Sustainable Vancouver?

2010 Olympics
Southeast False Creek
East Fraserlands

Geography 449/640
Simon Fraser University

What is sustainability?

What isn't sustainability?

What isn't sustainability?

- Insufficient sustainability means:
  - Waiting 45 minutes to cross the Lions Gate Bridge on a daily basis
  - Finding out your neighbours of six months are running a marijuana grow-op
  - Waiting for the news to see if the water reservoir has fallen below 30%
  - Lack of affordable housing

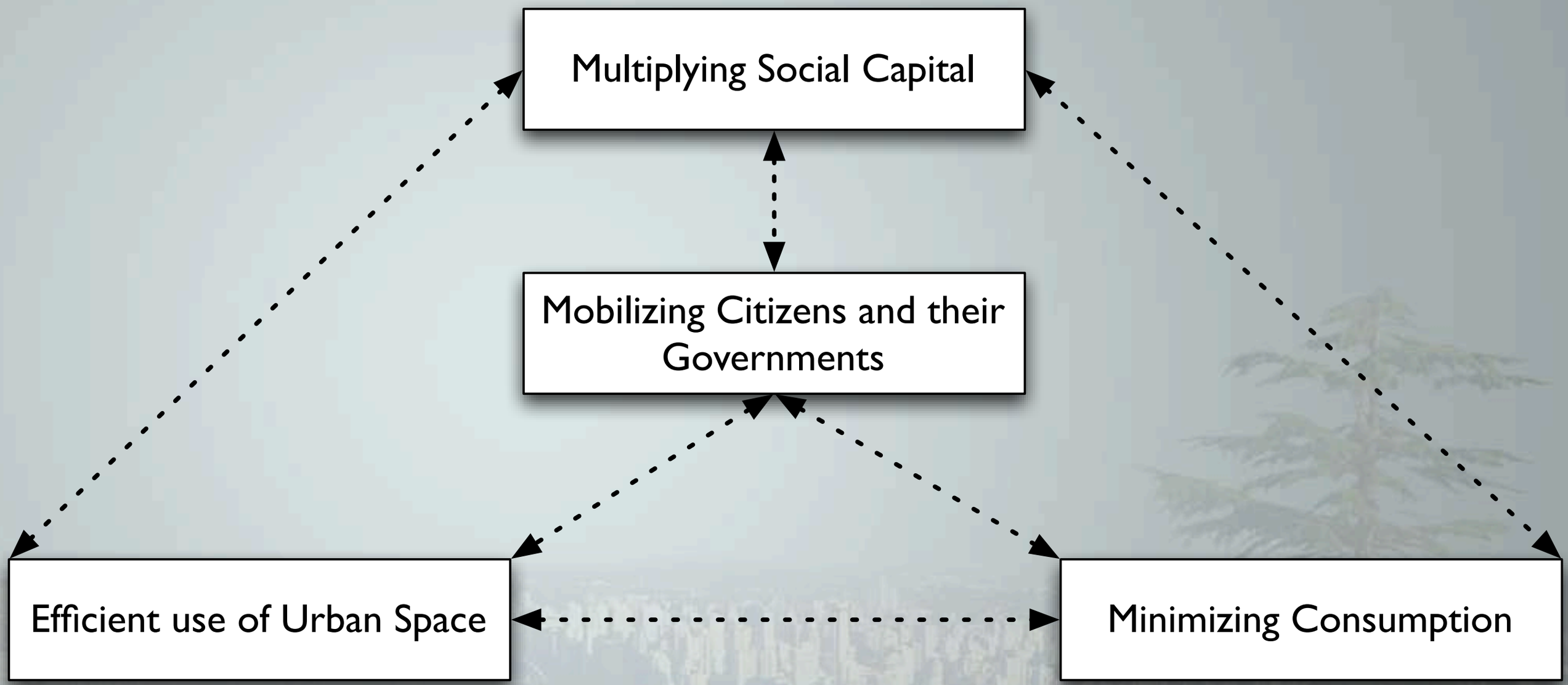
Is Vancouver Sustainable?

- Vancouver has examples of sustainability
- We argue there aren't enough
- Vancouver has not reached a "sustainable state"

What is sustainability?

What is sustainability?

- Meeting the needs of the present without compromising the ability of future generations to meet their own needs.
  - Not harvesting every tree or every fish, not wasting all the water in our lakes and rivers
- Leaving an inheritance for our children by living off the interest and not spending the savings


Multiplying Social Capital
Mobilizing Citizens and their Governments
Efficient use of Urban Space
Minimizing Consumption

Natural Capital

- Refers to any stock of natural assets that yield a flow of valuable goods and services
- A forest, a fish or an an aquifer
- The forest or fish is “Natural Capital”
- The sustainable harvest is “Natural Income”

Sustainability & the public

- To the general public, sustainability means:
  - Cheaper and more affordable public transit
  - More park space, recreational facilities and schools
  - Safer streets and shore walking distances to essential services
  - Well constructed and energy efficient homes

Olympic Alchemy:
Turning Gold into Green

Shannon Kobliuk
Brendan Hurley
Nick Alberts
Steve Domaas
Stan Chow

Timeline


Award of Games
Opportunity to Strengthen Sustainability Goals
Start Construction

Three Strategic Areas

Green Venue Design

Environmental Management And Training

Squamish-Whistler Corridor Development

Analysis

New Technologies

Refinement of Concepts

Missed Opportunities

Bid Book

Maximized Sustainability Outcomes

Campus Venues and Sustainable Development

Integration of the SFU Speed Skating Oval

Campus Development Planning Criteria:

- LEED Standard
- SIERRA Greening the Ivory Towers
- SUSTAINABILITY Principles

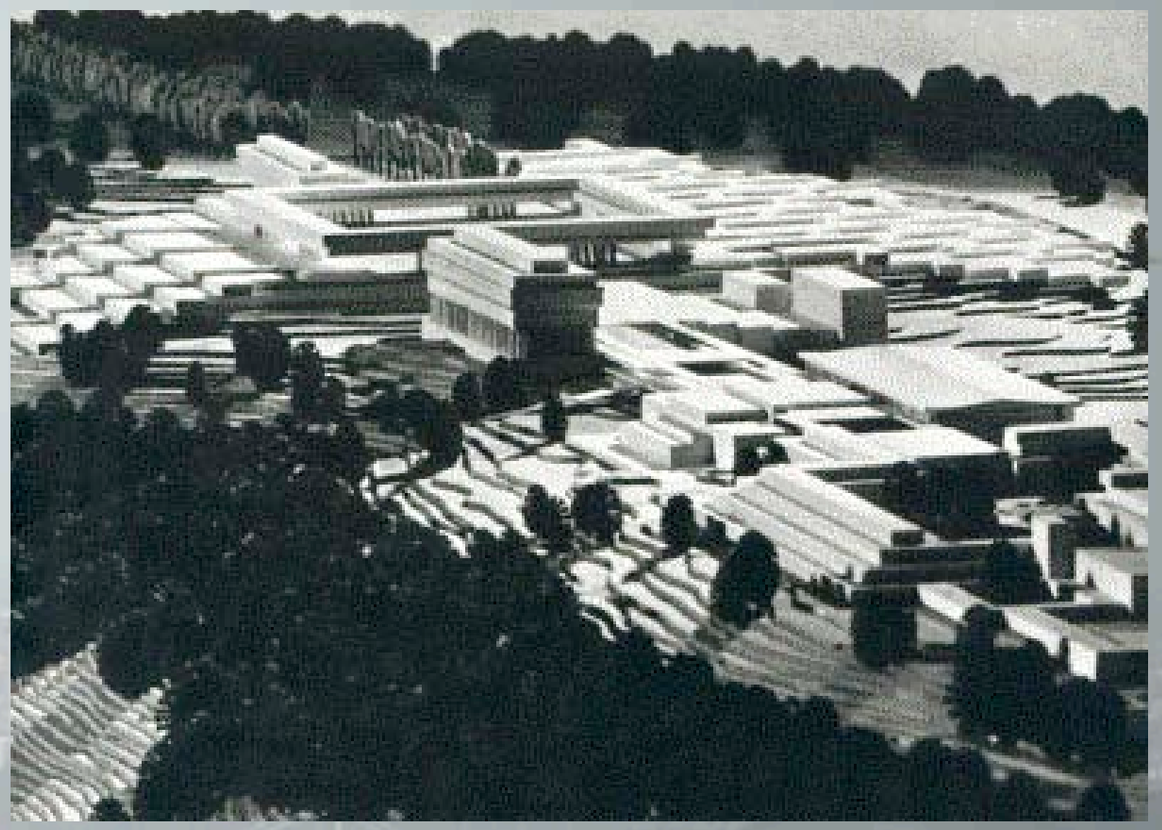
Community

Ecology

Economy

SFU: Master Planned Campus

- Isolated Location
- Modernist Style
- Central Spine Concept
- New Elements Plug Into Spine
- No Preexisting Winter Sports Facility



Patterns of Campus Growth

- 20 000 student base
  1 700 residents
  - 8.5%
- UniverCity
  - 5000-10000

Patterns of Campus Growth

- New Residencies
  No percentage increase in resident population
  2100 + 5000 / 25000
  -28.5%
  Additions outside of the Sustainability matrix

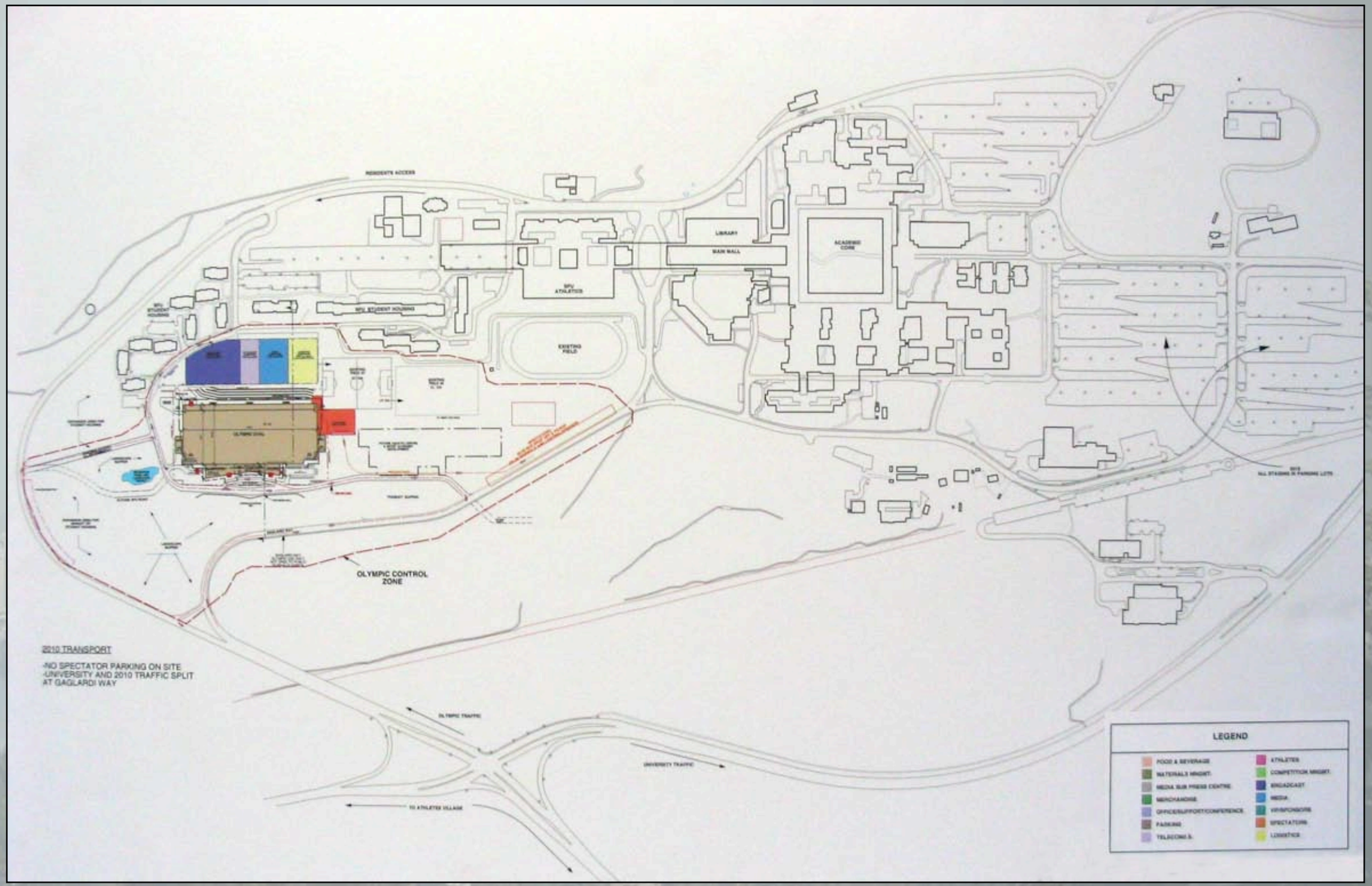
Considerations for Oval

- Winter Sports Legacy
- Access for 10 000
- Parking (athletes / staff)
- Service (maintenance/ media/ spectator)
- Sightlines (freespan)

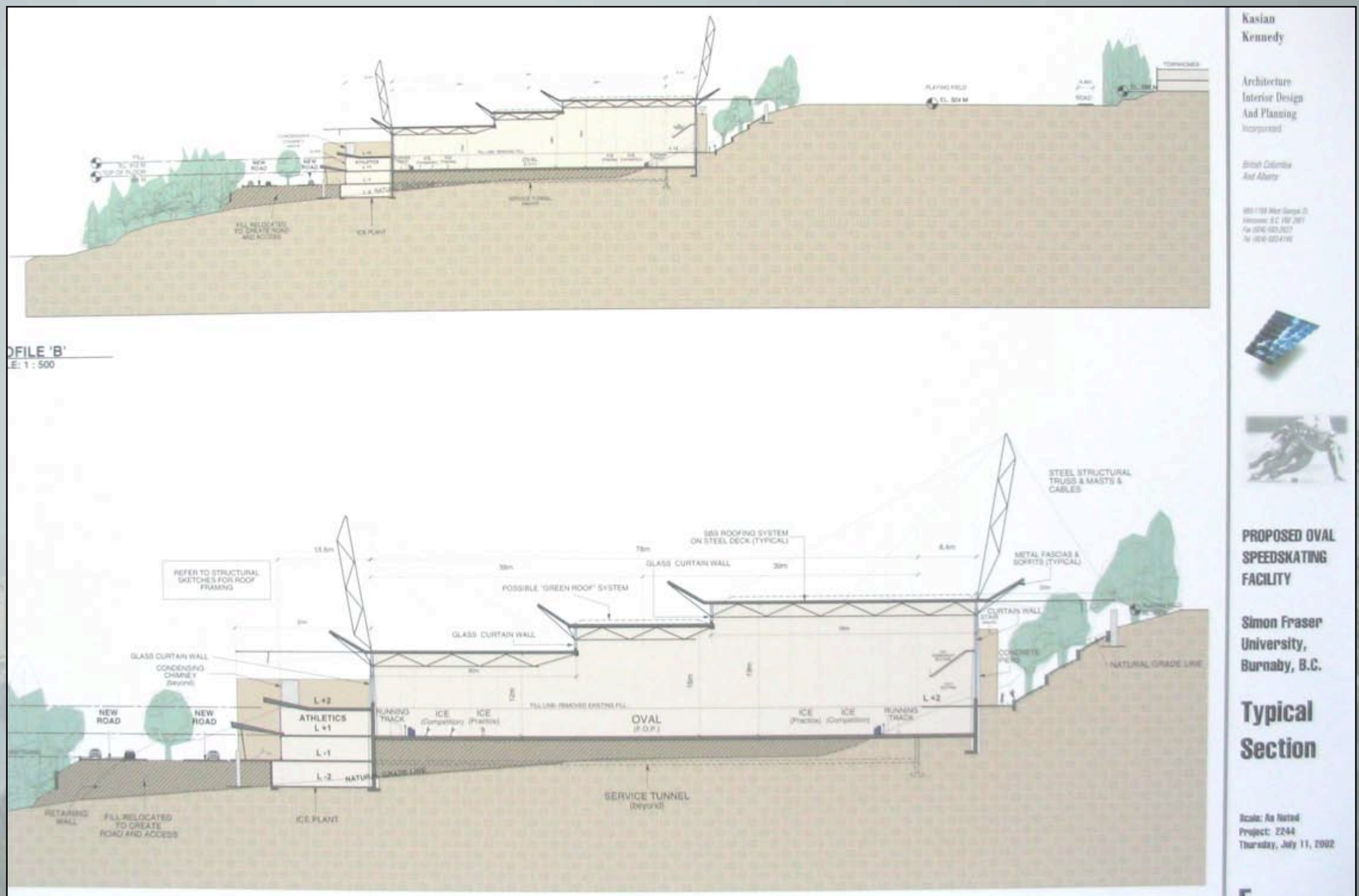
The Bid Book Proposal

Bid Book Site Plan:

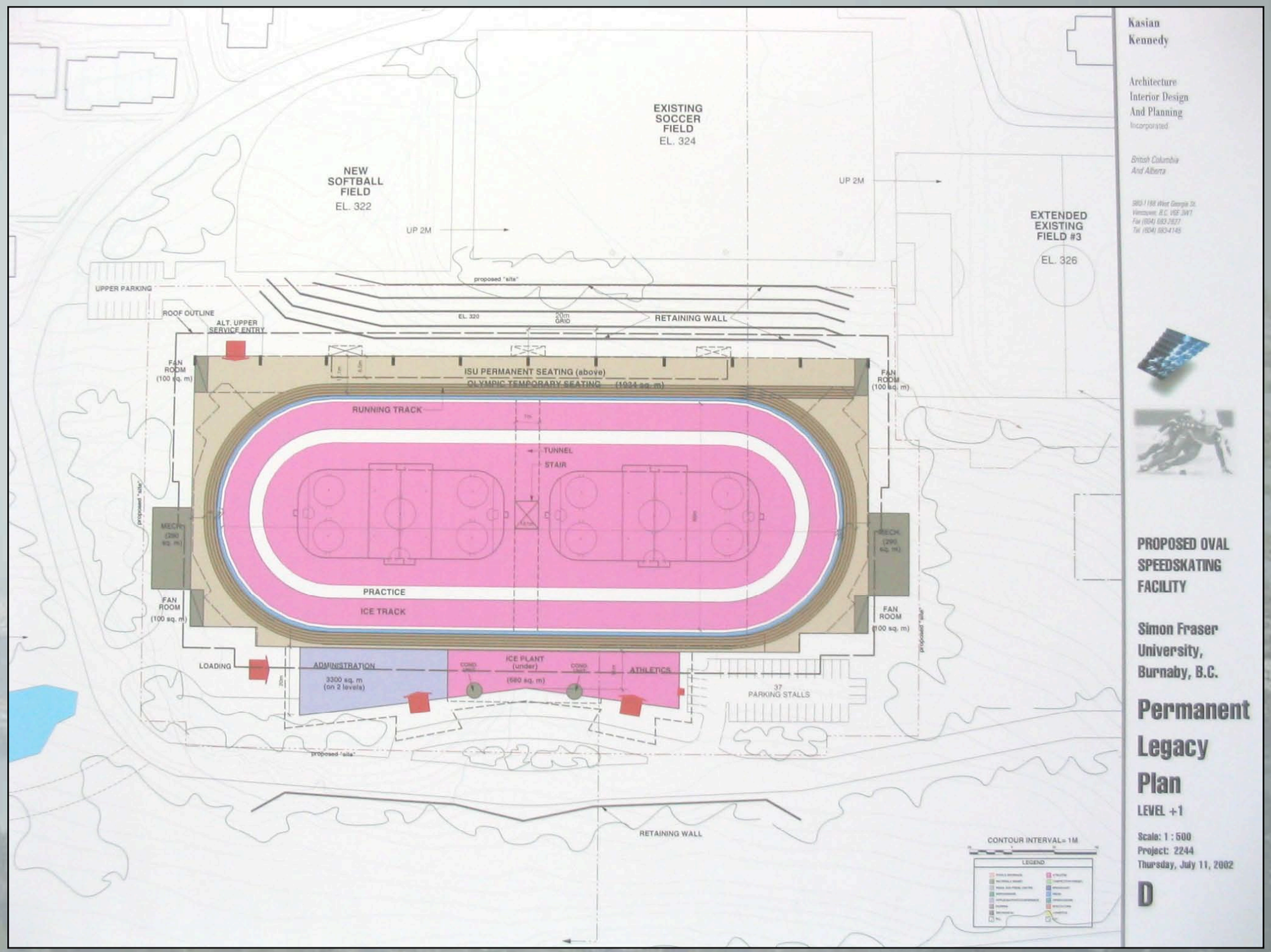
Oval Plugs Into the Spine



Bid Book Site Section



Bid Book Facilities Plan

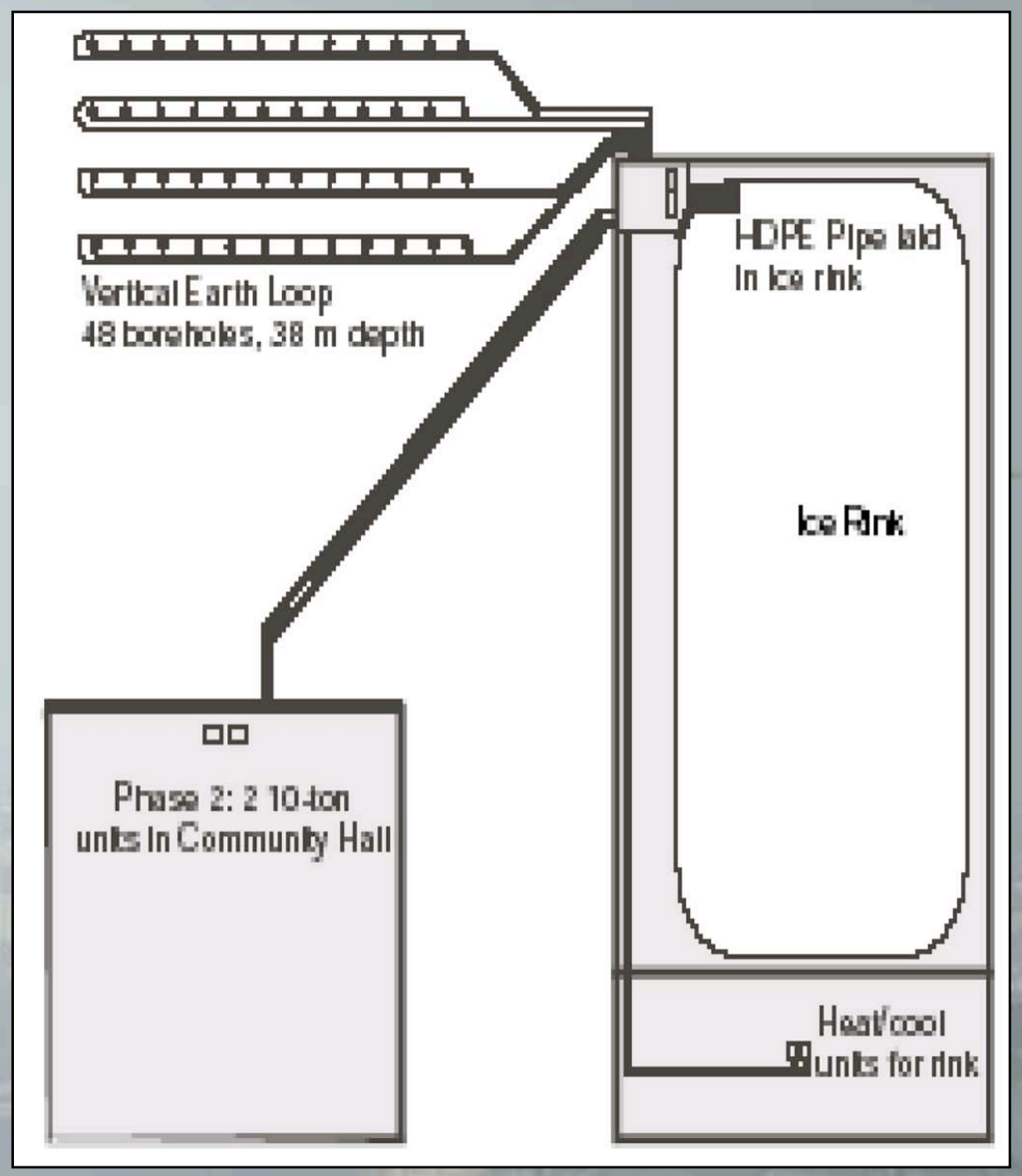


Building Use, Type, Infrastructure

- Heat Pump
- Storm Water Management
- Roofing Technologies
- Waste Management
- Adaptive Uses

Heat Pump

- Ground Source Heat Pump
- Heat Transfer System
  - Potential for co-generation with surrounding buildings

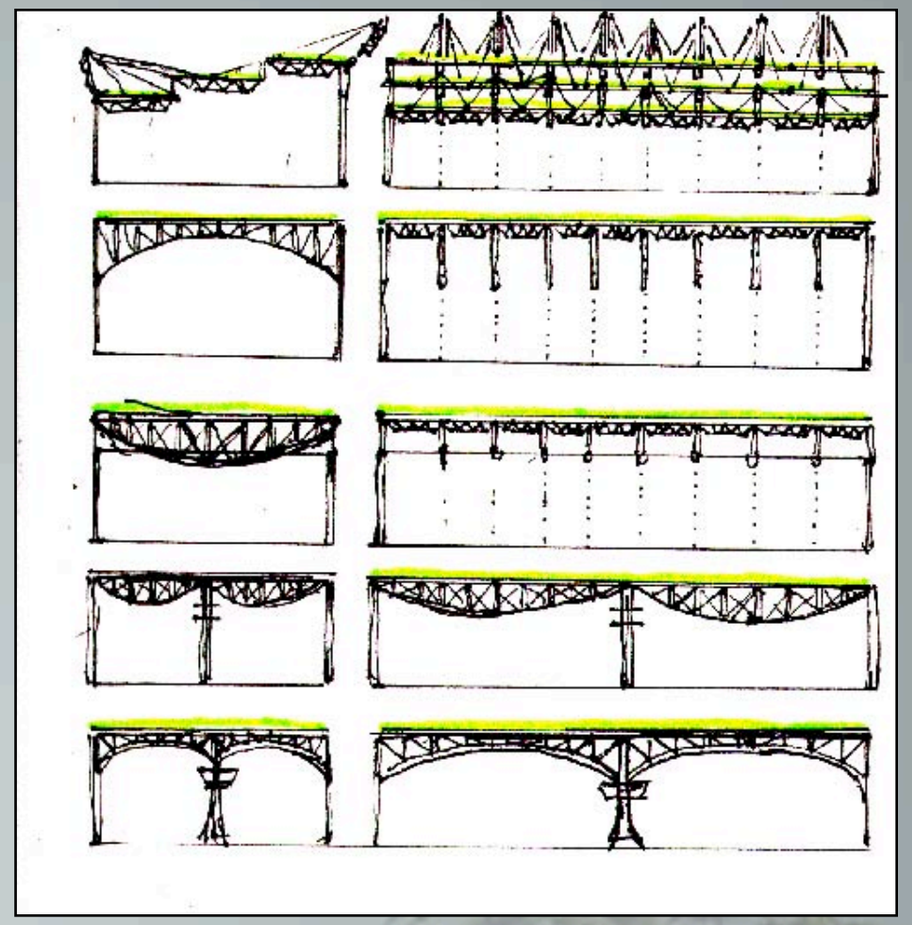


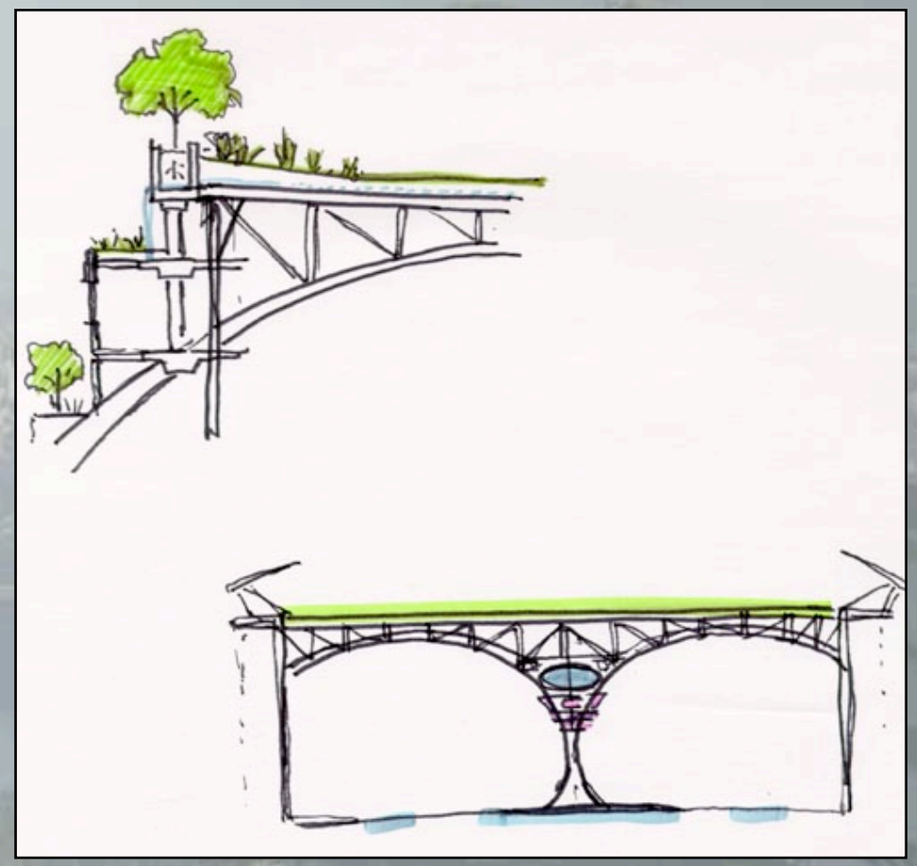
Storm Water Management

- 5 Acre roof + high precipitation due to mountain location = Excessive Runoff
- Drainage retainment ponds, mini ‘wetlands’, habitat development…

Roof

- Green Roof:
  - Drainage, insulation, heat absorption, agricultural possibilities, playing field…
- Teflon Roof
  - Cheap, light, energy efficient
- Photo Voltaics
  - Reduces energy needs





Waste Management

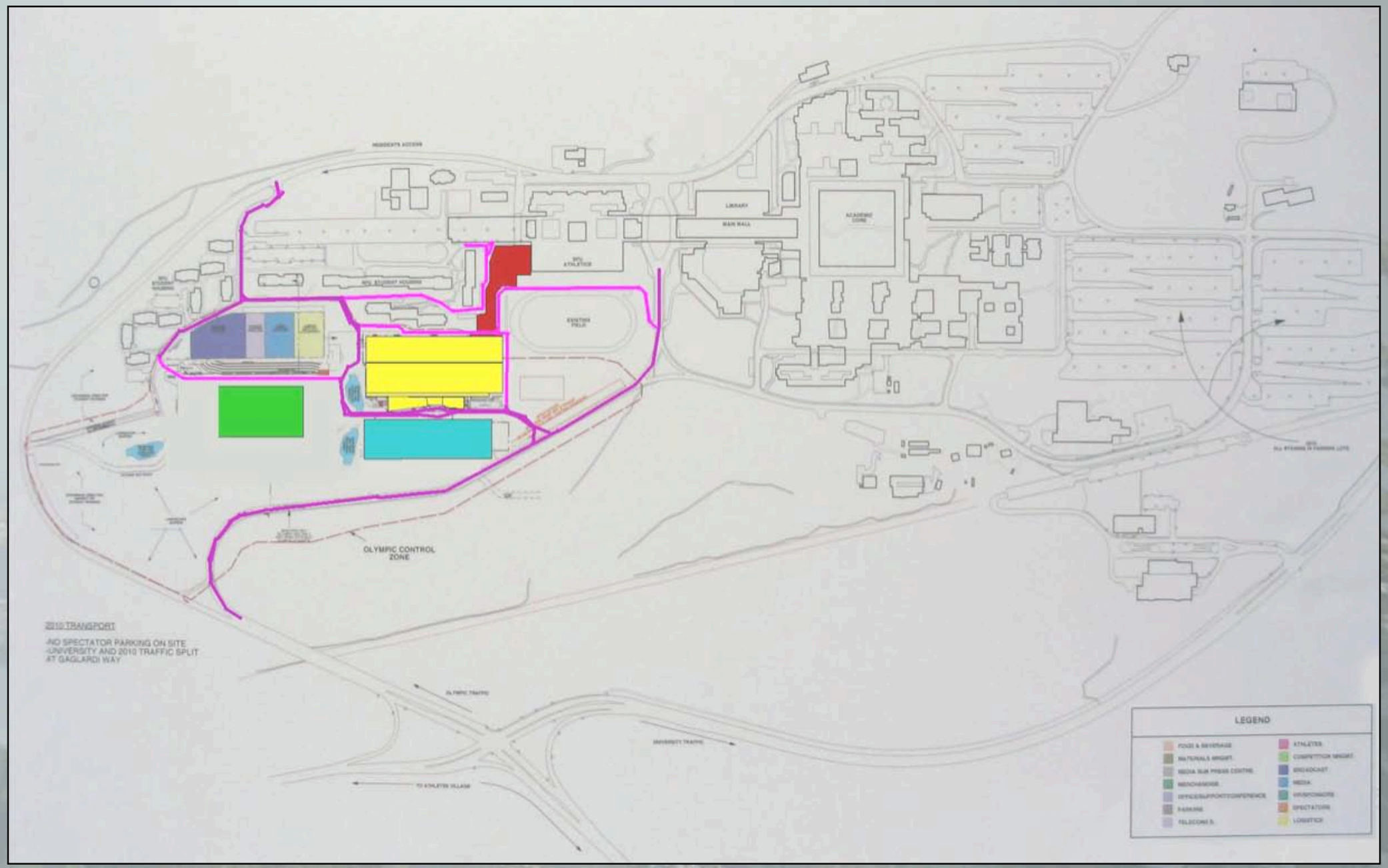
- Waste water treatment.
- Reusable / Recyclable Construction materials

Adaptive Facilities

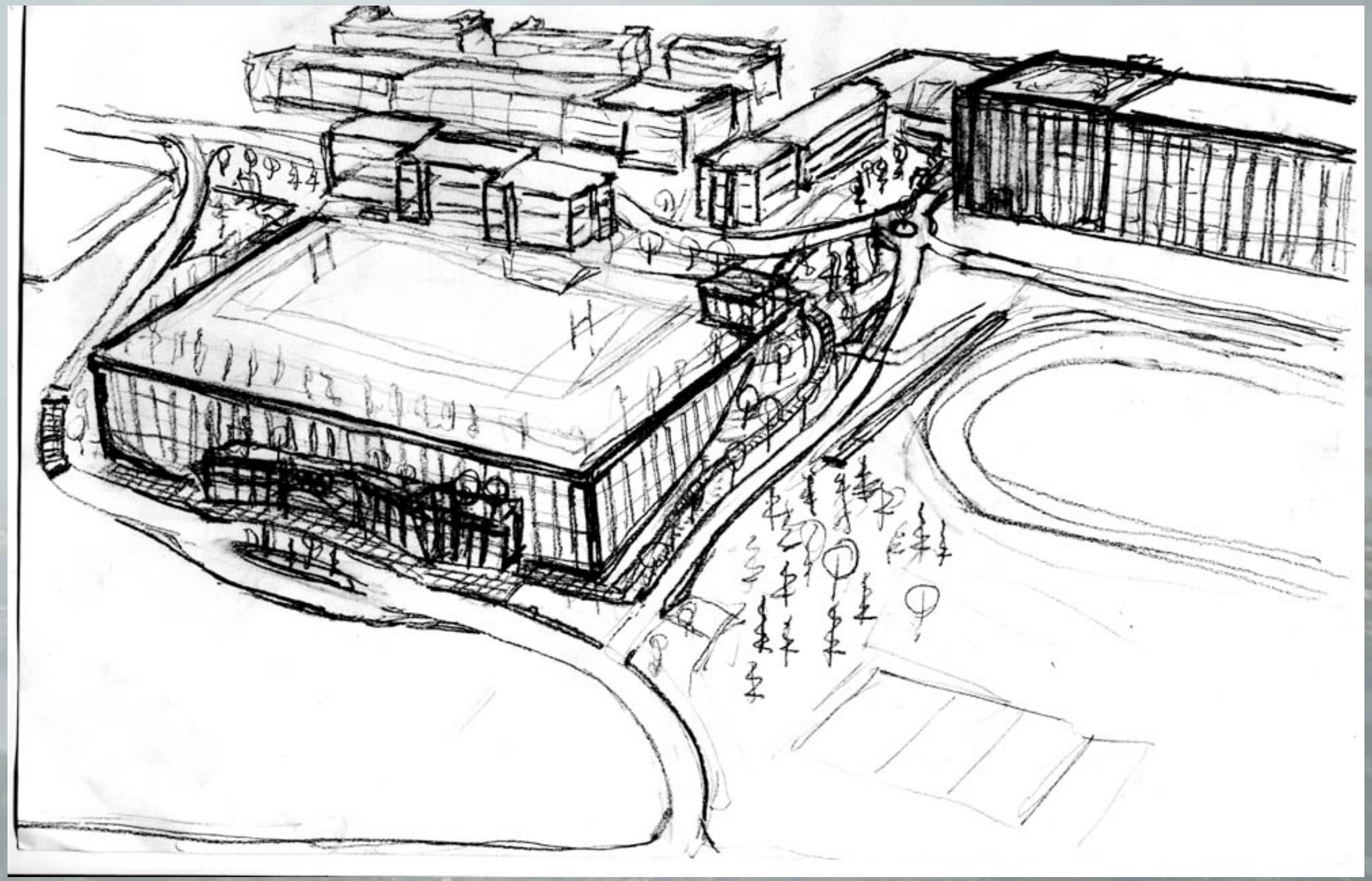
- Non speed skating uses
  - Football, soccer, hockey, curling, indoor track
- Athletics research facility
- Classrooms
- Office spaces
- Other Campus and Community Services

Site Plugged Into Campus Activity

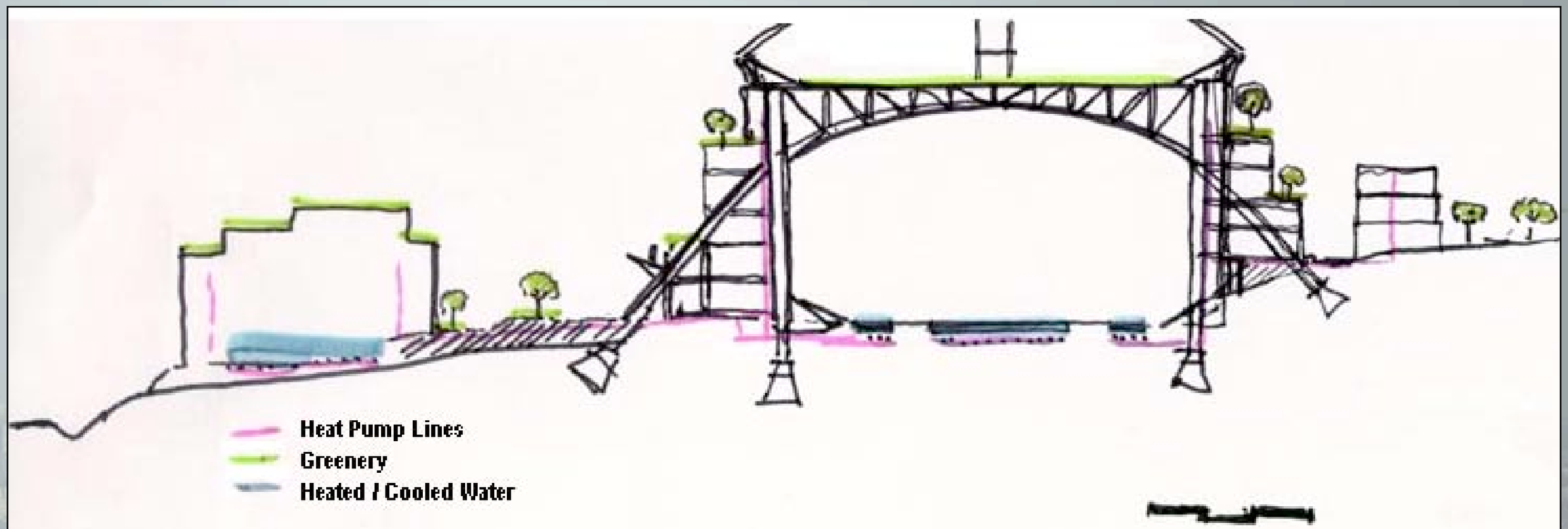
Recommended Alternative Site Reorientation



Recommended Alternative Concept

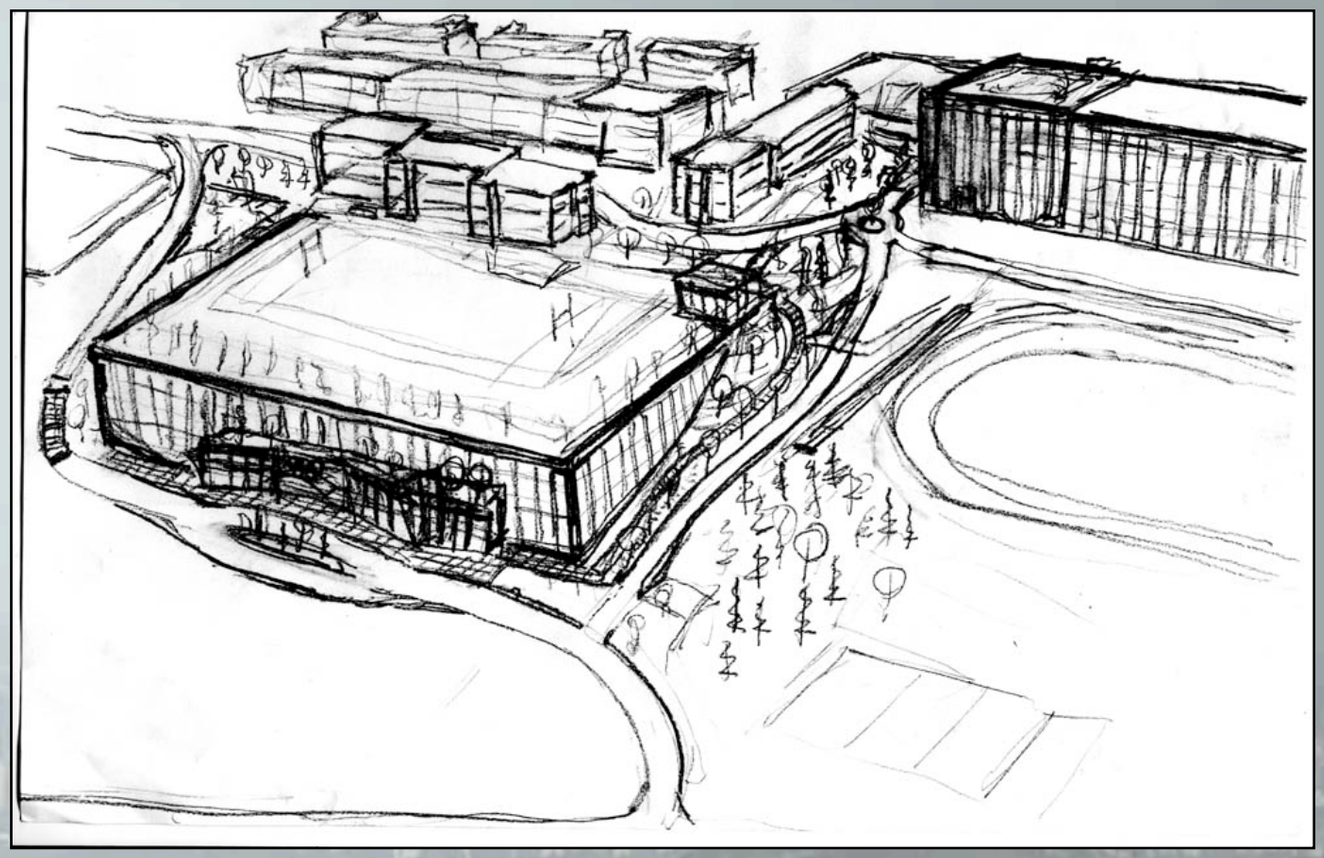


Recommended Alternative Concept



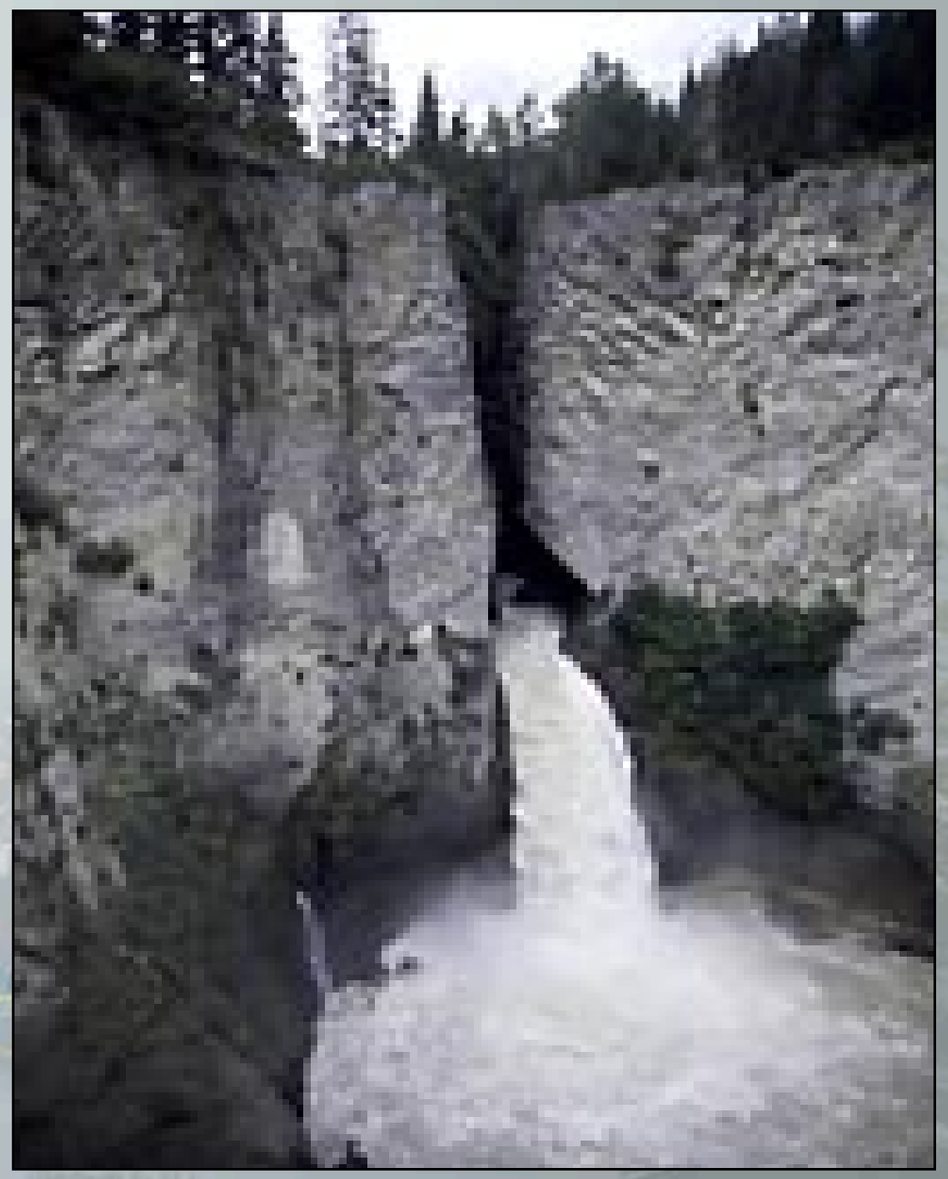
Recommendations

- Connection with Campus Structure and Activity
- Heat Pump
- Green Roof with Stacked Use
- Wrapped High Intensity Campus Use
- Storm and Waste Water Management
- Local and Recycled Material for construction
- Public Input Process



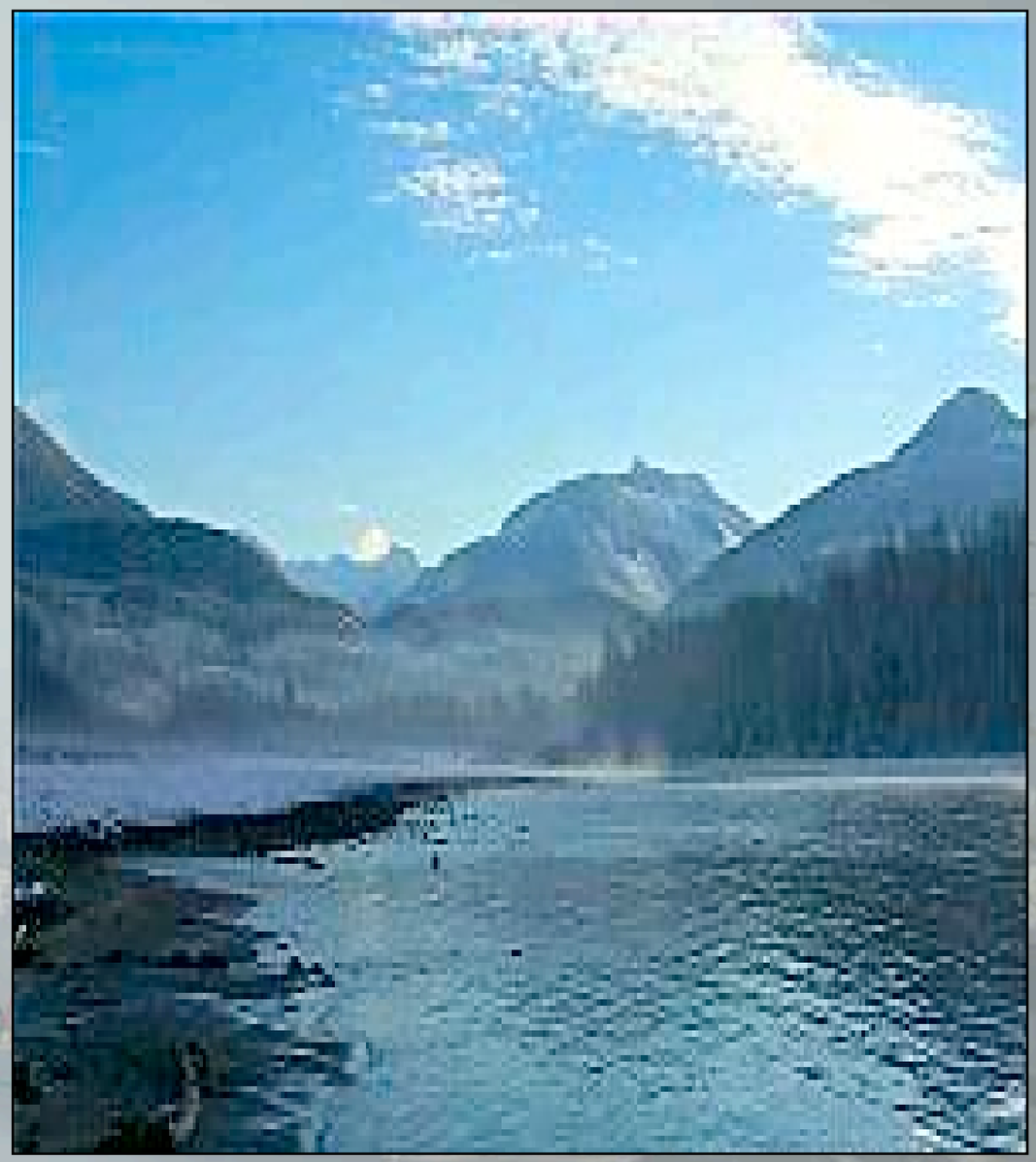
Sustainable Community Economic Development:

Squamish/Whistler



Opportunity in the Squamish Valley corridor

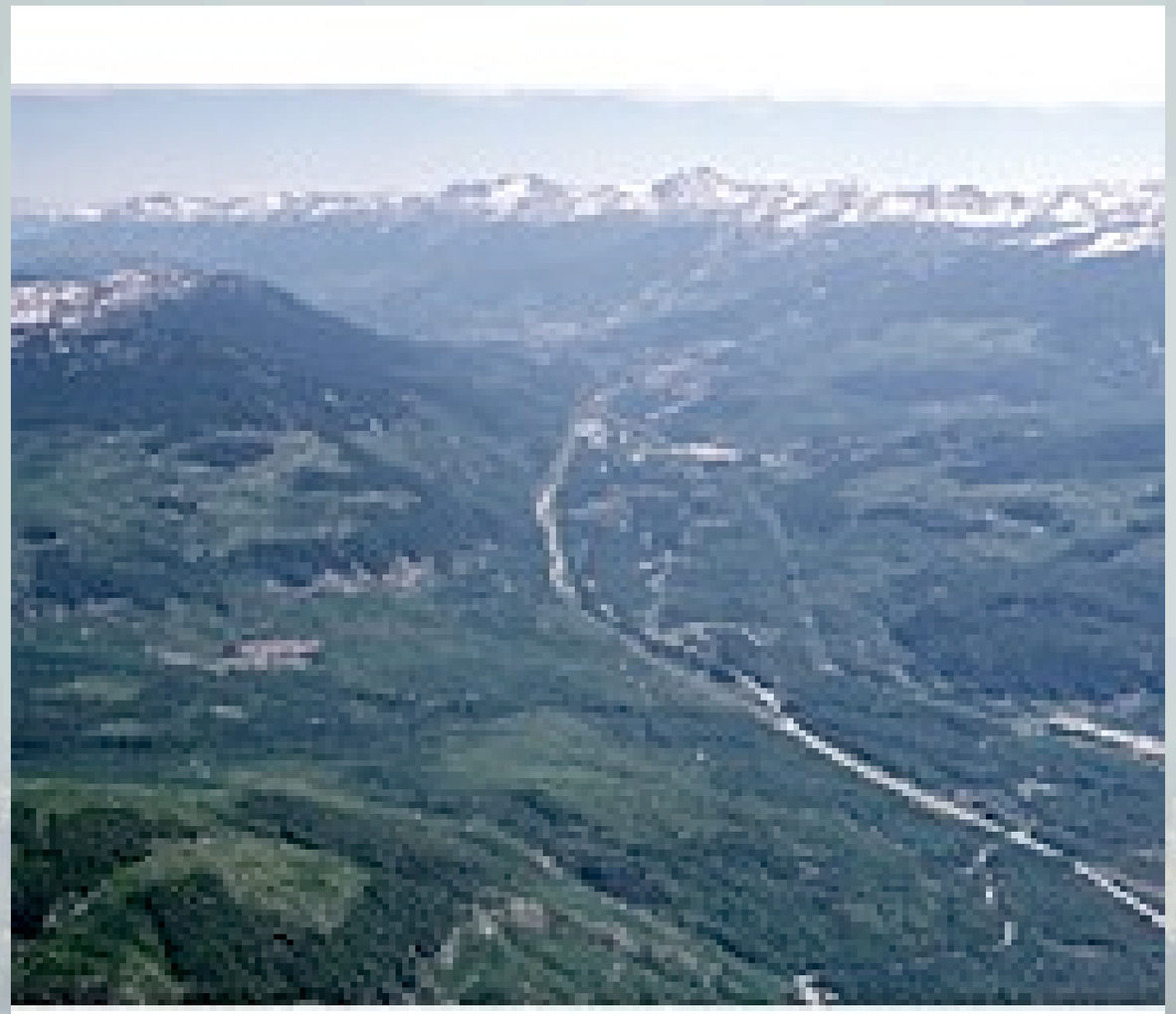
- Situation of Squamish: Halfway between Vancouver and Whistler
- High Traffic Volume
- Super Natural Site: Spectacular Mountains, Ocean and Forest.



Brohm Ridge

- 12 250 units
- New Ski Resort/ Facilities (Chair Lifts, Parking, etc.)

Callaghan Valley



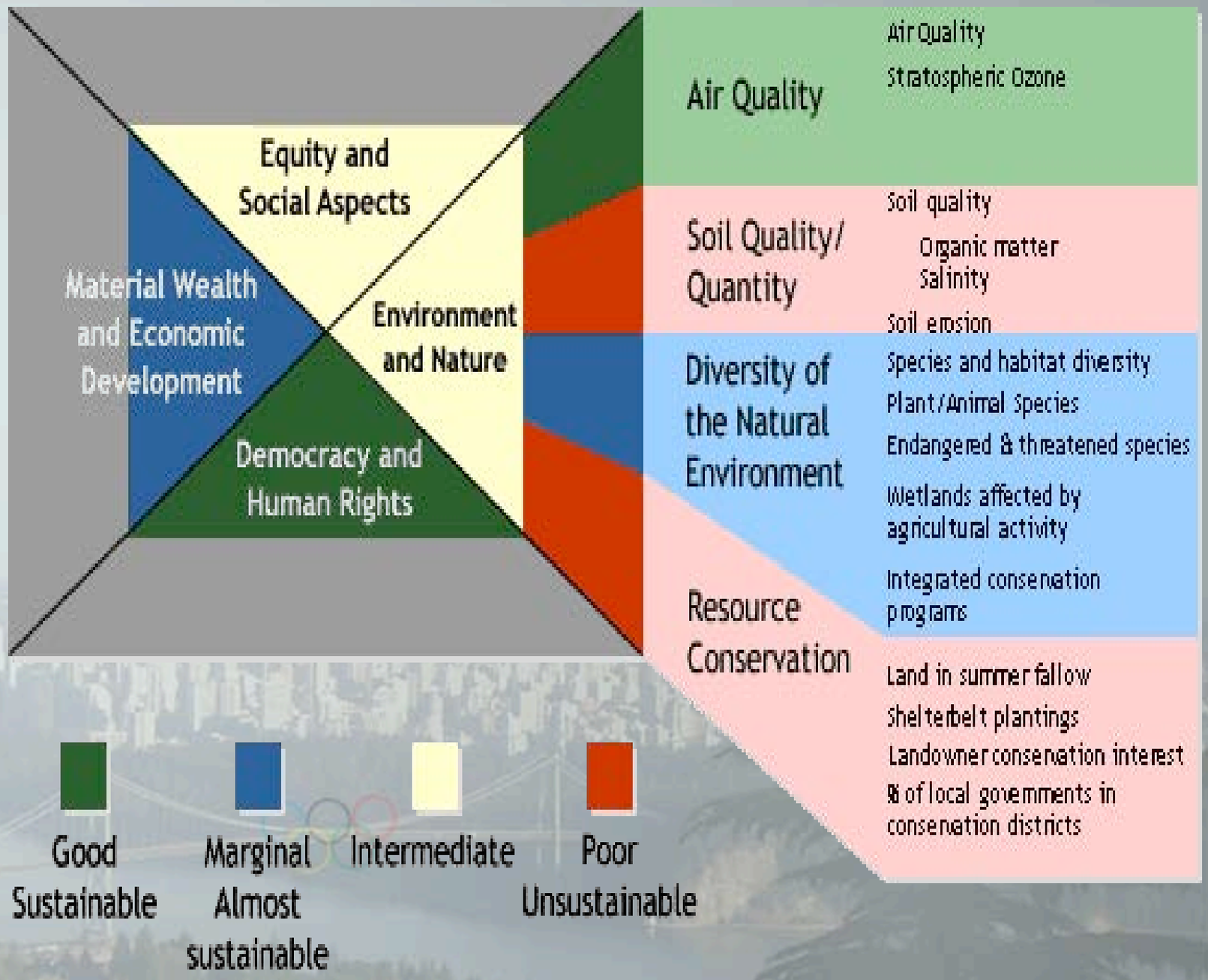
- 7,100 bed units of resident restricted housing
- Olympic village (Nordic Center)

Lower Cheakamus

- ~6,100 bed units of resident restricted housing
- Displaces Whistler Landfill

Measurements of Sustainability

- Bottom up indicators should be utilized to provide needed sustainability benchmarks.



Preserving Ecological Integrity

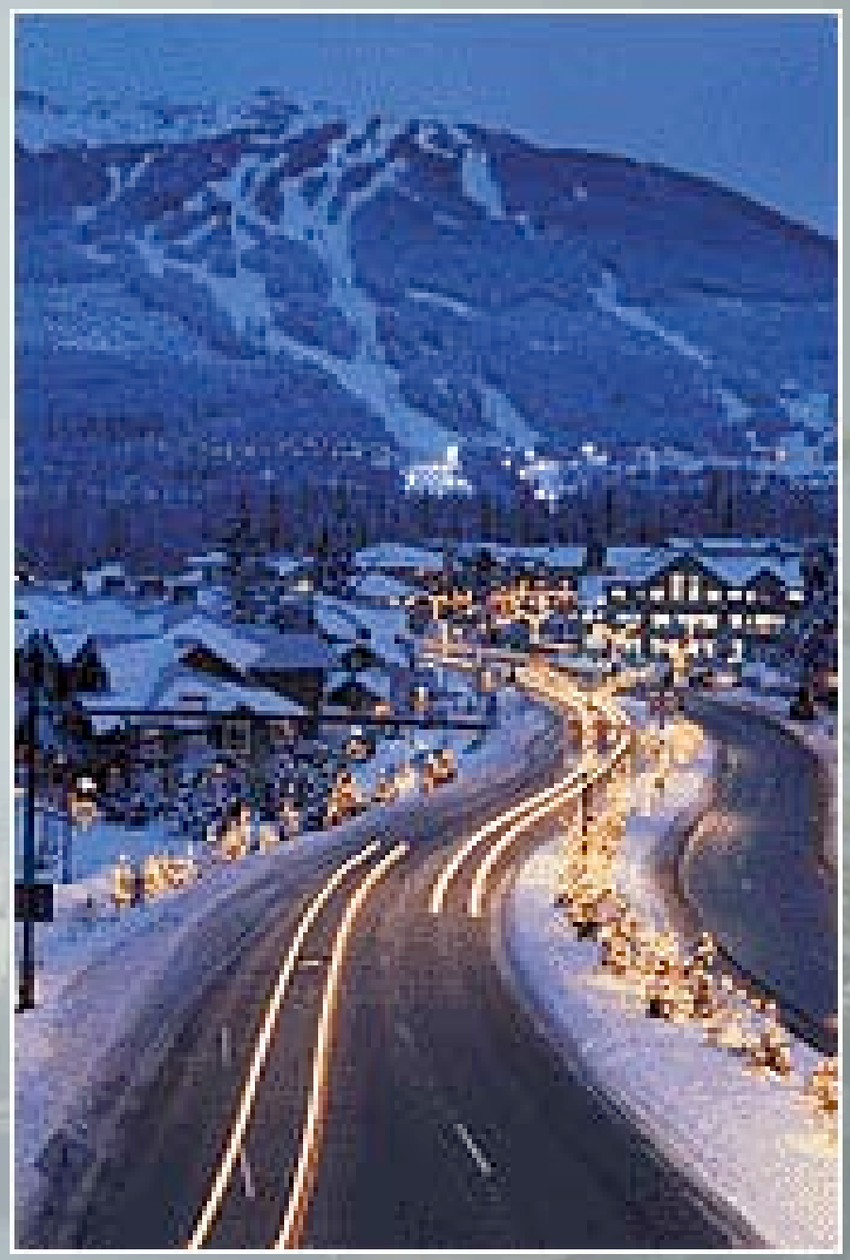
- Expand Whistler's Environmental Legacy Fund from local to regional
- Develop No Net Loss Area of Habitat Policy
- Identification of protected areas for conservation (wildlife corridors, watershed protection, storm water management)
- Complement protected areas with recreational greenways

First Nations & Involvement

- Promote public participation
- Preserve First-Nations history and culture

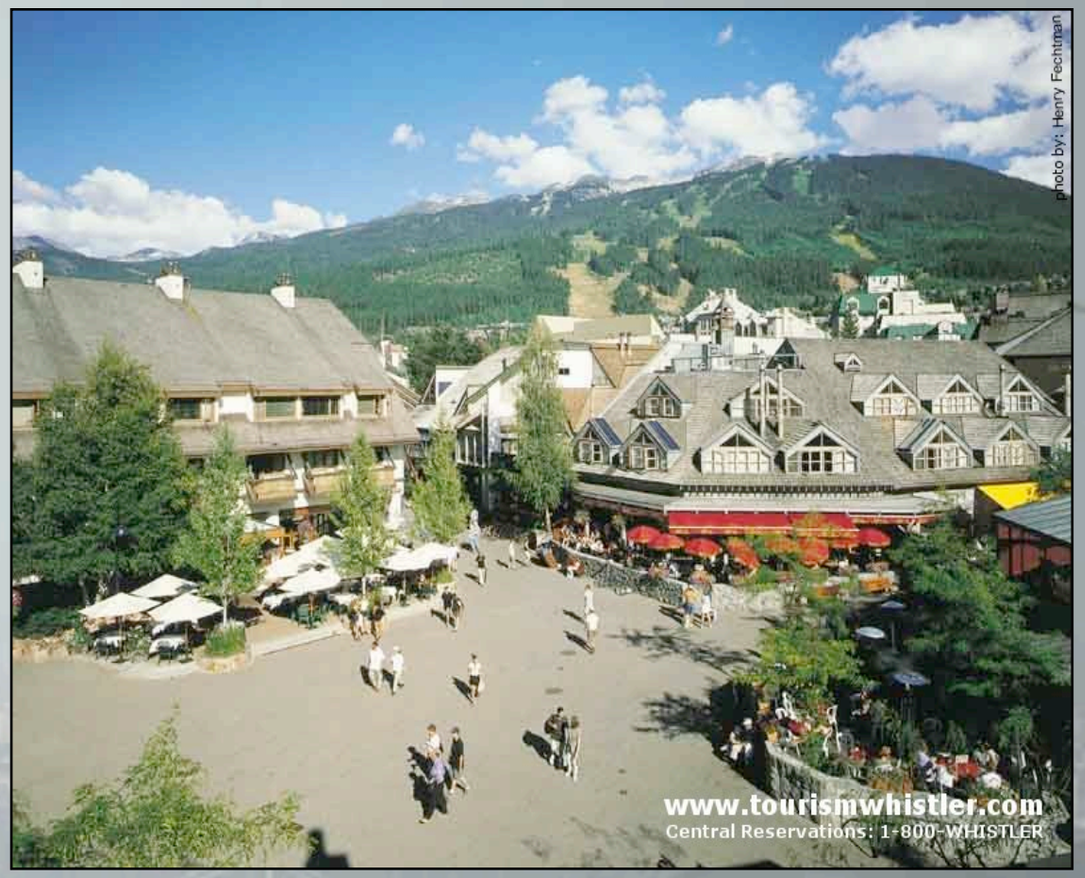
Developing a Regional Transportation Network

- Highway 99 has many sustainability issues
- New developments will need to be integrated into the Regional transit system.
- Promote ridesharing within communities in order to reduce car use.



Community Design

- Developments should be compact to encourage walking and cycling.
- New communities should also include:
  - Mixed use developments
  - Alternative energy sources
  - Recreational greenspaces



Option 1: Maintain the Status Quo

Option 2: Eco-Industrial Strategy

Option 3: Sustainability Indicators

Options / Criteria	Maintain the Status Quo	Industrial Symbiosis	Sustainability Indicators
Opportunities for Sustainable Economic Development		X	X
Measurements of Sustainable Economic Development			X
Preserve Ecological Integrity		X	X
Working with First Nations			X
Provide development that maximizes efficient land use		X	X
Concentrate Growth		X	X

Sustainability Indicators

- Satisfies all of the criteria
- Accountability
- Demonstrate to the world British Columbia is committed to working towards a sustainable future

Recommendation: Sustainability Indicators

The Planning Departments Should:

a) Meet with the residents of the District to develop a definition of what sustainable economic development is.

b) Communicate to the residents appropriate tools needed to achieve their definitions of sustainable economic development.

c) Meet with both the Squamish and Lil'wat Nations to learn how to incorporate their history and culture into the sustainable economic development of the District.

The Development Corporations should:

a) Market the opportunities for sustainable economic development within the District to entrepreneurs interested in locating in the District.

b) Meet with residents of the District to decide upon the measurements for sustainable economic development that will accurately reflect the different goals and challenges in pursuing this project.

Greening the VOCOG

Organizing, training and environmental management systems

Going for Green & Gold

- Build a ‘Green’ Olympic Games Corporation
- Develop a Model Structure for Future Organizations (Olympic and Other)

Issues

- Contributing members of the Games to learn sustainability skills
- Adopt a set of Environmental Management Standards (EMS's) to develop framework to help integrate sustainability concepts into day-to-day activities of contributing members
- Examples of EMS's:
  - ISO 14000, BS 7750, EMAS

Analysis Criteria

- Credibility
  - with communities and governments
- Disciplined Approach
  - to achieve environmental objectives
- Better Environmental Performance
  - through progressive improvements in EMS
- Dynamic Process
- Cost Considerations
- Supplier Compliance
- Marketing Opportunities
- Feasibility

Options for Consideration

- 1: Minimum Requirements
  - Adopt Sydney 2000 "Green Games" Standards
    - Building Design
    - Transportation (Alternative Fuel Vehicle Fleet)
    - Recycling Strategies

Options for Consideration

- 2: Provide Training Programs for Contributing Members on Environmental and Sustainability Issues
- Supply Chain Management
- Sustainability Reporting
- Workplace Design
- LEED Workshops for Staff

Options for Consideration

- 3: Develop a Comprehensive Environmental Management System
  - ISO 14000 Certification
  - Integrate Environmental Thinking Into Corporate Structure
  - Plan-Do-Check-Act

Recommendation

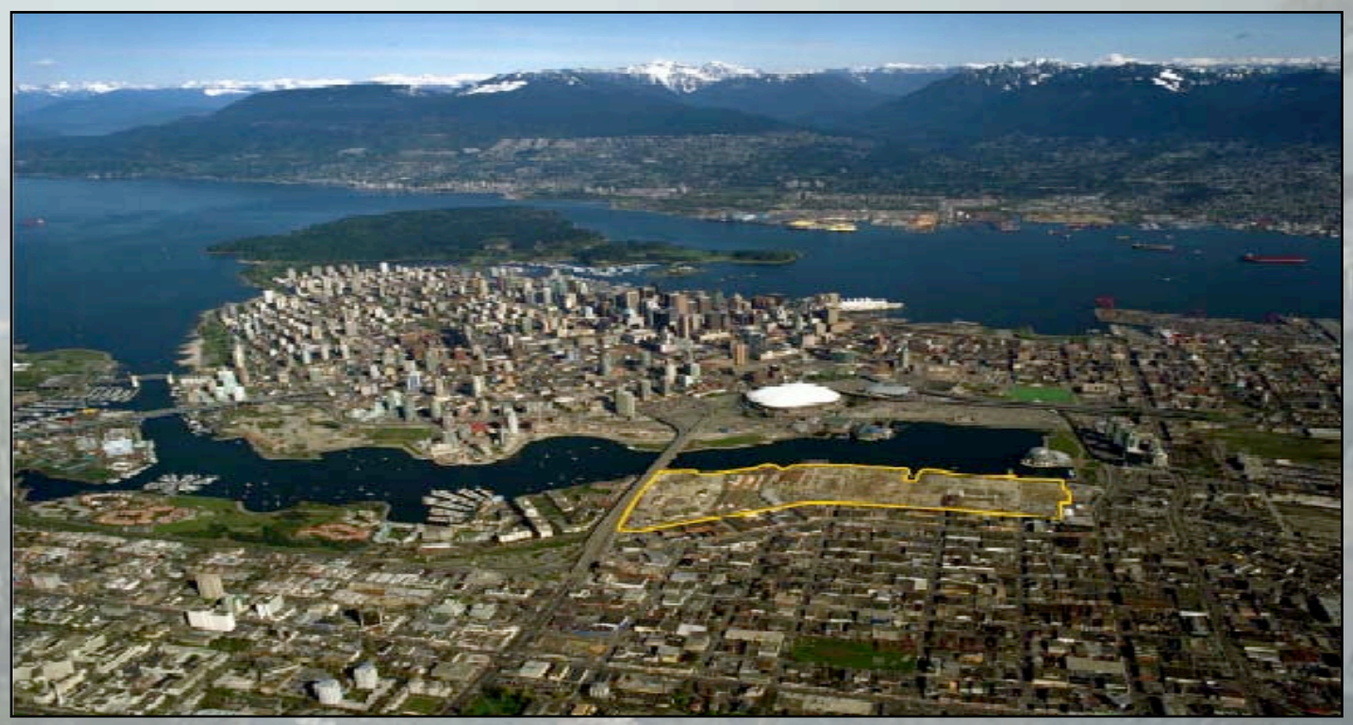
- Adopt Options 2 & 3
  - Option 2 (Training)
    - Continual Improvement
    - Better Environmental Performance
  - Option 3 (ISO 14000 EMS)
    - Credibility
    - Marketability
    - Flexibility
    - Continual Improvement

Sustainability in Southeast False Creek

Edward Abbey
Sean Connelly
Stephen Bailey
Amanda Himmelman
Monika Taylor

Introduction to SEFC

- Historically, this area has been used for industrial purposes
- The Athletes' Village for the coming 2010 Olympics will be located in SEFC
- SEFC has a sustainability mandate



Areas of Focus:

- Athletes' Village
  - Design
  - Affordability
  - Land tenure
- Attracting Commercial Business
- Community education and interaction

Criteria for the sustainability of the Athletes' Village

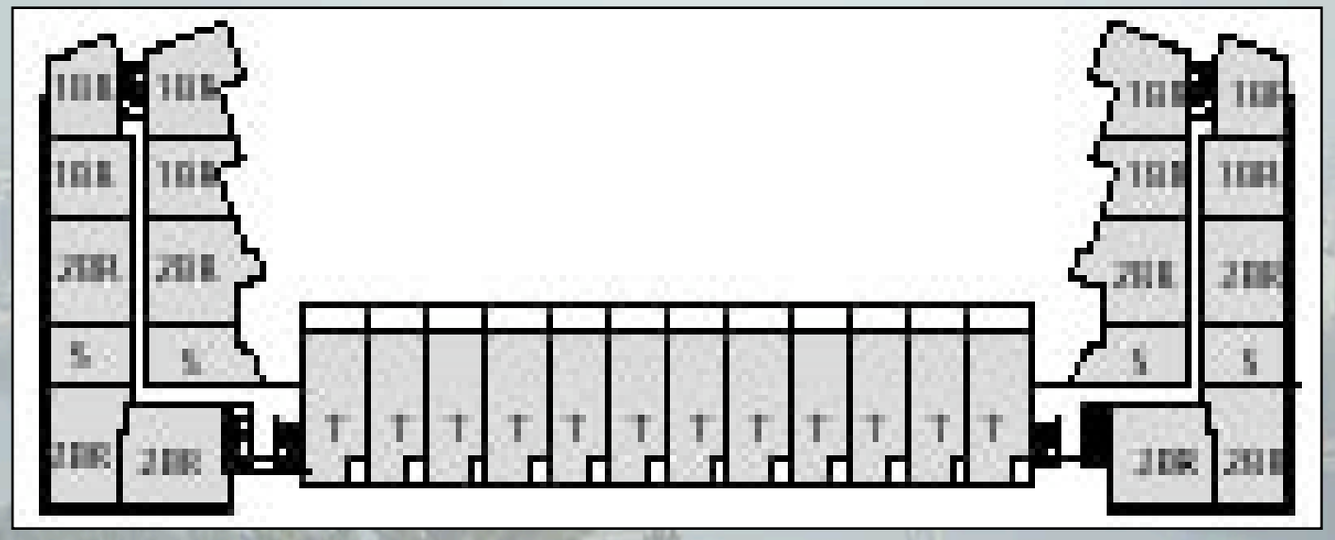
- Community participation
- Affordability and accessibility
- Flexibility and adaptability
- Cost-effectiveness
- Environmental impact

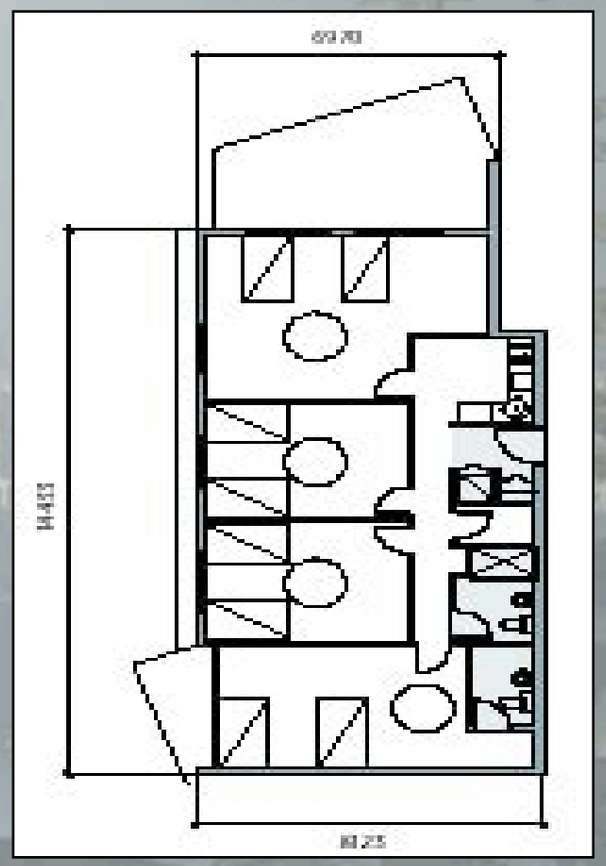
Design for Social Sustainability

- How can design for social sustainability be integrated into the Athlete's village and use that as a legacy for future use post-Olympics?

Recommendations to Vancouver Planning Department and the Chosen Developer

- Connecting adjacent units with lock-off doors, mini kitchenettes, separate bathrooms to allow more flexibility of use





Recommendations (cont.)

- Common Space – Games/TV room, common laundry room, meeting room with kitchenette, possible community daycare.
- Achieved through density bonuses

Affordable Housing

- How can the Athletes' Village be transformed into socially sustainable housing, and what format of affordable housing is the best fit for this proposed neighbourhood?

Options

- Rental Housing
- Cooperatives
- Life Lease
- Public Housing
- Ownership

Recommendation

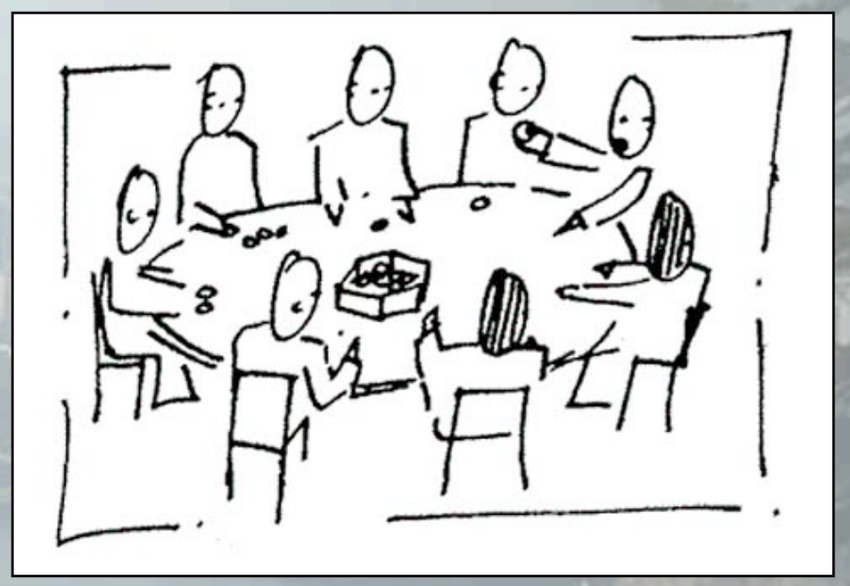
- The City of Vancouver should allot 75% of the non-market housing to a non-profit rental cooperative
- Affordable
- Targets mixed income
- Fosters social capital

Recommendations (cont.)

- The remaining 25% of non-market housing should be allotted to non-profit rental housing

Land Tenure for the Athletes' Village

- Can greater involvement of community institutions through land tenure arrangements provide incentives for sustainability?



Land Tenure Options

- Private ownership, long-term lease, mixture
- Mixture
  - Private
  - Free-hold lease
  - Long-term lease to non-profit
  - Community-based Land Trusts

Recommendations

- The City should:
- Maintain ownership of all of the Athletes' Village land through long-term leases.
- Retain public ownership of waterfront land
- cost-effective

Recommendations (cont.)

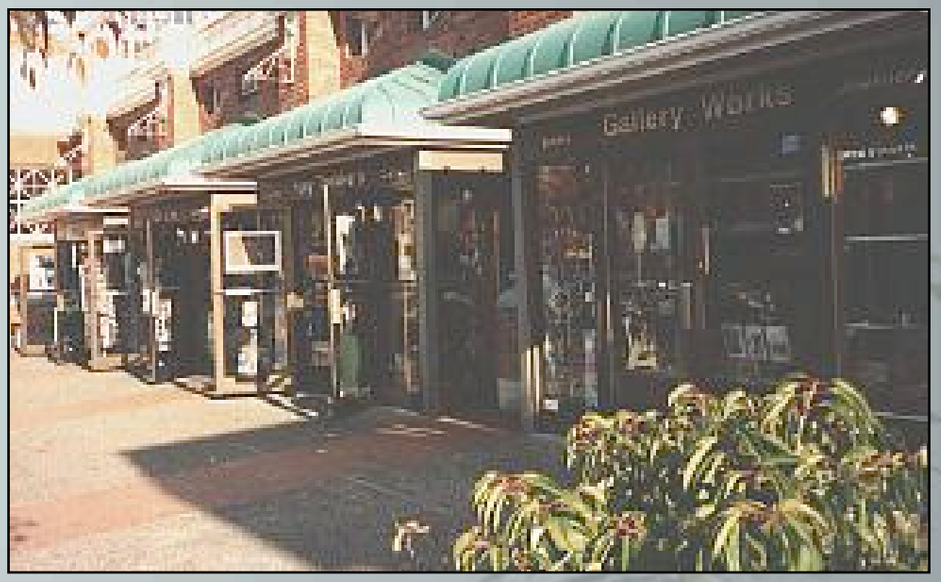
- The City should:
  - Develop the Southeast False Creek Land Trust (represents community, City and developers)
    - a site specific institution
    - based on the community land trust model
    - oversee development and determine future uses and lease arrangements.

Attracting Commercial Businesses: Considerations

- Products and services should reflect the values of a sustainable SEFC

Criteria for Desired Businesses

- Addressing local needs
- Sustainable Operations
- Venture viability
- Social equity
- Environmental sustainability
- Values and character of the area



Complications

- The population of SEFC will not offer a sufficient target market in its initial phase.
- Many small businesses will not have the financial capital to undertake occupancy under such risky conditions.

Options

- Subsidies
- Infrastructure expenditure
- Restricting competition
- Loans
- Business aid
- Marketing Packages
- City control of commercial space

Recommendations

- To benefit the community, environment and economy of SEFC the City of Vancouver should:
- Maintain control of the available commercial spaces. By doing so the City has the ability to select business which provide products and services catering to community needs.
- The City will have the ability to facilitate the commercial occupation of SEFC through incentives.

Social Sustainability

- How might social sustainability be improved SEFC through the use of the elementary school?

Criteria

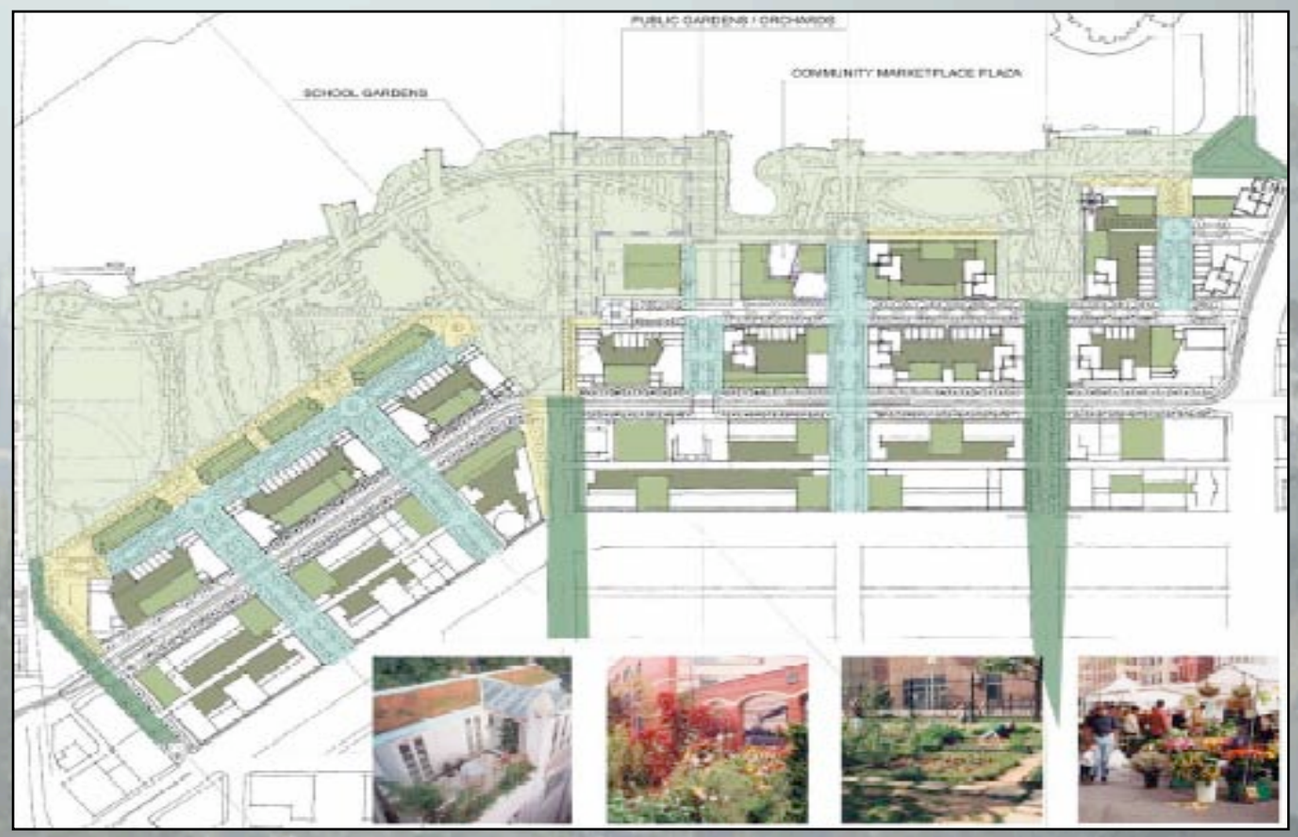
- Maximize educational value
- Maximize use of community spaces/ facilities
- Maximize community participation and interaction
- Provide the community with a learning environment
- Create a legacy for SEFC

Options

- Public use of the school library and gymnasium during evenings and weekends.
- A public internet access site at the elementary school, available to the public at no charge during evenings and weekends.
- A student and community-teaching roof top garden at the elementary school.

Current Plans for the Elementary School:

- According to the Official Development Plan for SEFC as of May 2003, the elementary school is located adjacent to the community teaching garden and will have a water collection roof.



Recommendations

- The Vancouver School Board should allow the school's roof to be used as an educational rooftop garden for students during school hours and for the community during evenings and weekends.

Conclusion

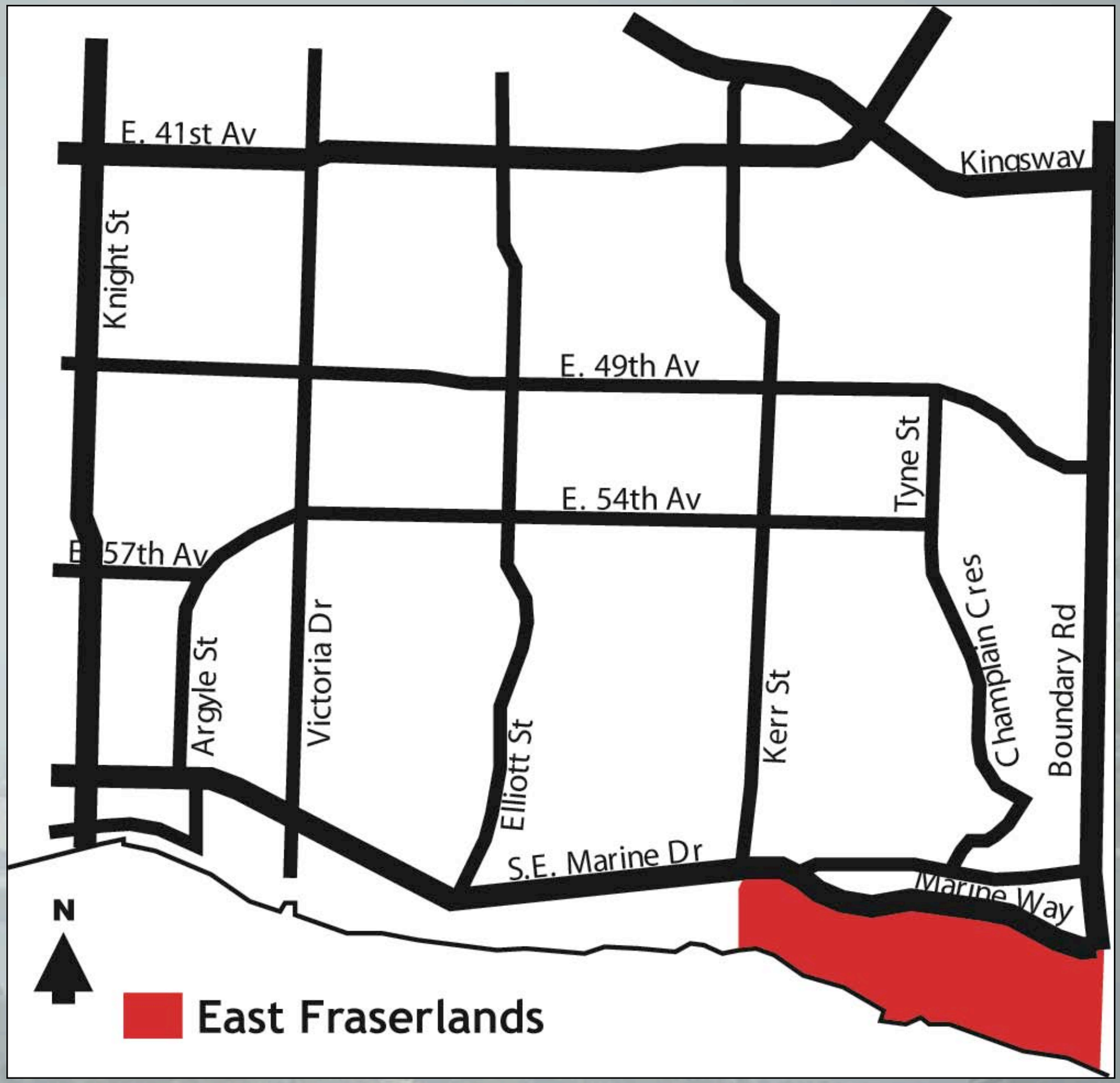
- We challenge the city of Vancouver, the eventual developers and the city planners to consider our recommendations and implement them into these future developments in Southeast False Creek.

East Fraserlands:

A Sustainable Community?

Background

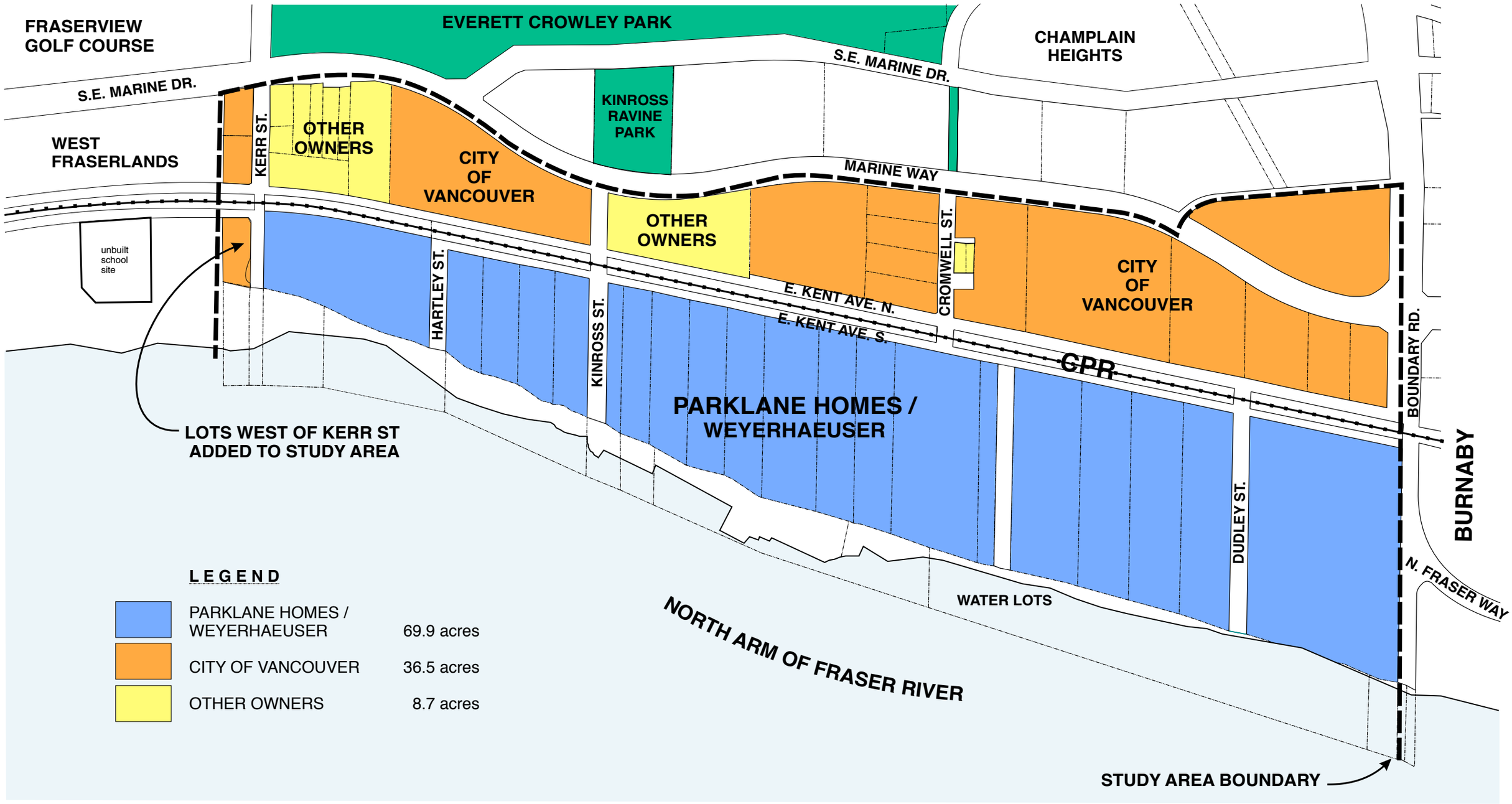
- East Fraserlands: a proposed development in southeast Vancouver, bordered by the Fraser River and Burnaby


E. 41st Av
Kingsway
Knight St
E. 49th Av
Tyne St
E. 54th Av
E. 57th Av
Argyle St
Victoria Dr
Elliott St
Kerr St
Champlain Cres
Boundary Rd
S.E. Marine Dr
Marine Way
N
East Fraserlands

1974

1995

EAST FRASERLANDS - OWNERSHIP



LEGEND

	PARKLANE HOMES / WEYERHAEUSER	69.9 acres
	CITY OF VANCOUVER	36.5 acres
	OTHER OWNERS	8.7 acres

Background

- Site is currently zoned industrial
- Previously housed Weyerhaeuser's Canadian White Pines Mill

Background

- Site is considered a "brownfield" as the soil is contaminated
- On-site soil remediation recommended

Problems

- The current East Fraserlands proposal does not address sustainability
  - Sustainability is vital to any development in Vancouver
- We focus on critiquing the current proposed housing, commercial use, transportation and wastewater management plans

Problems

- Current housing practices encourage:
  - Urban sprawl
  - Unaffordable units

Problems

- Current commercial practices encourage:
  - Big-box stores and malls
  - Money not being recycled in the local community
  - Large distances between housing and commercial areas, leading to excessive travel

Problems

- Current transportation plans encourage:
  - Unsustainable fuel consumption
  - Pollution
  - Lack of mobility for non-automobile users
  - Social isolation and safety concerns

Problems

- Current infrastructure design leads to:
  - Strain on existing systems
  - High construction costs
  - Do not allow for community input

Key Goals

- Reduce automobile dependence
- Have multiple objectives
- Plan for the long-term
- Consider cost/benefits and economic/ political feasibility

Solutions

- Sustainable housing can:
  - Contribute to efficient, compact and multi-use neighbourhoods
  - Reduce automobile dependence
  - Decrease energy use
  - Promote a sense of community

Solutions

- Sustainable commercial areas can:
- Encourage social interaction
- Increase community cohesion
- Contribute to community health & wealth

Solutions

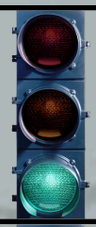
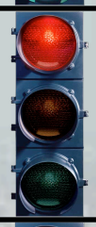
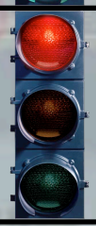
- Sustainable transportation can:
- Lead to a more interactive and healthy community
- Improve environmental and air quality, both locally and globally

Solutions

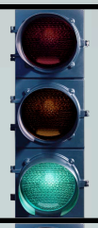
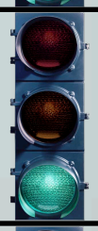
- Alternative wastewater management, urban agriculture and green roofs provide:
  - Long-term economic savings
  - Better environmental health
  - Enhancements in community vitality

Overall, we are aiming to create a flexible, profitable and healthy development in the East Fraserlands.

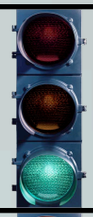
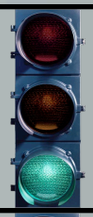
Criteria: Social

Criteria	Current Proposal (no changes)	Our Proposal (incorporate recommendations)
Meets needs of whole community		
Community involved in decision-making		
Social interaction (via design)		
Political feasibility		
Long-term community vitality		

Criteria: Economic

Criteria	Current Proposal (no changes)	Our Proposal (incorporate recommendations)
Financially attractive to developers		
Financially feasible		
Marketable (attractive to buyers)		
Stimulate local economy		
Job creation		

Criteria: Environmental

Criteria	Current Proposal (no changes)	Our Proposal (incorporate recommendations)
Remediation of brownfield site		
Efficient land use		
Improve water quality		
Conservation-based water management		
Resource & energy efficiency		
Improve ecosystem health & vitality		

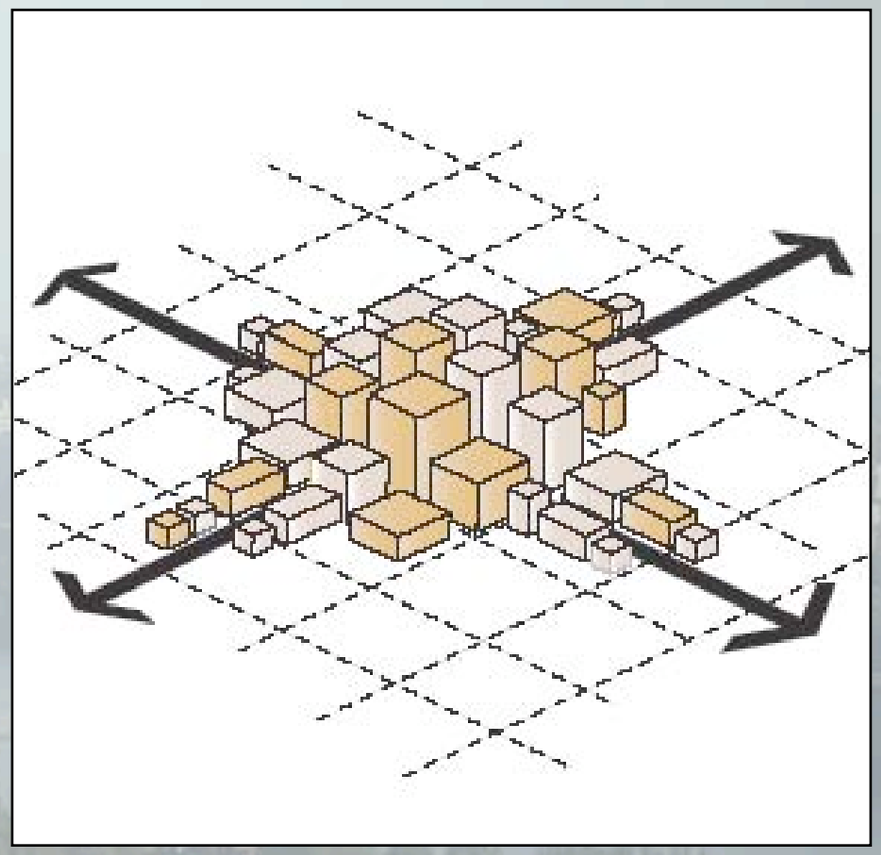
Recommendations

Housing

- Recommendation 1:
  - Carefully consider the distribution of housing density across the site

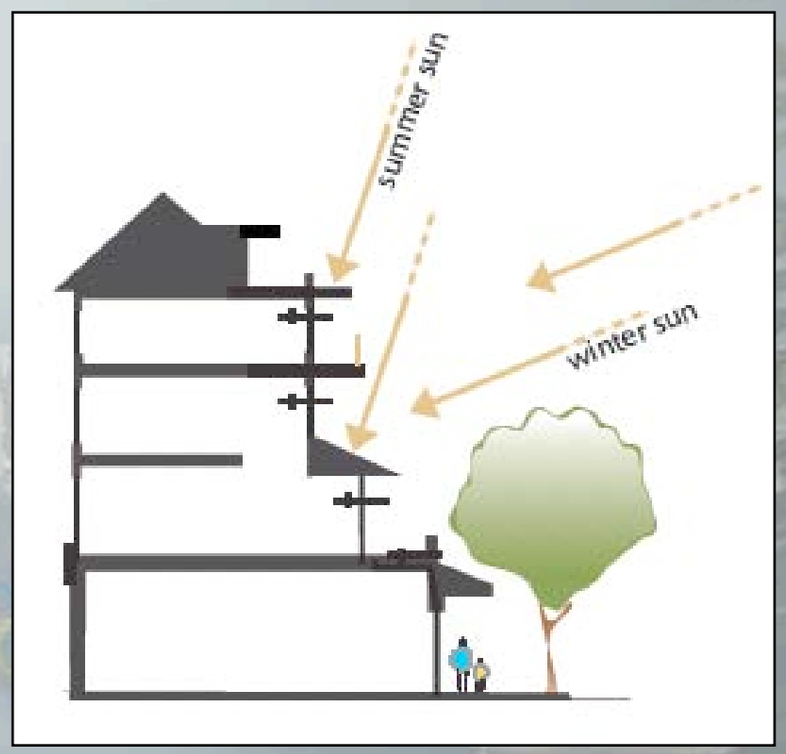
Housing

- i. Higher densities should be located at the centre of the site



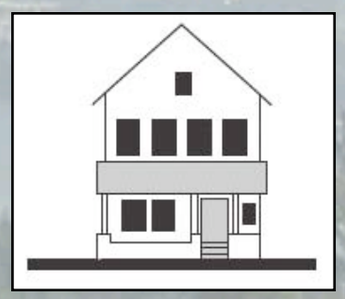
Housing

- ii. Buildings should be placed in relation to natural features and phenomena



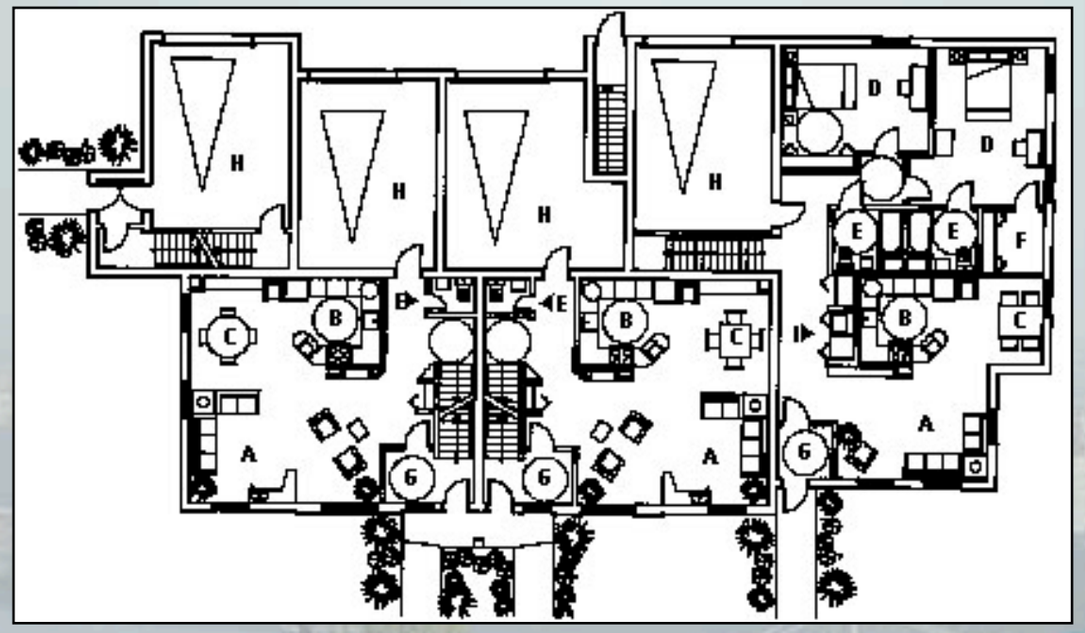
Housing

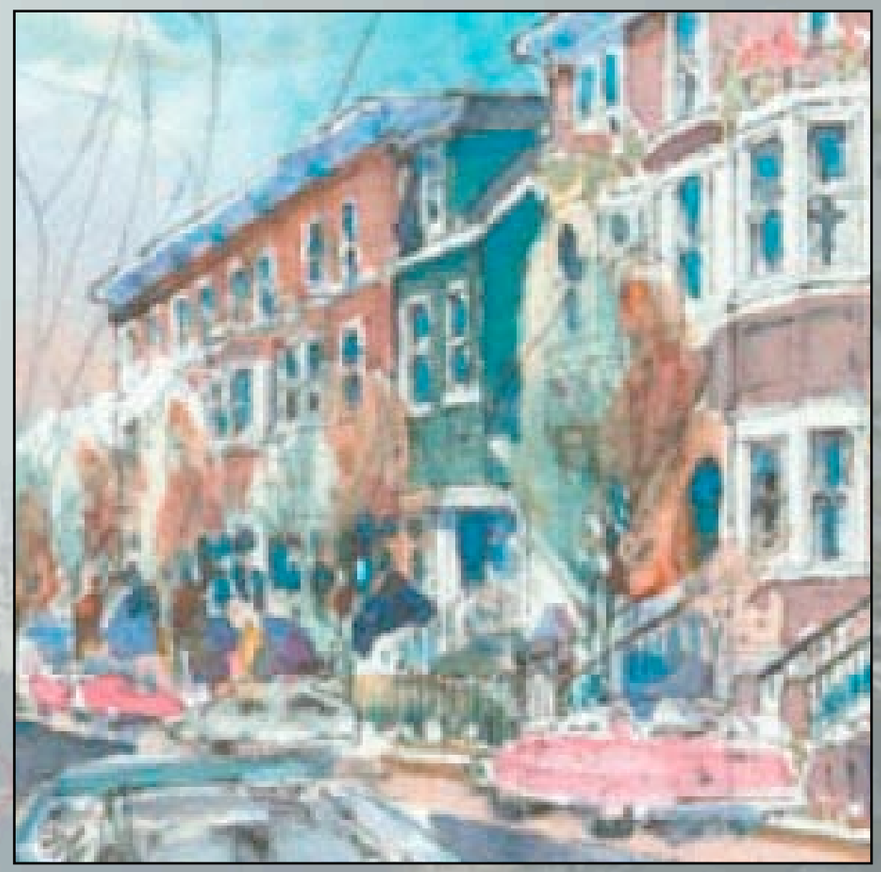
- Recommendation 2:
  - Ensure a mix and variety of housing types




Housing

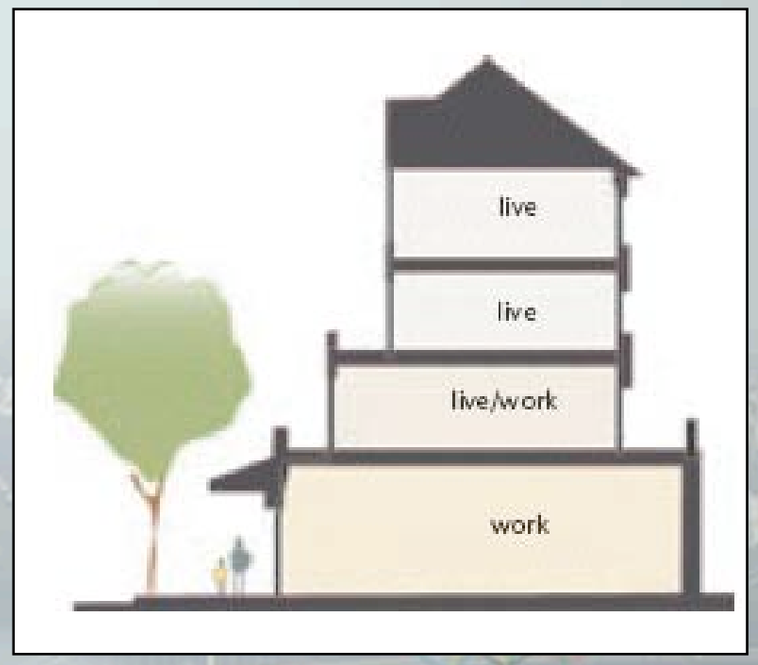
- i. Housing should be flexible





Housing

- ii. Housing should be layered and incorporate multiple uses



Housing

- Recommendation 3:
  - Incorporate green technology into building design

Housing

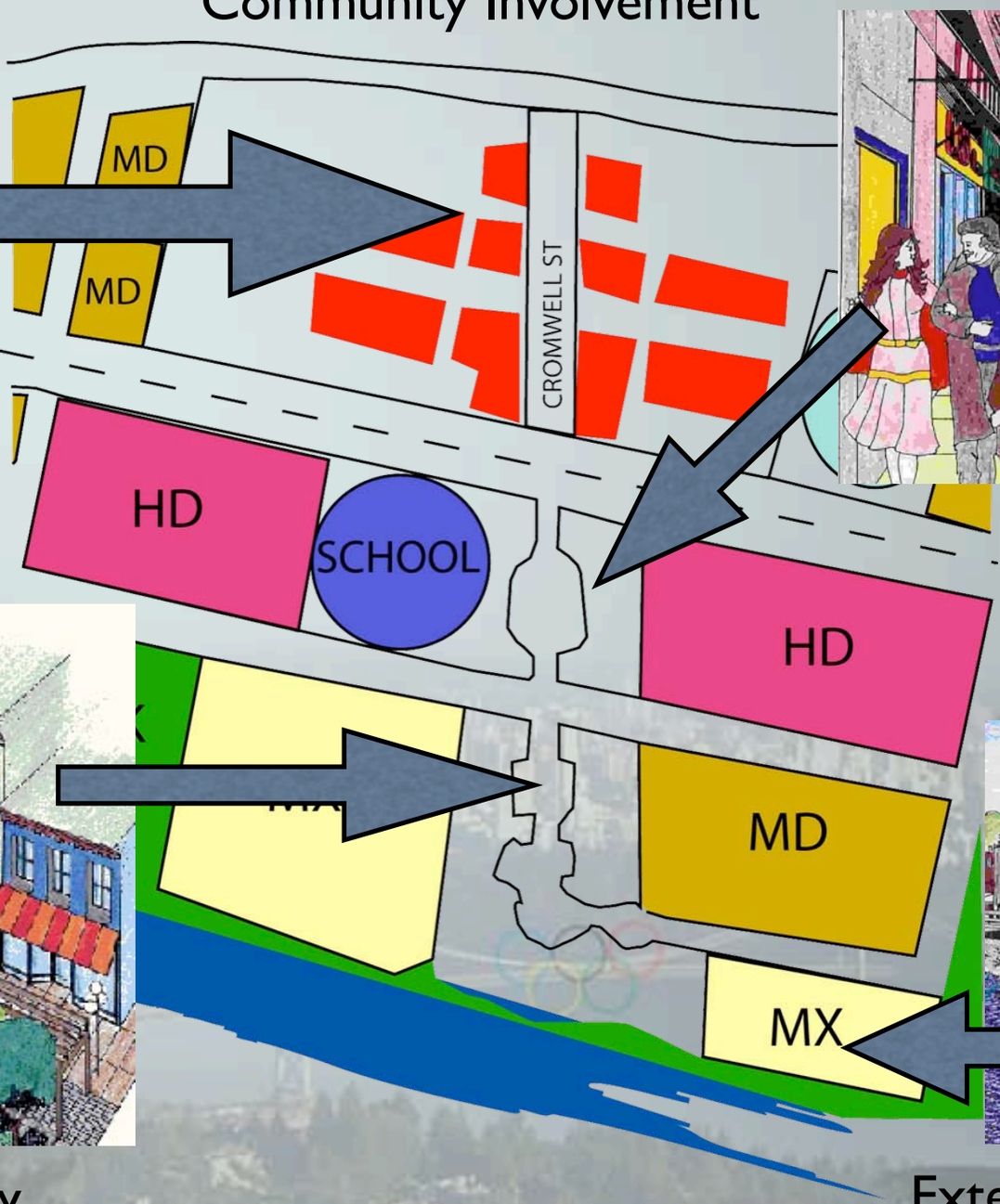
- i. Developers should utilize efficient, “green” materials and products

Housing

- ii. Incentives should be created for developers to include green technologies

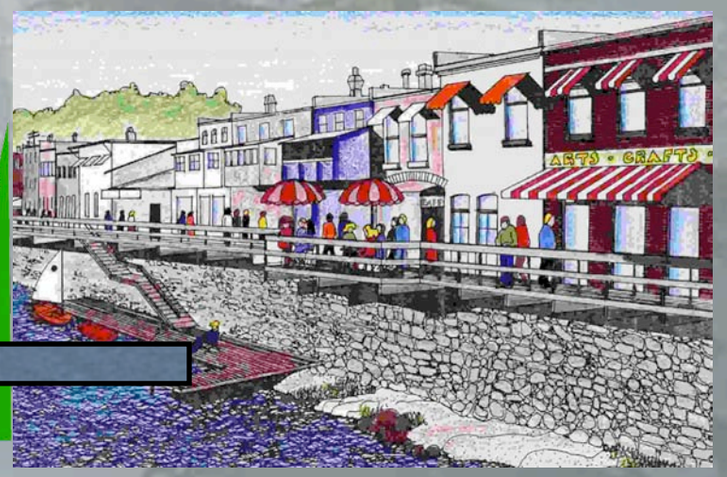
Commercial and Neighbourhood Centres

Community Involvement



Limited Car Access

Pedestrian/Cyclist Only



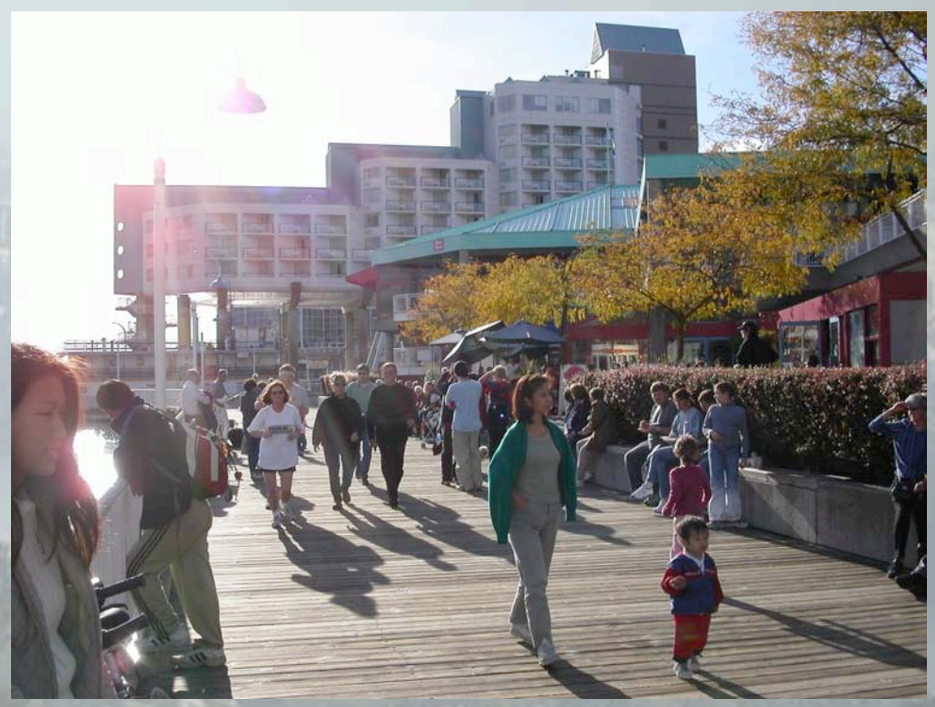
Extended MX Along Waterfront

Commercial and Neighbourhood Centres

- "Community-serving" businesses:
  - Complemented by some smaller, more specialized stores (such as cafes, or hobby stores)
- Everyday needs met with businesses such as banks, pharmacies and grocery stores

Commercial and Neighbourhood Centres

- Pedestrian/cyclist only street, combined with limited car access
- Creates a safer and healthier community



Commercial and Neighbourhood Centres

- More mixed-use along the waterfront
  - Enhances community interaction
  - Increases diversity in economic activity

Commercial and Neighbourhood Centres

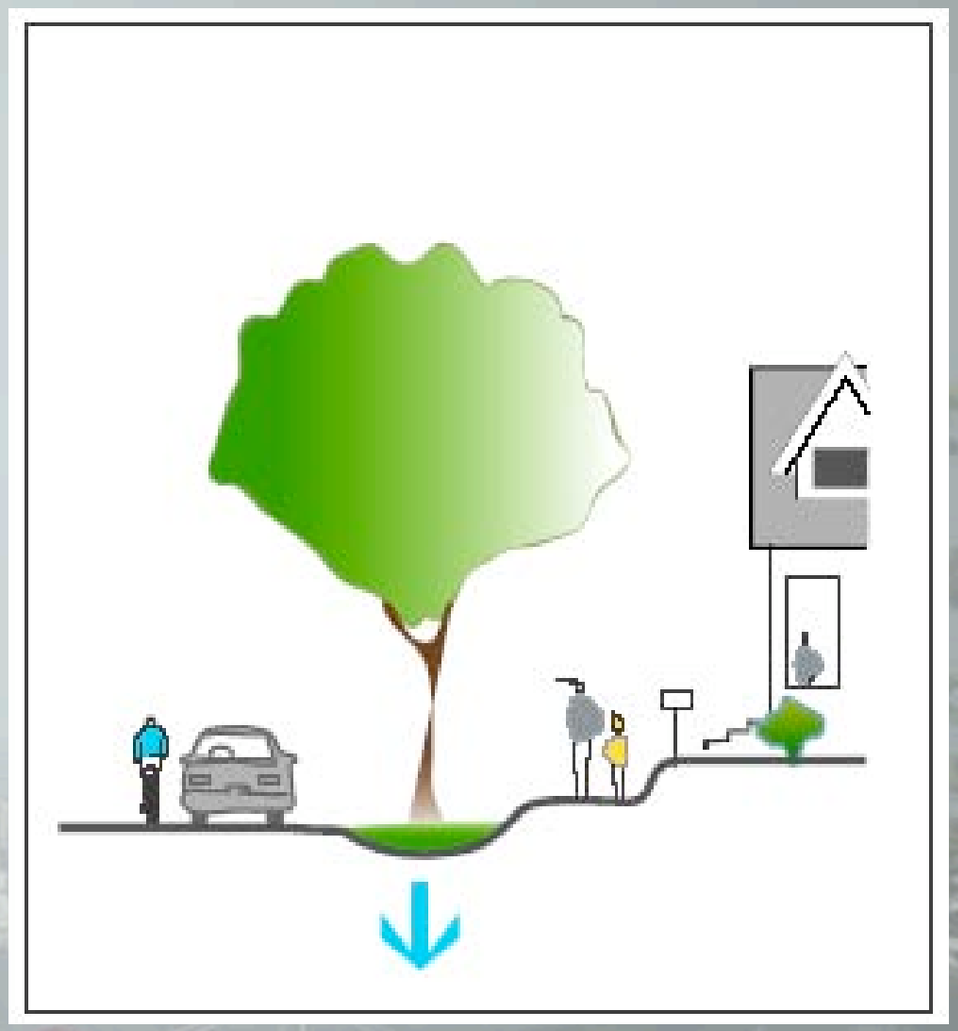
- Increase Community Involvement:
- Encourages more people to take part in activities
- Increases safety and quality of life

Transportation: Overall Recommendations

- Walkable distances
- Green, pedestrian and bicycle friendly street design
- Safety
  - Broad sidewalks, lighting, bikeways, bus shelters, etc…
- Accessibility
- Promote alternative modes of transportation
  - Like the "Walking School Bus", car-sharing or car co-ops

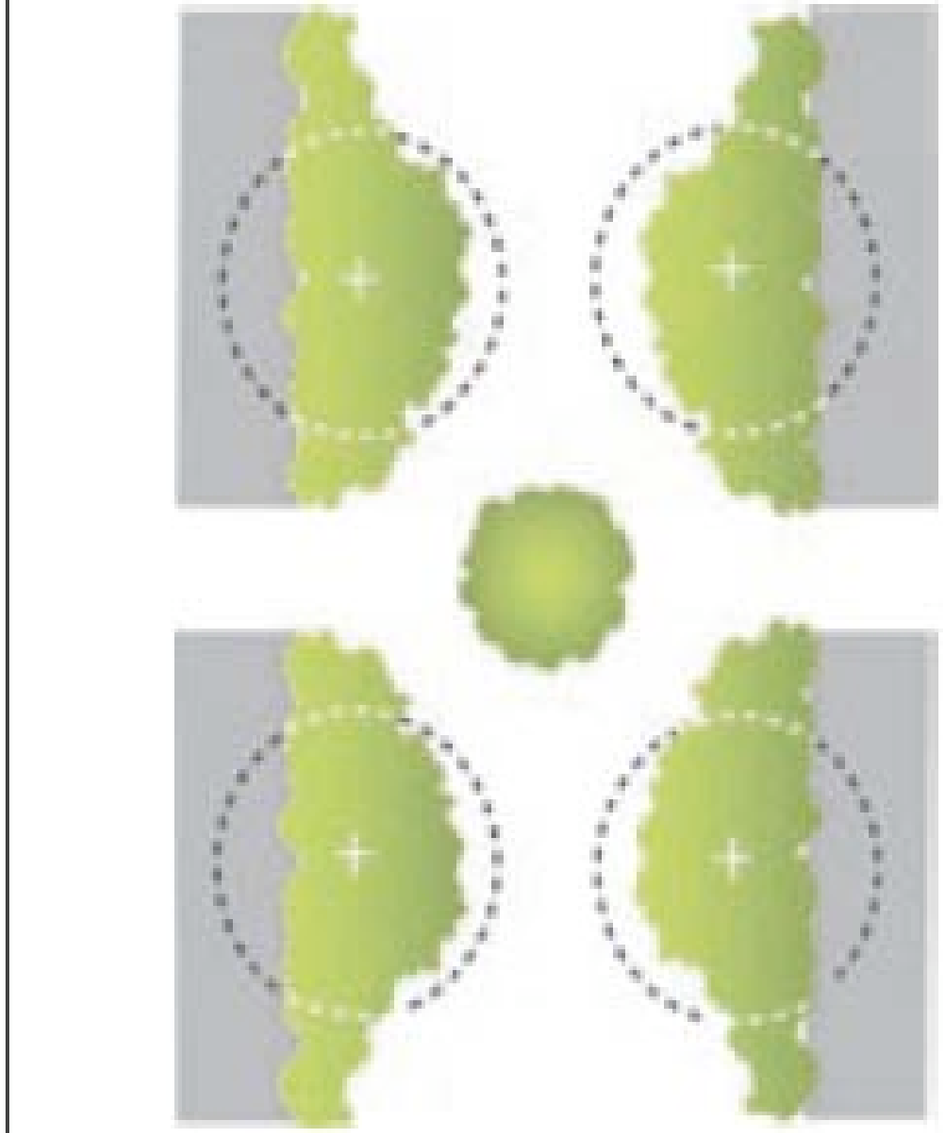
Recommendations for Green Streets

- Divide sidewalk and street by rows of trees
  - Friendly environment promotes walking
  - Trees reduce glare, create shade and improve urban ecology
- Narrow streets
  - Reduce run-off



Recommendations for Safety

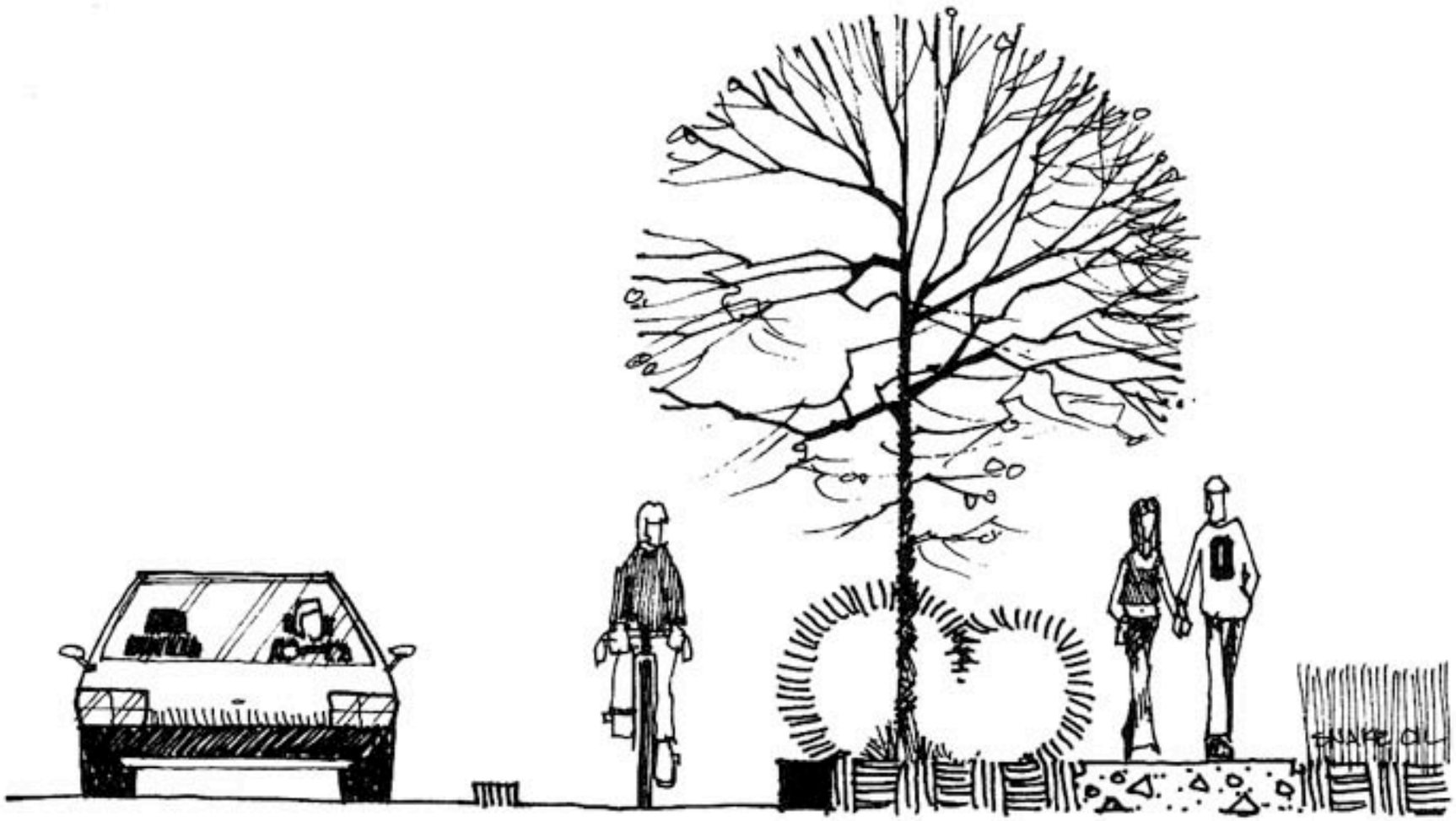
- Slow down traffic in whole EFL area
  - 30km/h zone
  - Roundabouts and narrow streets
- Lighted and safe pedestrian crossings and bikeways
- Provide separate and distinct areas for pedestrians and cyclists



Recommendations for Accessibility

- Provide frequent bus stops & shelters with easy access to the disabled, the elderly and parents with strollers
- Provide bike lockers and bike racks in high-traffic areas
- Bike shop on the high street
  - Repairs & rentals

Transportation



Class II bikeway: adjacent to, but separated from, automobile and pedestrian traffic.

Recommendations for Transportation

- Translink Should:
  - Secure more financial funding
  - Long term sustainability relies on community shuttles that are:
    - Accessible
    - Provide Frequent Services

Recommendations for Transportation

- The City of Vancouver Should:
  - Provide incentive for developers that are sustainable
  - Promote transit-oriented development and Car Co-op
  - Educate public about sustainability

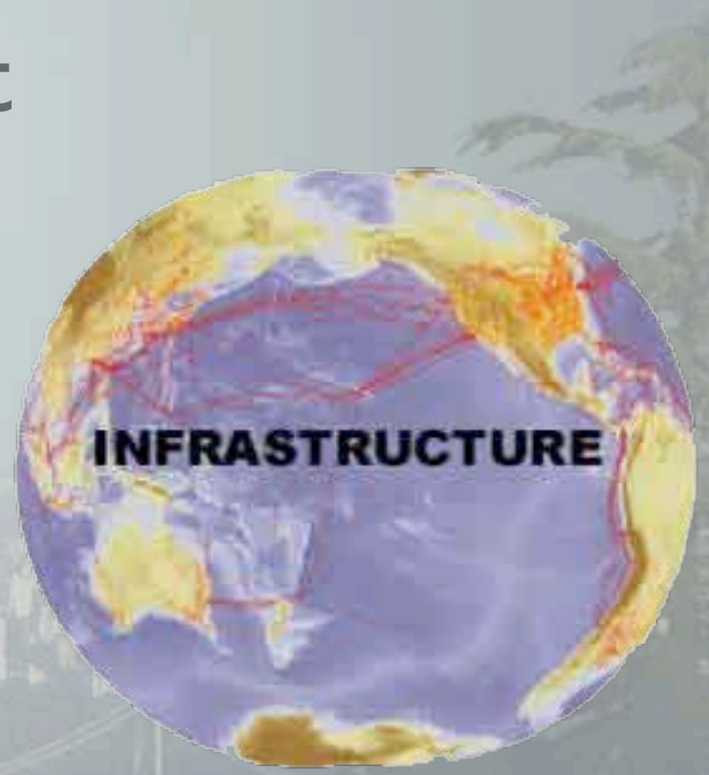
Recommendations for Transportation

- Parklane Homes Should:
  - Explore the market response to a sustainable community design
  - See sustainability as an opportunity instead of a risk

PARKLANE HOMES

Recommendations for Green Infrastructure

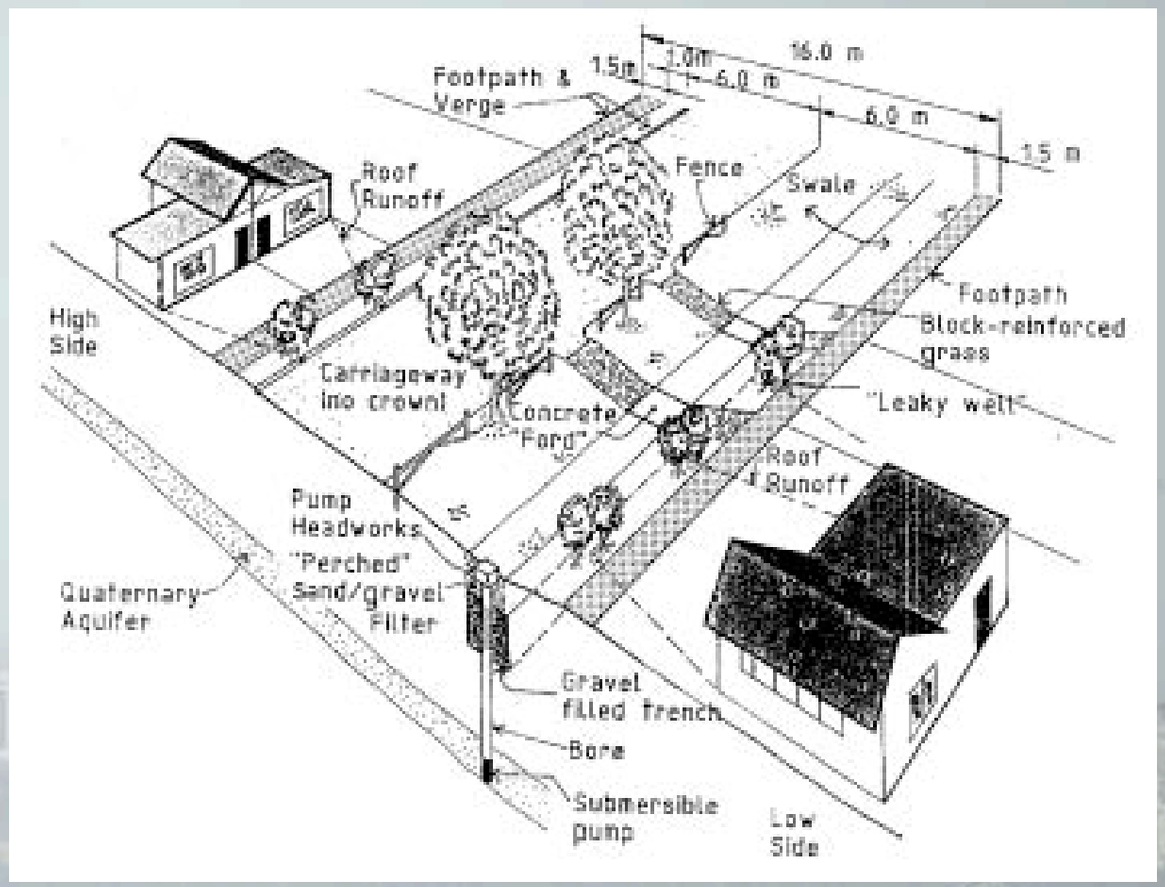
- Wastewater management
- Urban Agriculture
- Green Roofs



Wastewater Management

- Keep run-off on the surface
- Incorporate swales and engineered wetlands in landscape design
- Reduce 30 metre setback
- Install 8-15 metre riparian strip along the riverbank

Wastewater Management



Swales

Wastewater Management

Swales

Wastewater Management

Engineered Wetland

Urban Agriculture

- Create a community or market garden adjacent to the school
- Design buildings and sites to allow for private and community gardens to be installed in residential areas
  - Costs are equivalent to standard landscaping and can raise market value of properties

Urban Agriculture

Community Garden at Grandview Woodlands School

Green Roof

- Design green roofs to allow for private and community gardens
- Cost is approximately $25,000

Green Roof Herb Garden at
the Fairmont Waterfront Hotel

Conclusion

As can be seen in our presentation, economic, social and environmental aspects of everyday life are important factors to consider when developing a new community.

We hope that you will bring our vision of a more sustainable East Fraserlands into reality by adopting our recommendations.

Conclusions

- City of Vancouver Principles of Sustainability
  - Today's decisions must not compromise the choices of our children and future generations.
  - We are all accountable for our individual and collective actions.
  - Resources must be used fairly and efficiently without compromising the sustainability of one community for another.

Conclusions

- City of Vancouver Principles of Sustainability
  - Using renewable resources is encouraged and supported, while the use of non-renewable resources should be minimized.
  - Renewable resource consumption should not exceed the rate of regeneration.
  - Strong collaboration and open communication between the public, the business sector and all levels of government are important.

Conclusions

- City of Vancouver Principles of Sustainability
  - We value cultural, economic and environmental diversity.
  - A community should provide a safe, healthy and viable setting for human interaction, education, employment, recreation and cultural development.
  - A sustainable Vancouver contributes to, and provides leadership towards, regional, provincial, national and global sustainability.

Q & A