

density, connectivity + interaction
quyen tran

crossgrain masterplan : hastings corridor individual design

In responding to the ecological, economical and social problems as the result of how we built cities in the past several decades in addition to the anticipation of ecological, economical and social issues of the future, we need to change the way we build cities. Consequentially, the ecological environment has been degraded. Development causes the loss of valuable natural open spaces and ecosystems (Marsh, 2005). Furthermore, building vehicle-oriented cities disrupts natural watershed systems, which leads to increased runoff and pollutants in the natural water, and as result, the destruction of streams and fish habitats (Condon, 2008).

Large amounts of public funding have been pouring into the construction and maintenance of large scale buildings and road infrastructures (Condon, 2008); as well, unnecessary spending has gone towards fixing sites that have been damaged by natural disasters due to irresponsibility towards, and ignorance of, natural processes in development. In the midst of it all, social problems arise as a consequence of building cities this way. Many argue the loss of public spaces in North American cities (Paterson, 1995; Heston, 1993). In addition to that, the lack of natural processes in cities and the disconnection between human and natural spaces further widen all the problems identified above.

We can no longer afford to build our cities the way we have been doing. The population in the Vancouver metropolitan area is expected to double by 2050 (Condon & Belausteguigoitia, 2006), with the size of older population exceeding that of the younger population (Condon and & Belausteguigoitia, 2006). The housing characteristic requirements for this include a 15% increase in ground oriented housing (detached and semi-detached) and an 85% increase in apartments (Condon & Belausteguigoitia, 2006). So how can we begin to design our cities to respond to these challenges in a sustainable way?

In response to the problems above, the goal of this individual project is to adjust the city landscape to promote quality of life for humans and the natural environment by designing sustainable neighbourhoods that emphasize on local communities. The changes that the project proposes are steps towards the goal, which includes altering the building standards for roads; creating places that emphasize on local living; emphasizing alternative modes of transportation; and building strong connections between natural and urban spaces.



East Clayton sustainable community



Portland stormwater design



Study site: Hastings street existing conditions

project goal

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Goal statement

To promote quality of life for humans and the natural environment by designing sustainable neighbourhoods that emphasize on local living.

Objectives

To achieve the goal, nine objectives need to be met:

1. Design transportation routes as journeys that encourage more time spent outdoors
2. Create interconnected networks between destinations
3. Alternative modes of transportation: walking, biking and streetcar
4. Design a cohesive landscape that bridges urban and natural spaces
5. Infiltrate stormwater everywhere to lower urban runoff
6. density of people and activities
7. Homes are within walking distance of social amenities, jobs, and natural open space
8. Different housing types
9. Permeable blocks

Principles

1. Make movement a journey
2. Build connections between natural and urban spaces
3. Green streets
4. Multi-use infrastructures
5. Sustainable local living through density

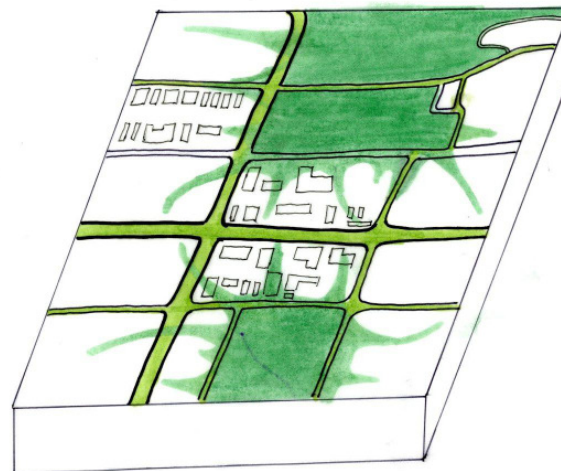
1. Make movement a journey

Currently the connections between destinations are oriented towards cars. In order to create a sustainable future, these connections need to do two things: first they must shift their focus to accommodate other forms of transportation such as walking, biking, and a street car system; and second, they must emphasize on the journey – that is to enhance the experience of the streets - as well as connecting to destinations such as parks, natural spaces, and community centres. These linkages are easily accessible and aesthetically attractive to encourage outdoor activities.



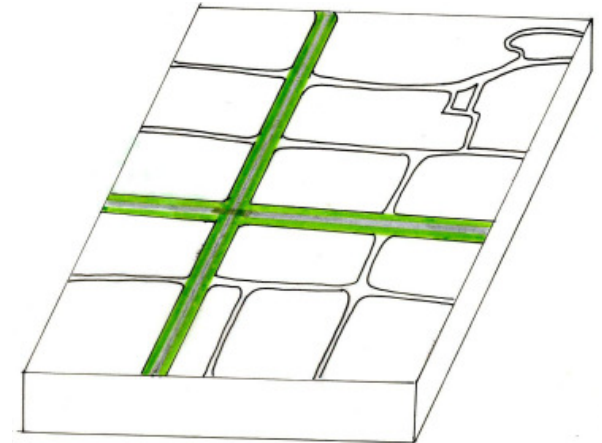
2. Connection between natural and urban spaces

As of the present condition, the urban environment and natural landscape are fragmented. They exist side by side without a dialogue between them, resulting in a degradation of the environment and the creation of sterile cities. Thus build connections and design transitional zones between the two environments to create a cohesive landscape that blurs the boundary between the natural and the urban world.



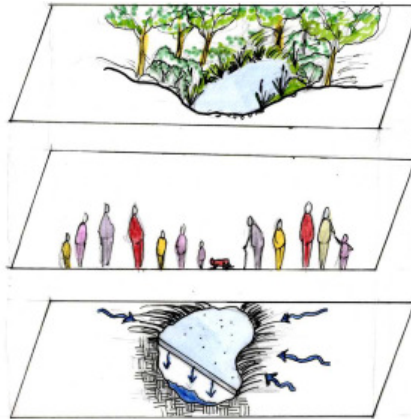
3. Green streets

Design pedestrian oriented streets shaded by rows of trees which introduce natural life back into the urban landscape. In addition, minimal impervious surfaces and a natural on site drainage system decrease urban runoff. Narrow and curbsless streets save money, have less impervious surfaces (no more than 50 percent), contribute to lowering ecological impacts, and focus on the pedestrian experience.



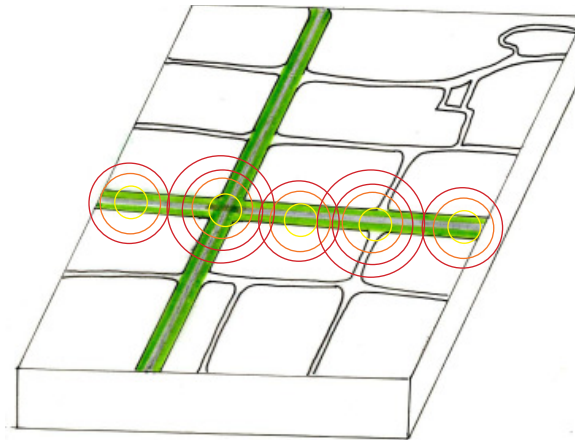
4. Multi-use infrastructures

Buildings should have multiple purposes such as residential, commercial, and employment spaces. Streets are transportation corridors as well as public open spaces with a third function as on site stormwater infiltration structures. Places that can be retrofitted are street edges, parking strips, parks, and street intersections.



5. Sustainable local living through density

To encourage local sustainable living, places need to have density of people and activities. To have this happen, development needs to concentrate homes and jobs with social and commercial activities in close proximity to each other; that is, along transportation corridors and primary intersections.



precedent studies

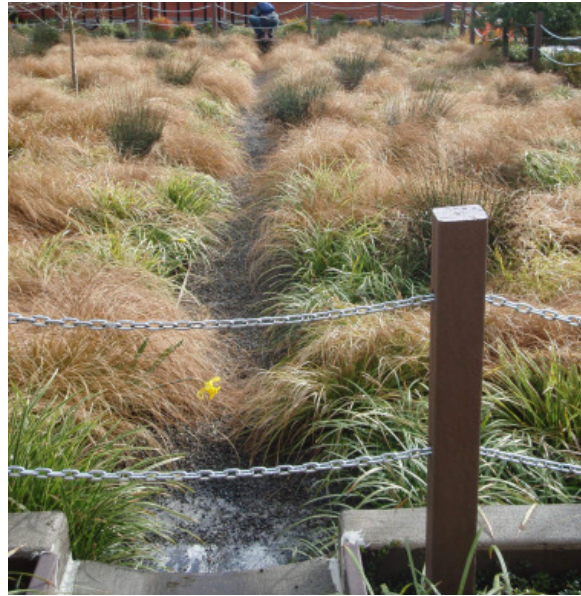
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Mixed use building on West Broadway between Trafalgar and Larch



Four story building with commercial on the first floor

Portland stormwater infiltration case studies



Parking lot rain garden

Pedestrian corridor studies



Local restaurants and shops



Plan view of the building



Entrance to the residential area



Inner courtyard of a residential building



master plan

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Image: Master plan for density, connectivity + interaction design project. Over time, existing older buildings will be replaced by smaller footprint buildings and houses. Spaces are reserved to create green corridors that connect homes to open recreational space. Pedestrian corridor that emphasizes the experience of walking and the making of vibrant places connects the mixed used building on Hasting with the adjacent building to the north.



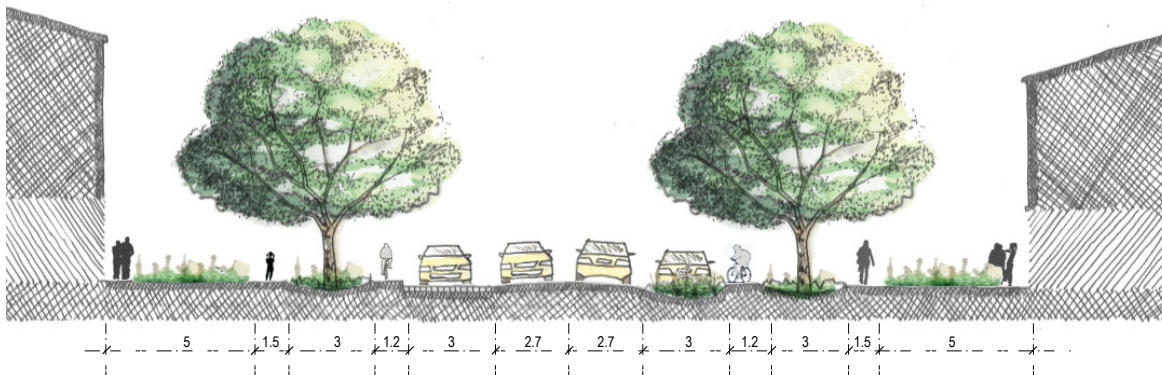
Design site

green design: albert street

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Above images: visualization of parking lanes with stormwater infiltration design



Section B - B

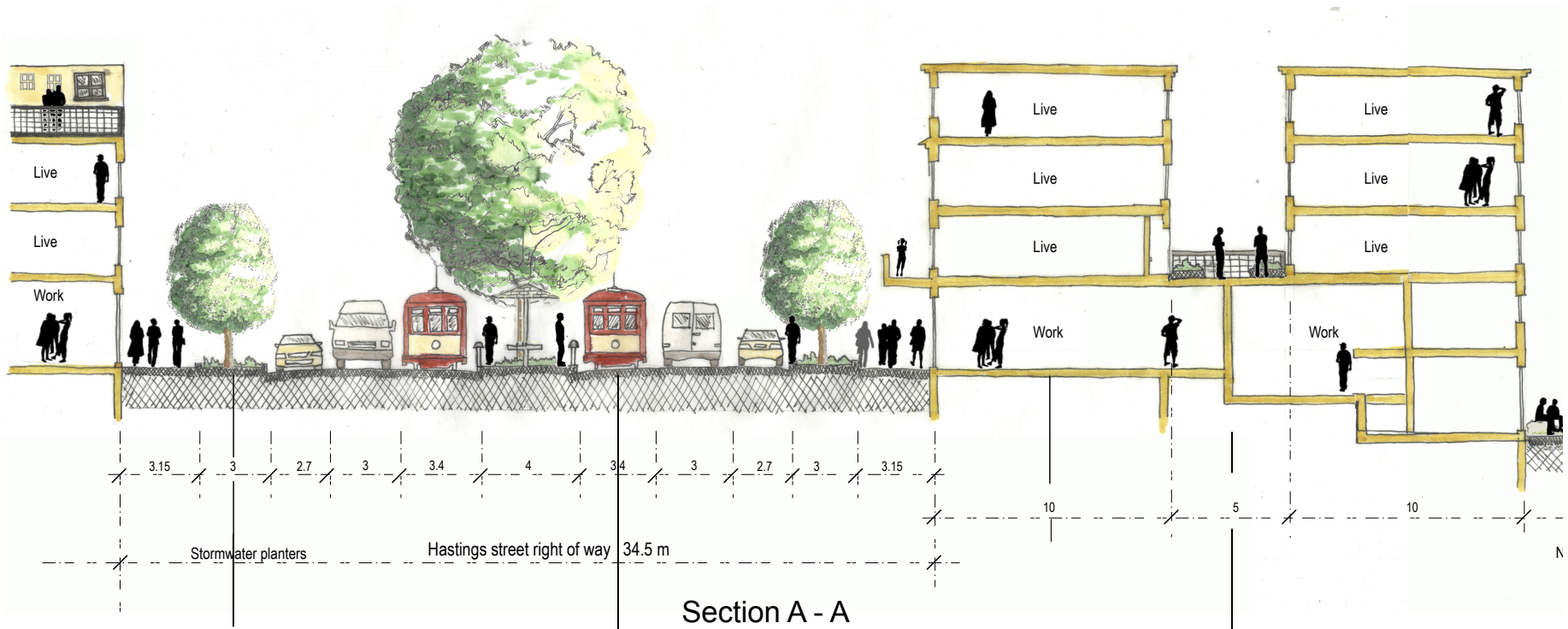
Redesign of Albert street to focus walking and biking as alternative modes of transportation; and allow for onsite infiltration of stormwater



Visualization of houses on the north side of Albert street

site section: vibrant neighbourhood

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Stormwater planters along Hastings



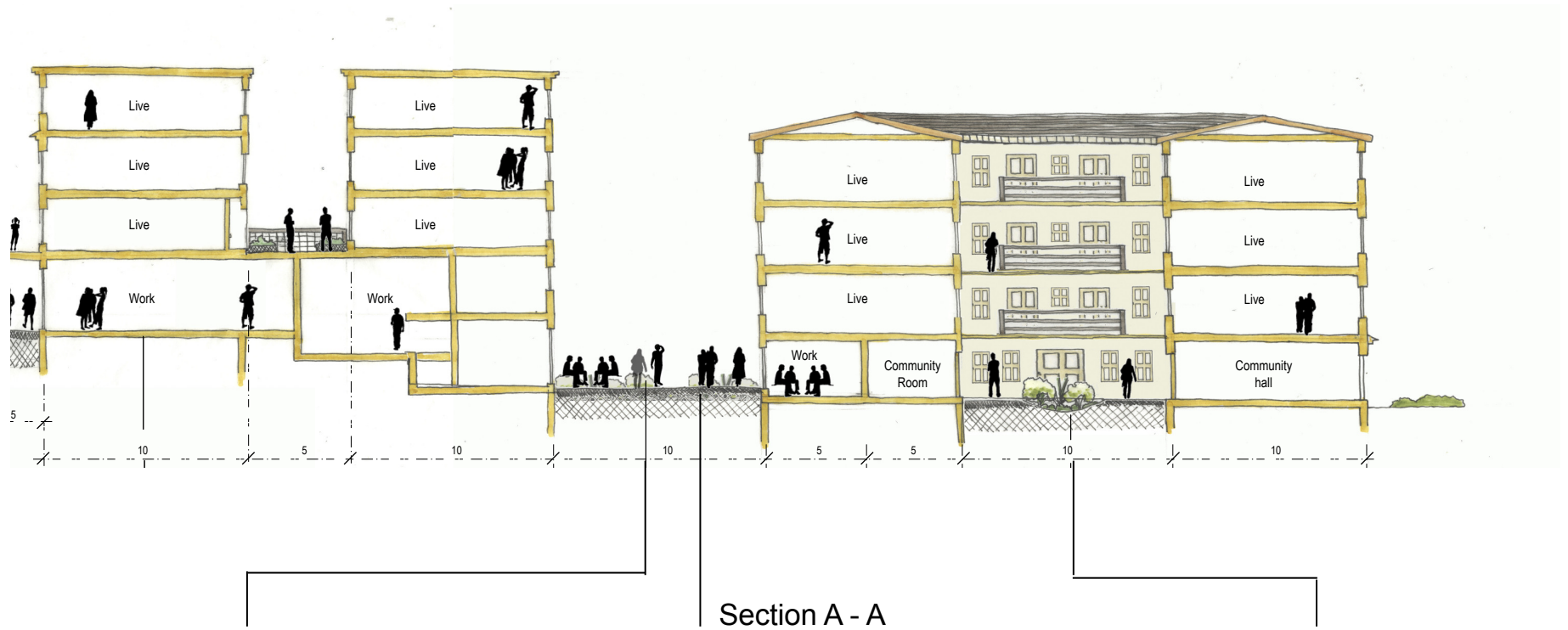
Streetcar avenue



Mixed use building

site section: vibrant neighbourhood continues

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Background: green corridor connecting Hastings to Confederation Park
sustainable urbanism : the hastings corridor



Foreground: pedestrian corridor



Inner courtyard of a residential building

integrating urban and natural spaces

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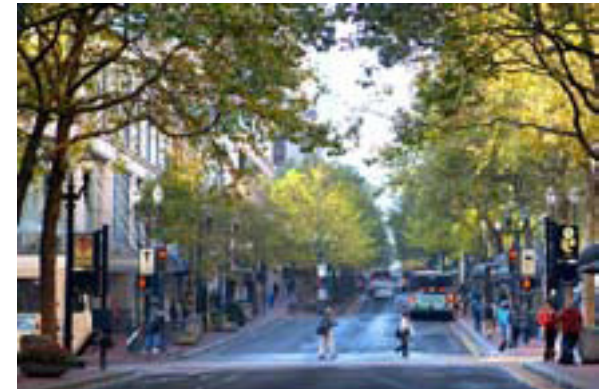
Existing condition

Creating a connection between the urban and natural landscape

conclusion

In order to design more sustainable cities, we need to re-examine the way we think about building our cities. We need to change our thinking about how we move around in our cities and the connections between human and the natural world to create a higher quality of life for both humans and the natural environment.

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- BC Ministry of Forests – Government of BC. (1999). The Ecology of the Coastal Douglas-fir Zone. Retrieved November 10, 2008, from <http://www.for.gov.bc.ca/hfd/pubs/docs/Bro/bro30.pdf>
- BurnabyMap – City of Burnaby. (2008). Retrieved November 10, 2008, from <http://webmap.city.burnaby.bc.ca/publicmap/viewer.htm>
- Condon, P. M. (2008). Seven Rules for Sustainable Communities. Unpublished manuscript.
- Condon, P. M. & Belausteguigoitia, J. (2006). Demographic and Housing Projections for a Region of 4 Million. Sustainability by Design: A Design Vision for a Sustainable Region of 4 Million. Retrieved November 29, 2008, from http://www.sxd.sala.ubc.ca/8_research/sxd_TB03_demo_housing.pdf
- Condon, P. M. & Belausteguigoitia, J. (2006). Growing a Greater Vancouver Region: Population Scenarios for a Region of 4 Million People. Sustainability by Design: A Design Vision for a Sustainable Region of 4 Million. Retrieved November 29, 2008, from http://www.sxd.sala.ubc.ca/8_research/sxd_TB02_population.pdf
- Condon, P. M., & Gonyea, A. (2000). No. 1 - Case Study: Concord Roads Trial Project, NSW. James Taylor Chair in Landscape & Liveable Environments, 1, 1-4. Retrieved November 10, 2008, from http://www.jtc.sala.ubc.ca/bulletins/TB_issue_01_Concord_edit.pdf
- Hester Jr., R. T. (1993). Sacred Structures and Everyday Life: A Return to Manteo, North Carolina. In David Seamon (Ed.), *Dwelling, Seeing and Designing*. New York: SUNY Press.
- Marsh, W. M. (2005). *Landscape Planning: Environmental Applications* (4th ed.). New Jersey: Wiley.
- Paterson, D. D. (1995). Creating a Sense of the Sacred in the Public Realm. *Environmental Theory Arena*, 3(3).
- Portland Bureau of Environmental Services – City of Portland. (2004). Stormwater Management Manual, Revision #3: Appendix E Stormwater Pollution Reduction Storm. Retrieved November 10, 2008, from <http://www.portlandonline.com/auditor/index.cfm?a=12548&c=28044#PDF>
- Portland Online – City of Portland. (2004). Development Methodology. Retrieved November 10, 2008, from <http://www.portlandonline.com/shared/cfm/image.cfm?id=55830>
- The Headwaters Project: A Sustainable Community Development in Surrey, B.C. (2003). Affordability and Choice Today (ACT) Program: Phase E: Final Report [WWW page]. Retrieved November 10, 2008, from <http://www.jtc.sala.ubc.ca/projects/act.htm>