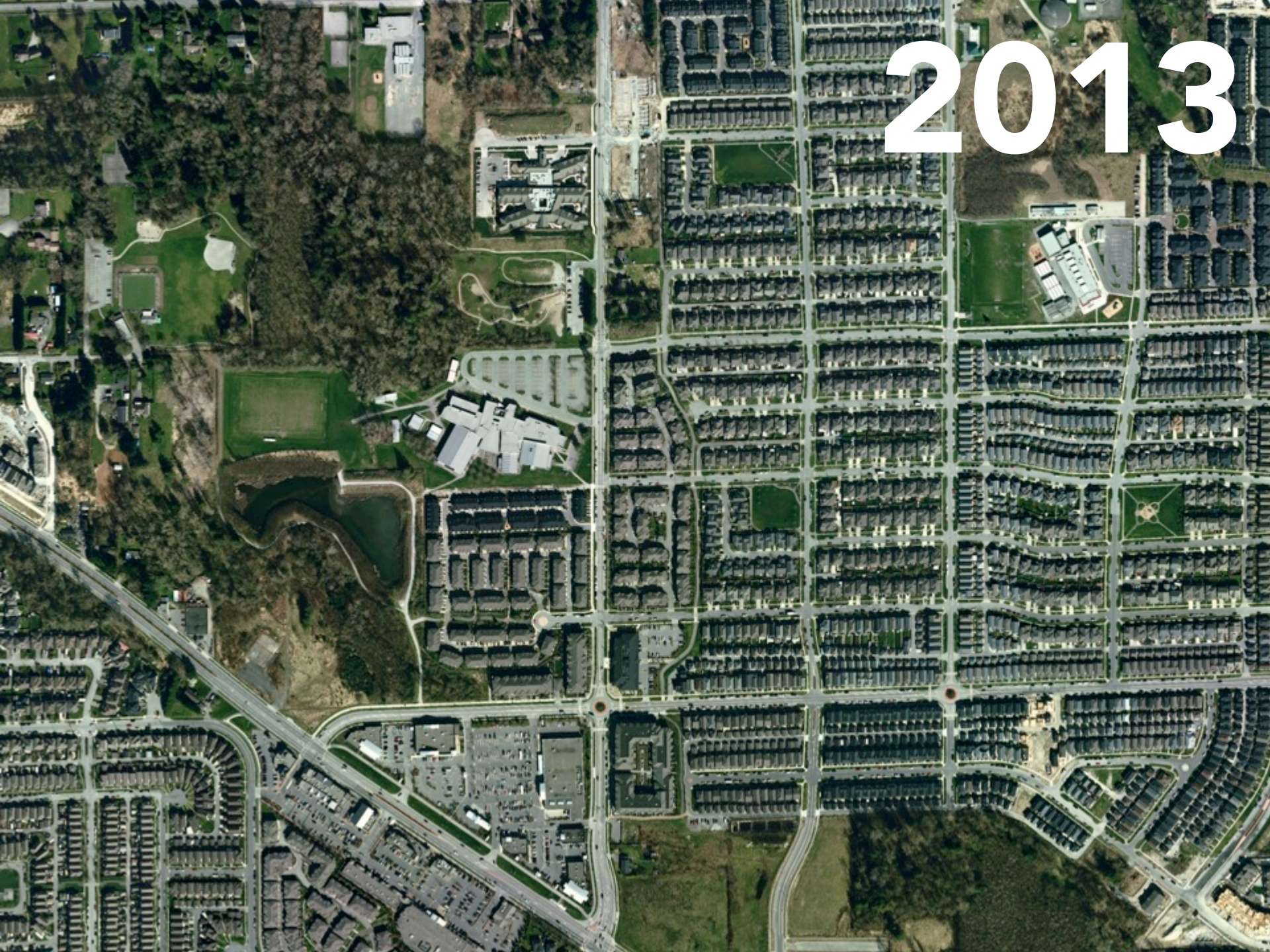

GHG's Per Person
Kg CO_2 equivalents/year
10000
8000
6000
4000
2000
0
8,637
Transportation
Building Operations
Materials
3,341
Transportation
Building Operations
Materials
Low Density
High Density


GHG's Per Square Meter
120
100
80
60
40
20
0
107.3
Transportation
Building Operations
Materials
77.7
Transportation
Building Operations
Materials
Low Density
High Density

Suburban forests



2001


2013

Preferences

Preferences

Methods: interviews & focus groups

Findings:

- Residents prefer stands of trees, mature trees, and native trees
- Current conditions don't meet these values

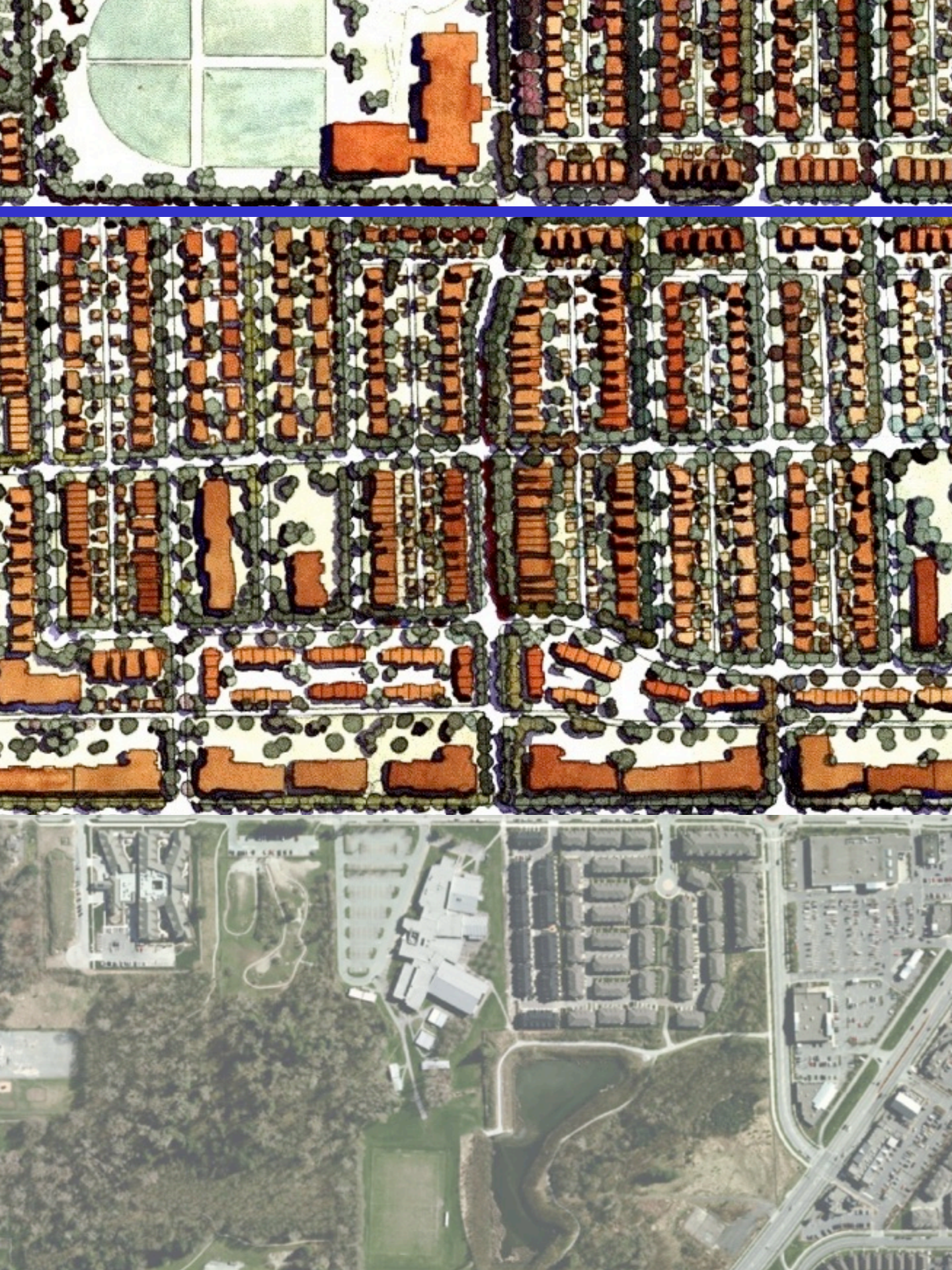
Interviews

"Do you see any pine trees now? This place used to be full of pine trees"

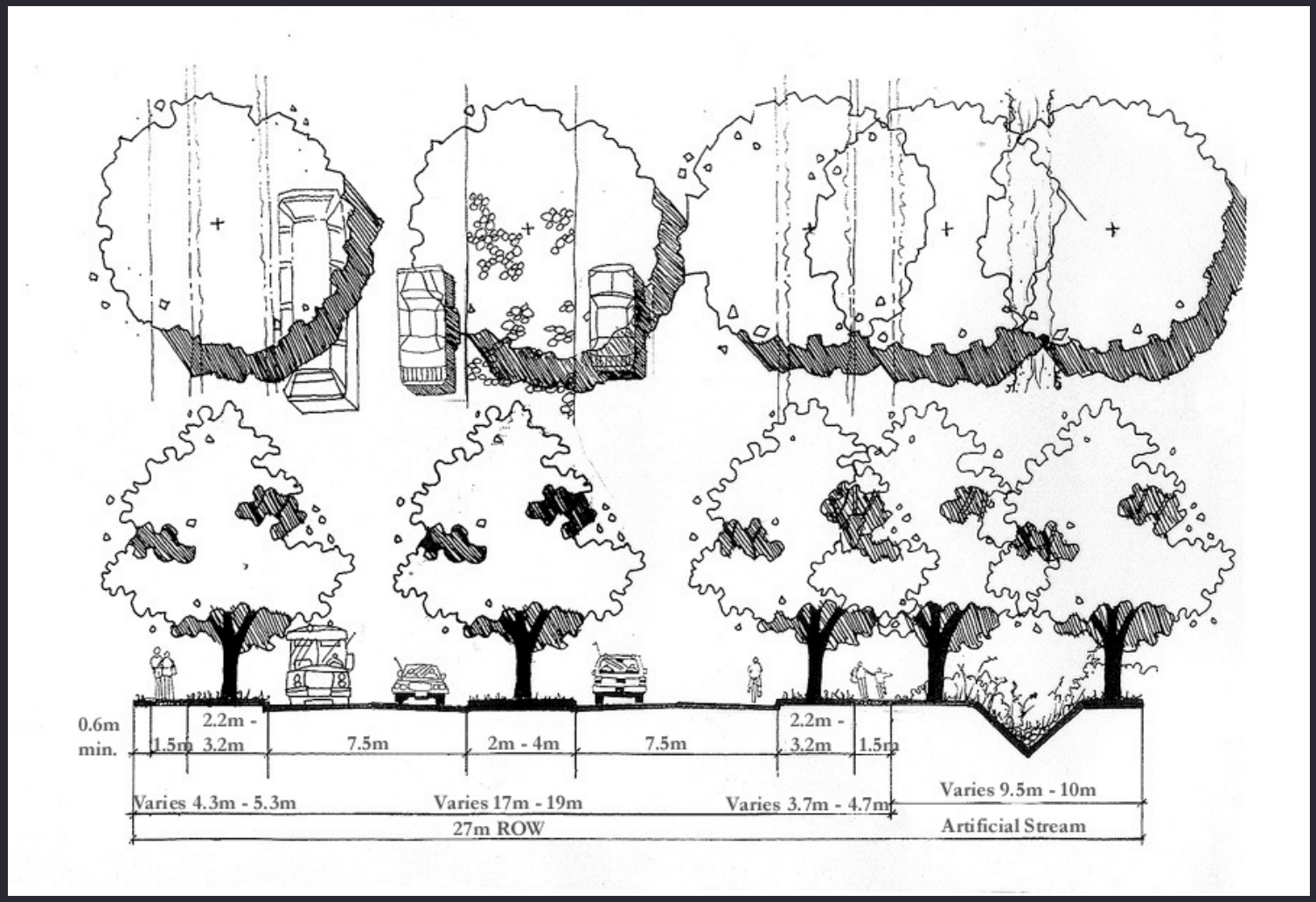
"When Clayton was forested, there were occasional magnificent fir trees. One was left standing at the elementary school site, but when the school went in, they took out the tree. I guess it was a safety issue because of the kids."*

*This particular tree was mentioned by 2 residents

Stands
of trees

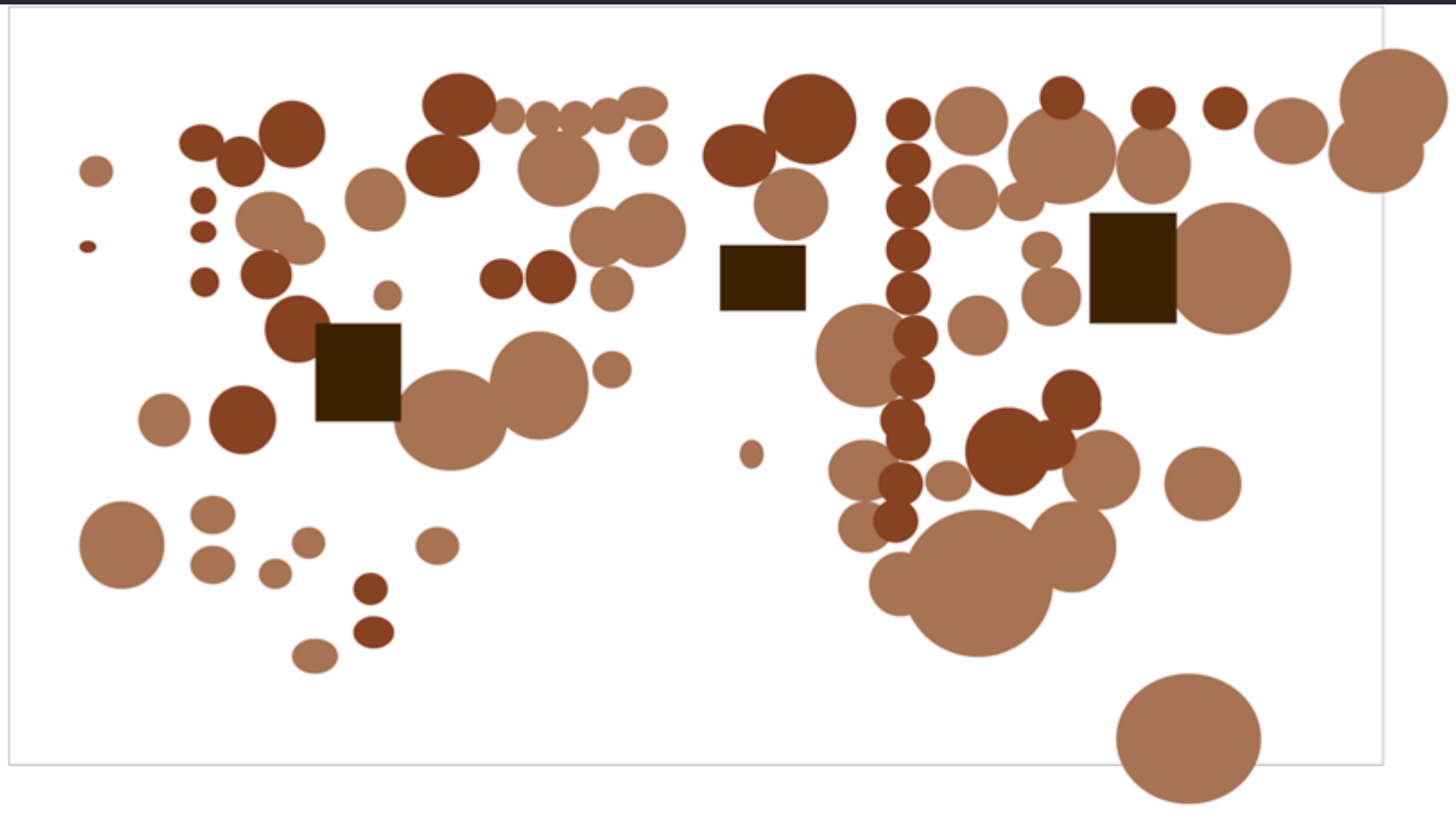


Below: **Riparian Parkway Greenway. An artificial stream located in boulevard, provides habitat and biofiltration of surface water.**



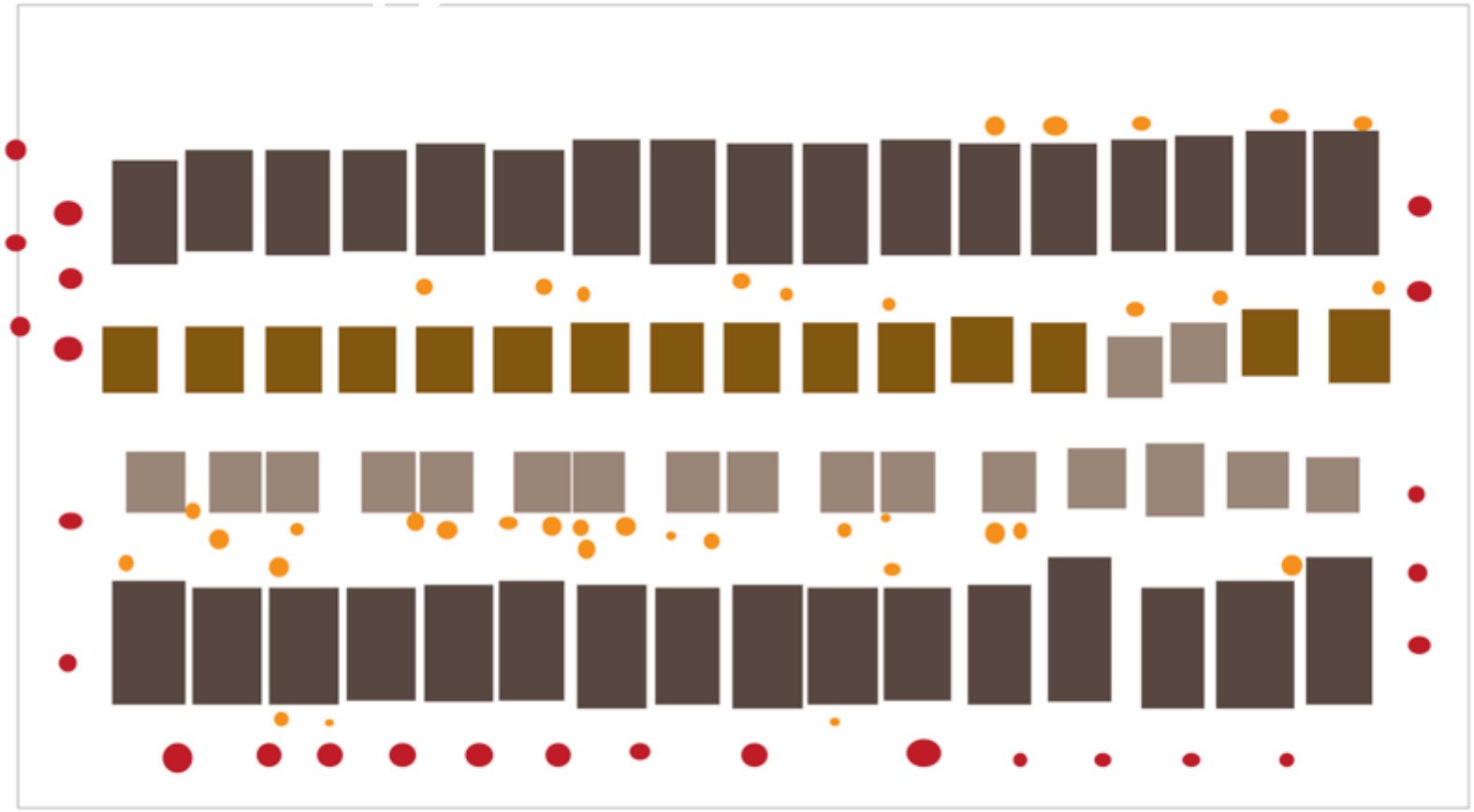
Mature trees

2004 canopy



Current canopy

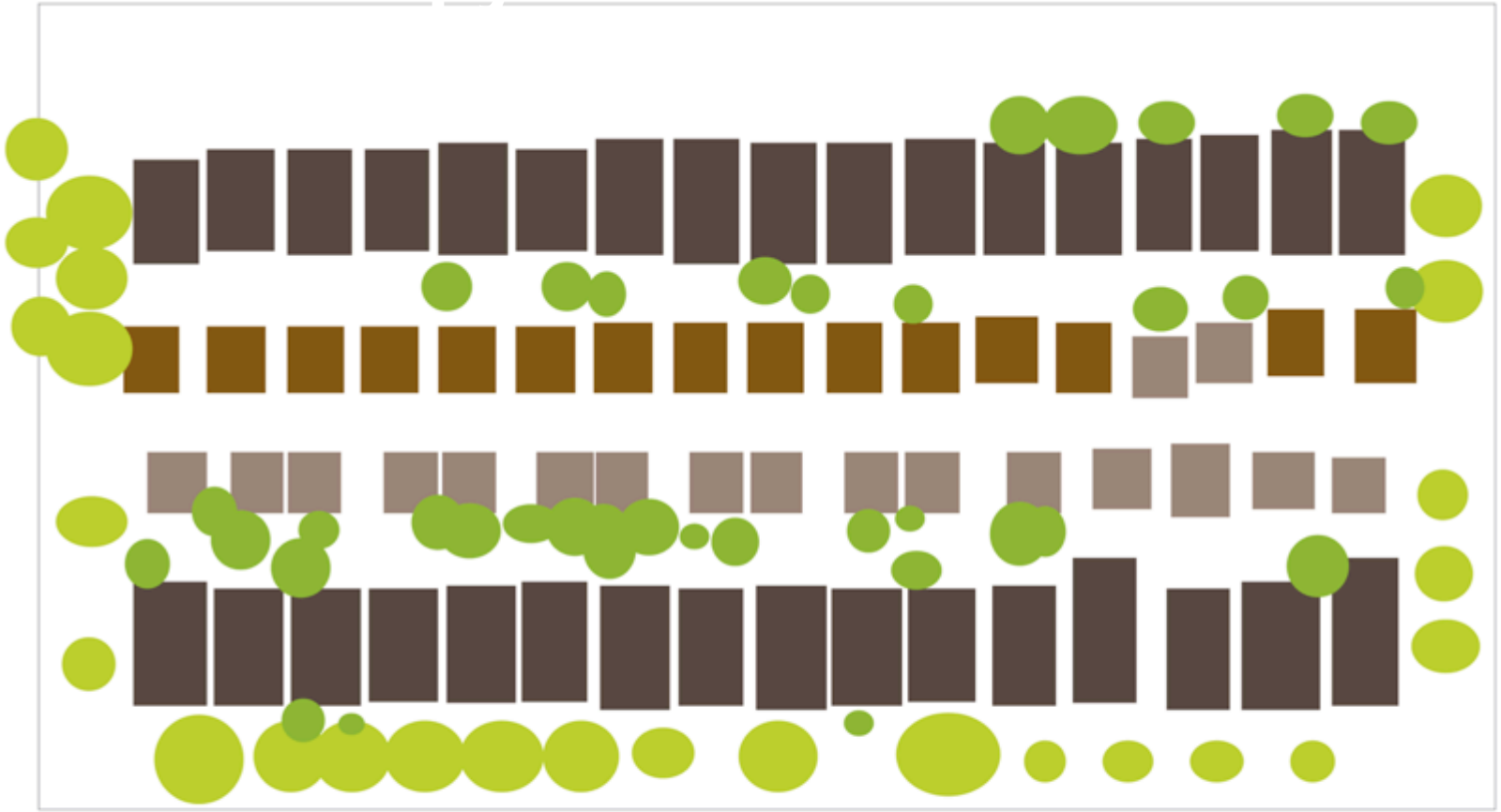
2013 canopy



Population: 149
Trees: 63 ~ 6-7 years old

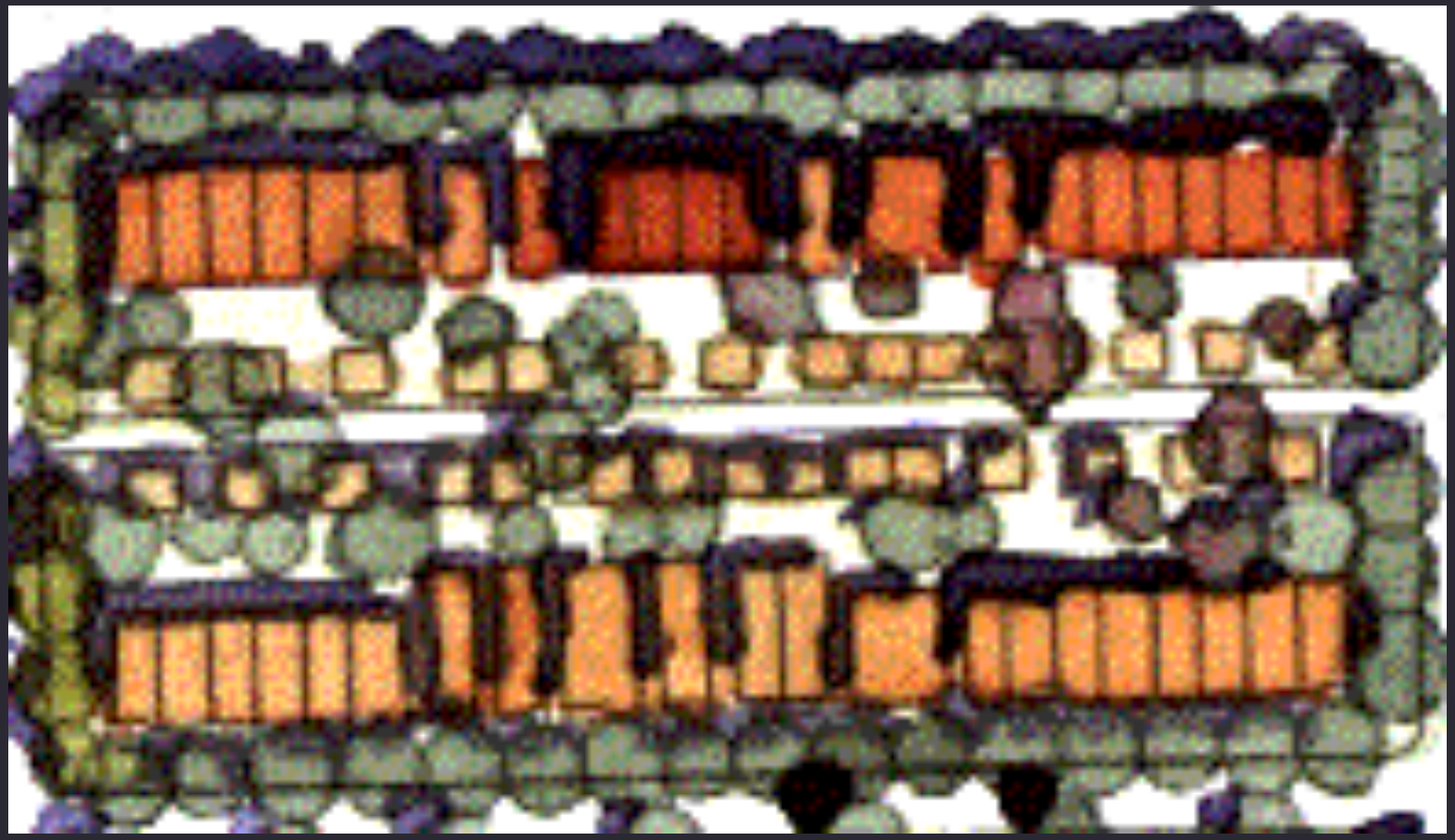
Future canopy

2053 canopy



Population: 149
Trees: 63 - 46 years old

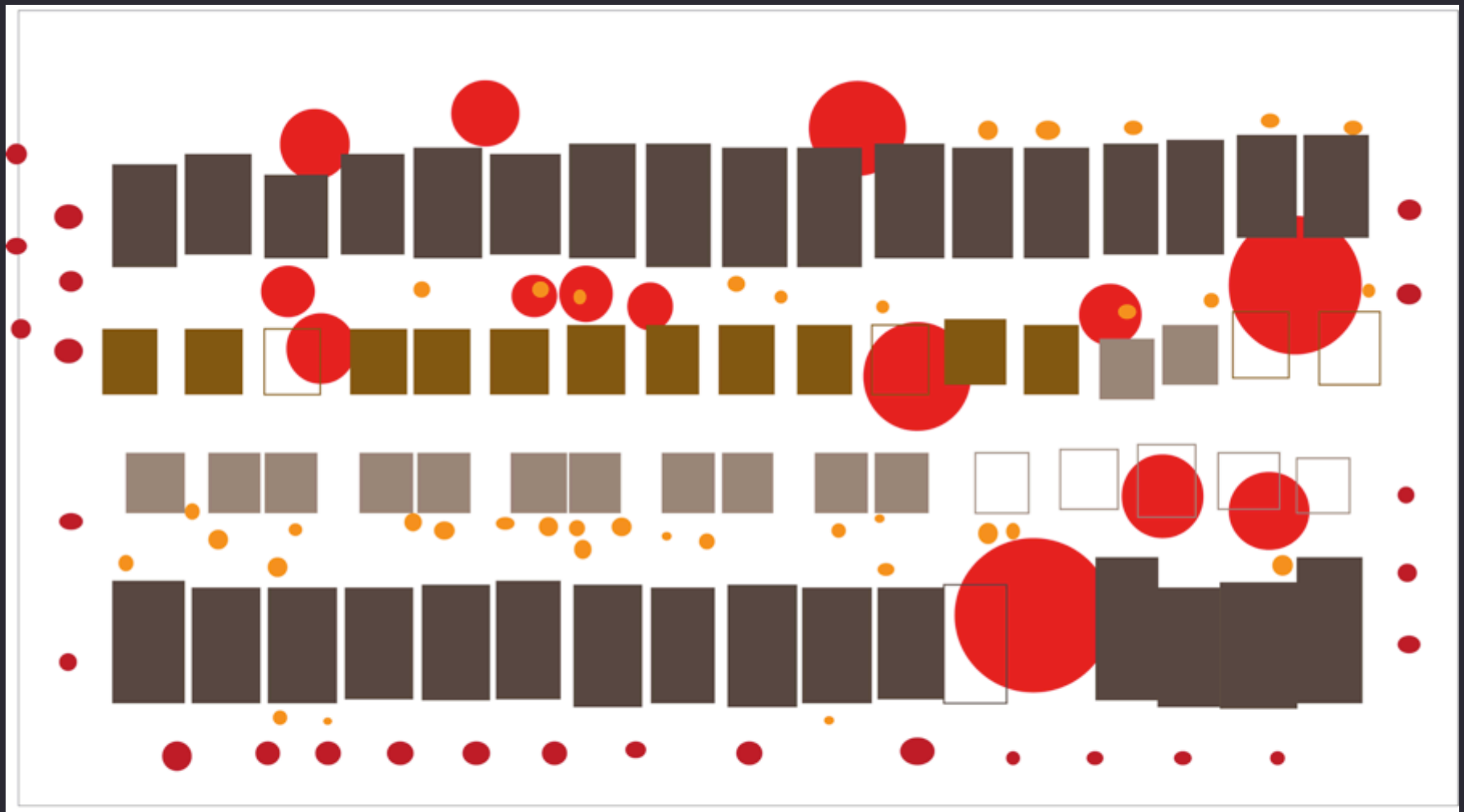
Design Intentions



60% canopy coverage (at maturity) of street trees

30% canopy coverage in residential yards

Mature trees



Residents prefer native trees, mature trees, and stands of trees

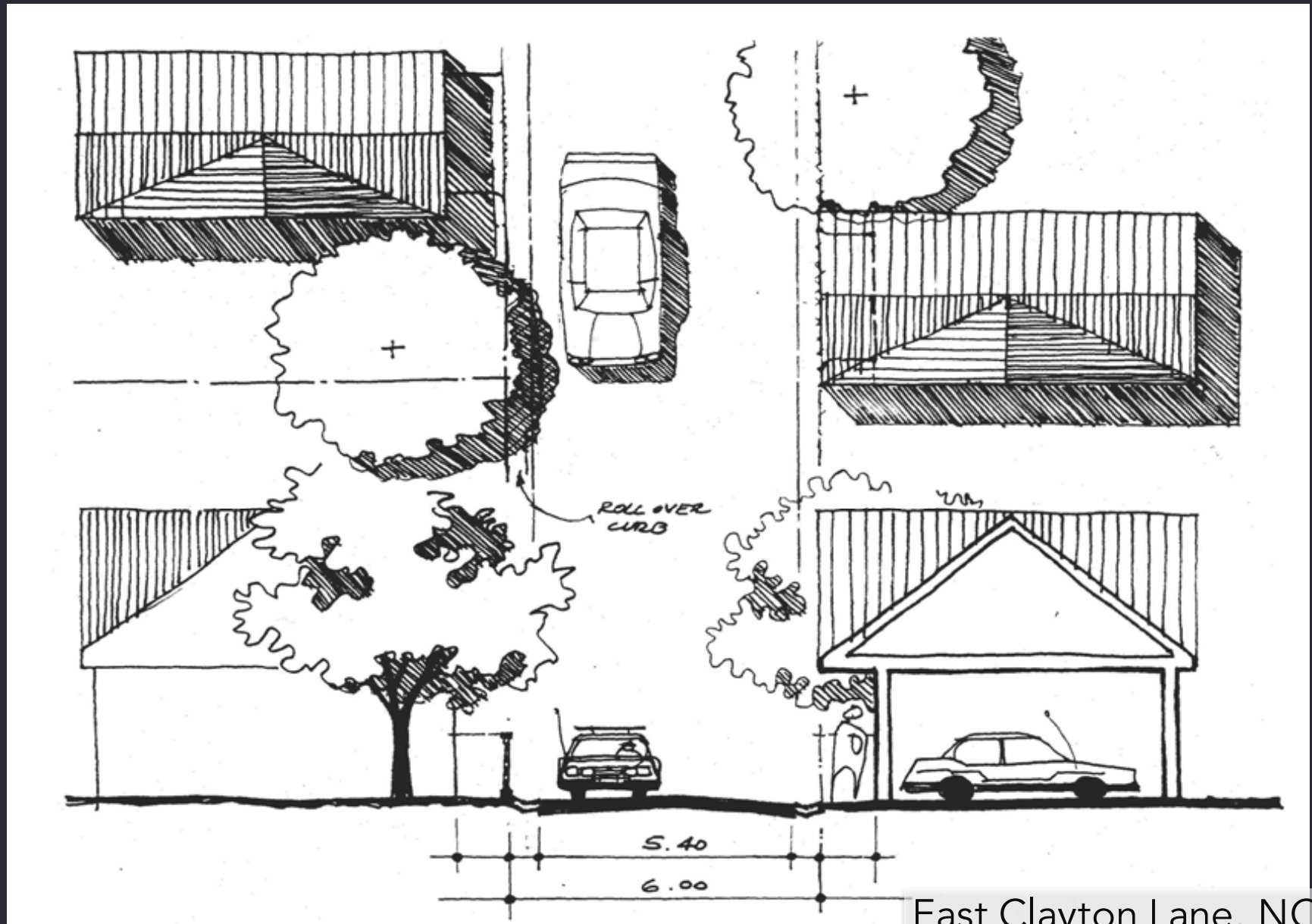
Population: 145
Trees: 60 ~ 6-7 years old
14 Mature trees

Native trees

Native trees

East Clayton Lane, 2013

Native trees



East Clayton Lane, NCP

Native trees

Lane Visualization

Kitsilano Lane, 2013

What next?

Scenarios

CLIMATE CHANGE
ADAPTATION

HABITAT

PHYSICAL HEALTH

MENTAL HEALTH