INTERDISCIPLINARY DESIGN STRATEGY
INSTITUTE WITHOUT BOUNDARIES

CITY SYSTEMS YEAR 3
PROJECT OVERVIEW 2011/12

Interdisciplinary Design Strategy at the Institute without Boundaries is a post-graduate program within the School of Design at George Brown College.

www.institutewithoutboundaries.com | www.worldhouse.ca

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INSTITUTE WITHOUT BOUNDARIES

NOTE TO STUDENTS
Academic Departments at GBC will not retain historical copies of the program outlines. We urge you to retain this Program Outline for your future reference.

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George Brown College values the talents and contributions of its students, staff and community partners and seeks to create a welcoming environment where equity, diversity and safety of all groups are fundamental. Language or activities which are inconsistent with this philosophy violate the College policy on the Prevention of Discrimination and Harassment and will not be tolerated. The commitment and cooperation of all students and staff are required to maintain this environment. Information and assistance are available through your Director, Student Affairs, the Student Association or the Human Rights Advisor.

WELCOME TO THE
INSTITUTE WITHOUT
BOUNDARIES

it
starts
with
you

WELCOME

The Institute without Boundaries' Year Three of the City Systems Project brings together many talented students, faculty, advisors and partners from diverse professional, academic, and cultural backgrounds. Individuals from fields such as Architecture, Graphic Design, Industrial Design, Politics, Development, Art Curation and beyond will collaborate and exchange ideas. As the project unfolds, community members, guest lecturers and many others will all contribute to a completely unique educational experience.

Year Three of the City Systems Project provides many incredible opportunities and challenges. Long hours finishing projects; numerous presentations to faculty and client representatives; engaging in charrettes with students from different programs at George Brown College and from other College and University programs in the region; producing professional-quality exhibitions, proposals, books and videos; and most importantly, learning an incredible amount about design and teamwork are all part of the experience of taking part in the Institute.

This document presents an overview of the major project being undertaken during the 2011-12 academic year and covers some of the details of how the project will unfold.

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VISION

Collaborative design practice for a better world.

MISSION

Fostering collaboration between disciplines to create innovative local solutions to 21st century global challenges.

VALUES

Students, faculty, mentors and advisors share a commitment to collaborate, conceptualized, create, test and share. These are informed by values that include:

- Innovation
- Respect
- Openness
- Compassion
- Diversity
- Curiosity
- Collaboration
- Honesty
- Diligence
- Fairness
- Integrity
- Creativity

ABOUT THE IWB

The Institute without Boundaries (IwB) was founded in 2003 by the School of Design at George Brown College, in consultation with Bruce Mau. It is a unique academic and research and development program focused on collaborative design practice with the objectives of social, ecological and economic innovation through design research and strategy. Central to this work are real projects of public and global significance that are executed by students, faculty and industry experts as part of academic curriculum, research initiatives and creative projects.

Massive Change: The Future of Global Design, was the Institute's first project, commissioned by the Vancouver Art Gallery, and led by Bruce Mau Design. In its inaugural year, six students worked in the Bruce Mau Design Studio researching, writing and designing the Massive Change exhibition, website, radio show and book. These highly successful products sparked a discourse on the potential of design to leverage positive change for the future.

In 2004, eight new students carried the project to fruition. Massive Change: The Future of Global Design premiered at the Vancouver Art Gallery with a 20,000 square foot exhibition. The following year, Phaidon published the Massive Change book, and the student-designed Massive Change product line was launched by Umbra. In 2005, graduates of the Institute collaborated with the School of Design at George Brown College to build the Massive Change in Action website for the Virtual Museum of Canada. The Massive Change exhibit also travelled to the Art Gallery of Ontario in Toronto and the Chicago Museum of Contemporary Art.

In 2006, the Institute entered its second phase with a three-year initiative, the World House Project, which builds upon the research and energy of Massive Change. The World House Project confronted the necessary evolution of shelter for coming generations by developing housing systems based on principles of sustainability, accessibility, technological responsiveness and ecological balance. The Institute continues its research on the future of housing through faculty-led initiatives such as the Canuhome and Health-e Home.

Starting in September 2009, the IwB will has embarked on a new project: City Systems. This project examines the city at macro and micro levels, seeks to understand the mechanisms and façades of the urban environment, and explores the past, present, and future of civilization as it relates to urban life.

OBJECTIVES

- Promote a design methodology based on co-creation.

- Develop leading-edge projects that can serve as curriculum challenges for students, faculty, industry-mentors, and international groups.

- Conduct these projects with the Institute acting as a catalyst for participation of schools and professionals from around the world.

- Create and exhibit design solutions in a provocative manner.

- Support the evolution, growth and success of the students, alumni and mentors of the Institute to enhance their influence and visibility.

- Promote design-based education and foster an understanding of design as a capacity-building tool.

- Explore, in the long-term, the following 10 challenges identified by ICSID Senator Luigi Ferrara for the International Design Alliance (IDA), made up of International Council of Societies of Industrial Design (ICSID) and International Council of Graphic Design Associations (ICOGRADA):

10 CHALLENGES FOR DESIGN

1. Respond to the needs of our world's aging population so that this group of people can continue to contribute to society and lead healthy, engaging and vital lives.

2. Provide coordinated assistance and reconstruction in cases of emergency, natural disaster, severe weather and man-made disasters.

3. Develop shelter for all people that balances the utilization of resources and the distribution of opportunity between the developed and developing world.

4. Create a new means of sustainable transportation for goods and services, that is either physical or virtual and that does not damage the environment.

5. Preserve and enhance diverse identities and cultures while maintaining social cohesion and allowing for global migration flows.

6. Feed the planet equitably while maintaining and enhancing soil quality and respecting the dignity of all species.

7. Bring access, knowledge and understanding to people everywhere so that there is powerful and positive communication between nations.

8. Imagine and develop clothing that extends our life and health while providing beauty, identity and personal self-expression.

9. Design a world economic system that respects and rewards volunteer, social and community work.

10. Create systems that regenerate, conserve and optimize the use of soil, water and air, thus maintaining the resources required to sustain life.

PURPOSE & METHODOLOGY

The Institute without Boundaries is organized around the belief that learning is most effective when a community shares an ambitious challenge and is willing to collaborate to find the knowledge, creativity and innovation required to solve it.

The Institute offers a learning experience that equips graduates with the capacity to solve 21st century challenges by focusing the program around real design projects with tangible outcomes. The result is that students experience the demands of a real project and the required intellectual and creative rigour. Throughout the semester, students engage in a process of research, analysis, conceptualization, proposition, visualization, experimentation, testing, revision and presentation of theories in the public domain. The Institute also hosts lectures, seminars, workshops and intensive learning sessions from industry leaders. This process combines traditional apprenticeship with traditional classroom and studio-based education, forming a new learning pedagogy that is unique to the Institute.

Inspired by the insight that learning is most powerful when you are involved in every aspect of a project, curriculum at the Institute is structured to foster learning across disciplines. Students, faculty, mentors and advisors of different geographic, cultural and professional backgrounds come together to share their expertise. To this end, the Institute's educational program presents the following opportunities for students:

- Contribute to a multi-disciplinary studio environment where students, faculty, mentors and advisors collaborate to conceptualize, visualize, design and learn from each other.

- Work on real challenges that have the potential for global benefits.

- Share findings with the public in a meaningful way.

- Learn through participation in every aspect of a project, assuming a variety of roles.

- Attend lectures, seminars and workshops from industry leaders that augment overall knowledge and skills.

- Receive critical feedback, appraisal, direction and support from faculty, peers and mentors on project deliverables to augment the self-evaluation process.

- Practice a "think and do" research approach, applying secondary, primary and applied research methodologies to the design process.

- Follow best practices of a professional design studio using design strategy, design briefs, design management and project management tools.

- The Institute without Boundaries has three components: a post-graduate education program that teaches design collaboration to professionals from diverse backgrounds; a research division that furthers the pursuit of knowledge related to topics arising from the curriculum; and a commercial division that offers professional design consultation services to clients. The Institute without Boundaries is situated within the School of Design at George Brown College.
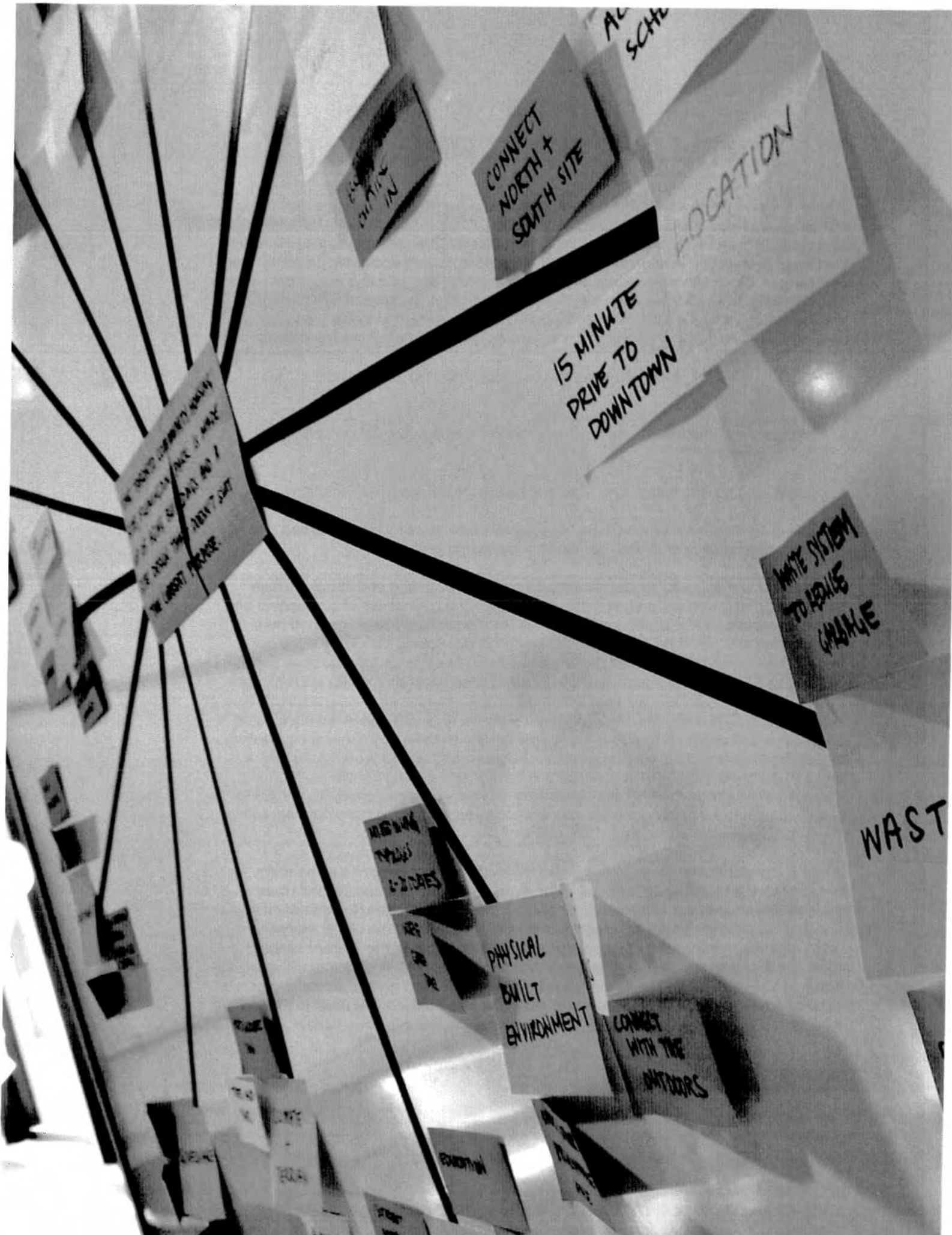
THE CITY SYSTEMS PROJECT

With a commitment to leadership through design and social innovation, the Institute without Boundaries has been amassing knowledge, wisdom and capacity through design education, research and practice. With the Massive Change Project, the IwB examined the role of design in addressing social, environmental and economic progress. The next project, World House, explored the design of shelter that protects our global home while creating advanced residences that promote inclusion, sustainability, affordability, and technological and environmental responsiveness. In undertaking this work, the students, faculty and industry partners at the Institute have built upon four key pillars:

- Inter-disciplinary collaboration to solve complex problems and issues that face humanity

- Engaging stakeholders, users, communities and members of the public in the design process

- Developing holistic design practices that create robust, long-term solutions

- Taking on the challenge and risk of applied research projects for clients and documenting and exhibiting the results of our learning

The result of working with these principles has been a rewarding and transformative experience that questions preconceptions, stretches the boundaries of convention, and grows the whole person in extraordinary ways. As the Institute has progressed from investigating and reporting on the state of design to developing new knowledge systems for design and ultimately to implementing innovative design solutions for clients, it has become apparent that a secure and prosperous future for all requires balancing the desires of individuals with the needs of the community and the imperatives of an increasingly globalized society. Through the projects we have completed we have come to understand that design is fundamental to how we share resources in the world: design creates a framework that expands or diminishes possibilities. Our work has taught us that it is not the world of design that matters but rather the design of the world. Building on this knowledge the Institute moves from the design of the home with the World House Project to addressing the designs of the interconnected built environment with the City Systems Project.

A city is a system of humanity, integral to the development of civilization. The ability to not just live but to thrive, expand and innovate in dense quarters has defined us as a species and shaped our culture and our lives. In the last sixty years, the rate of urbanization and suburbanization of our planet has greatly accelerated. The city is everywhere, and with modern information and communication technologies, can literally connect most of the habitable space on this earth. With this capacity has come a growing realization that how we use our power and skills is more critical than ever. If we are to create a brighter future we need to act wisely and design more effectively. We need to think of the long term and on behalf of the other species with whom we share our world.

We have built infrastructure to distribute and support the industrialized lifestyle we enjoy. This infrastructure is coming to the end of its useful life span, and much of it is in need of repair, renovation, restructuring or replacement. If we are to make the massive change required for a world house, we will need to reinvent our cities. We will need to coordinate a balance between our personal ambitions, and our need for community and our global responsibility. The City Systems Project will propose new ways of living that will affect this kind of change.

The Institute without Boundaries will use the City Systems Project to look at the big picture while also addressing the smallest of details. Our capacity for systems thinking will enable us to generate scalable systems that provide solutions for tomorrow's challenges. We will examine the city at a macro and micro level, understand the mechanisms and façades it is composed of, and explore the past, present and future of civilization and the built environment. We will propose new ways of being, working and creating that will cross the invisible boundaries we have built for ourselves that prevent us from reaching what's next.

Year One examined large-scale social housing projects built during the fifties and sixties, and proposed how they could be rejuvenated to respond to a world that may no longer be powered by fossil fuels and driven by automobiles. The Toronto Community Housing Corporation partnered with the Institute in year one.

Year Two looked at small towns in rural locations and explored their part in a global network of human-scaled settlement that is connected and vibrant. Issues explored included reducing the carbon footprint of small communities and regenerating the countryside. The City of Lota partnered with the Institute in year two.

Year Three will study edge cities that have grown up around major urban centres and which have been designed in a manner that makes sustainable urbanization extremely callenging. The Town of Markham, Ontario has partnered with the Institute for year three.

Year Four will explore how a medium sized metropolis can layer and enrich itself through design intervention, transforming itself for the 21st century while maintaining its existing strengths and identity.

Year Five will tackle how a major metropolitan region can cope with the many different types of issues that occur as a city grows beyond its planning.

2011-12 MAJOR PROJECT

It is the core practice of taking on real projects with tangible outcomes that makes the IwB such a unique program. The Institute partners with external organizations and community groups to apply design thinking to complex situations. Past project partners have included the Canada Mortgage and Housing Corporation (CMHC), the Ministry of Housing in Costa Rica, Habitat for Humanity Canada, Evergreen, the Toronto Community Housing Corporation and the Chilean City of Lota.

As the IwB enters the third year of the City Systems Project it will take on a new partner and continue to apply the principles of interdisciplinary design collaboration and holistic problem solving to a new challenge. The City Systems Project focuses on the design of the inter-connected built environment and explores both the tangible and intangible systems that make up the urban and suburban environments.

The project partner for the 2011/12 year is the Town of Markham, Ontario. This project will centre on examining the various systems that make up the municipality and proposing new and innovative sustainable urban practices that build on existing sustainable urban planning practice in Markham.
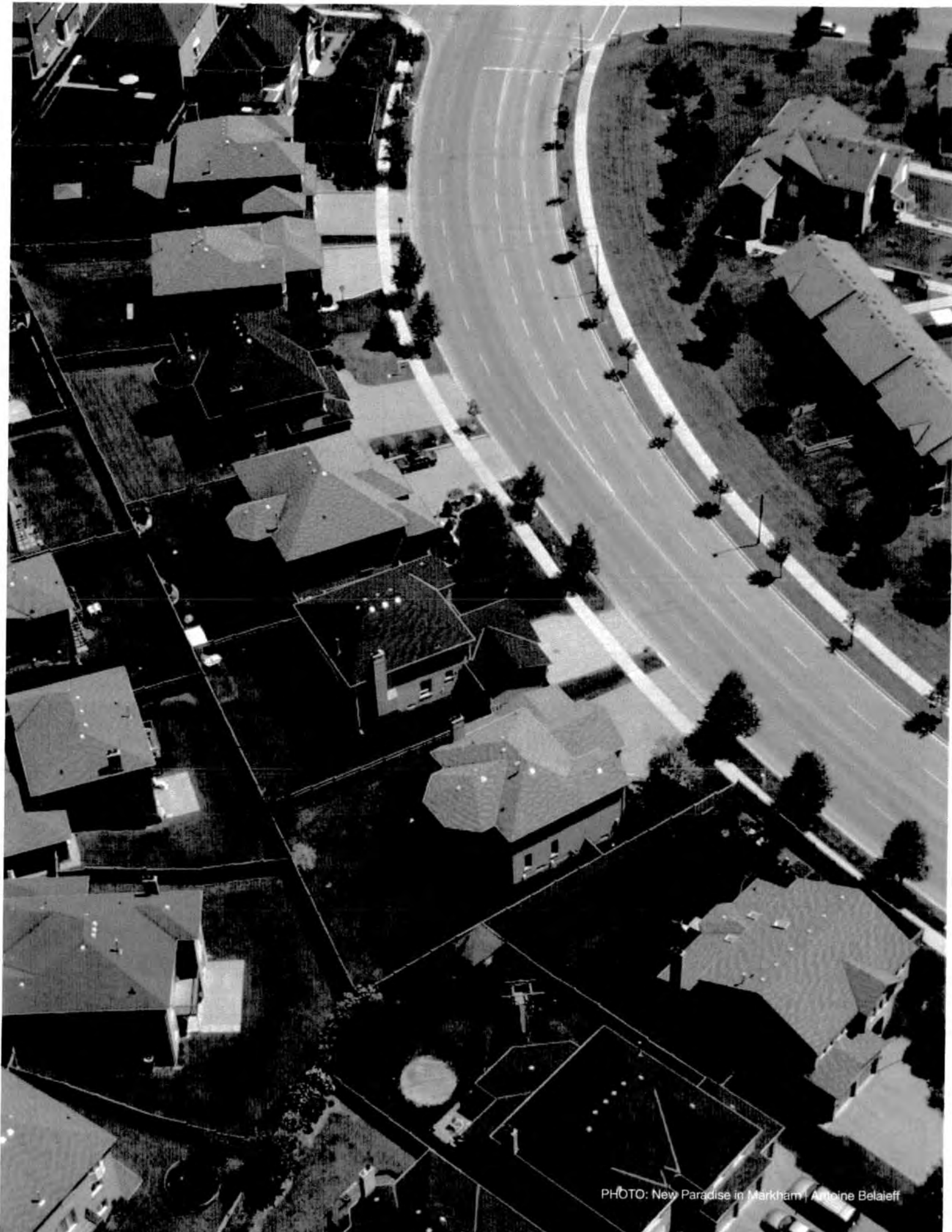
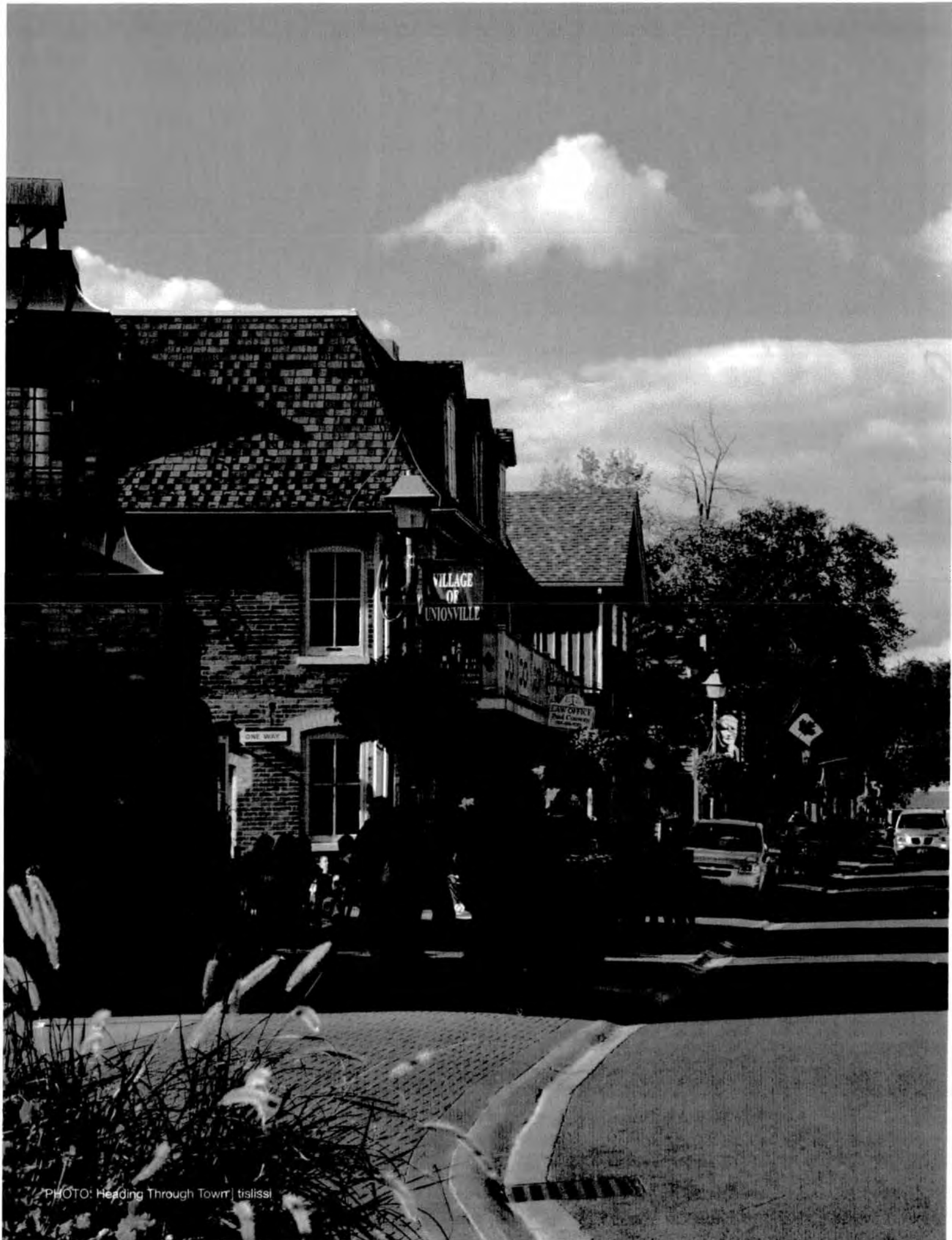PHOTO: New Paradise in Markham | Antoine Belaieff

VILLAGE OF UNIONVILLE

ONE WAY

THE TOWN OF MARKHAM

Located on the northern border of the city of Toronto, in the heart of the GTA, the Town of Markham (population 310,000) was founded in 1791. Originally a small farming community, the town was also the centre for local industry until rail connection created competition from larger manufacturers and the area returned to its agricultural roots by the 1900's. It continued this way until WWII, when it began to experience a huge population influx and the municipality's identity shifted to that of a suburban, bedroom community, with many residents commuting to work in nearby Toronto. In the 1970's the population began to expand even further as the Markham became the destination of choice for many new immigrants. Today Markham (comprised of 5 original communities: Thorn Hill, Buttonville, Unionville, Milliken, Markham Village) has one of the most diverse populations in Canada. Just over half of its residents are new Canadians. It now has yet another urban identity as "Canada's High-Tech Capital" due to a successful economic development plan launched in the late 1990's. The town is now home to 900 high-tech and life science companies including Canadian headquarters for high profile companies like Apple, IBM, Motorola, American Express, AMD and Hua Wei Technologies.

The urban face of Markham today is the result of its dynamic growth and evolution. Traces of rural heritage are still prominent in places, with heritage buildings and traditional main streets contrasting the dominant suburban pattern neighbourhood developments. Abundant green spaces, large parks and areas of preserved wilderness make the town feel very green, however, large company "campuses", big-box stores and shopping malls have followed a traditional suburban development pattern resulting in an extremely car-centric urban layout. A successful public transit strategy, the Viva system, has increased modal share in recent years, however, it remains challenging for residents who want to use alternate modes of transportation such as walking or cycling.

Residents of Markham are proud of their beautiful town, and demonstrate their commitment to continually improving its livability, beauty and sustainability. Community involvement is an essential component in the success of several local initiatives such as the Trees for Tomorrow program that encourages and funds community tree-planting initiatives and LEAF (Local Enhancement & Appreciation of Forests) that provides home-owner subsidies, guidance and education about tree-planting and reforestation; the Zero Waste program that provides residents and businesses with waste reduction guidelines and sets an example with the Markham Civic Centre's 96.5% waste diversion success; and the Markham Energy Conservation Office (MECO) with the mandate of fostering a 'culture of conservation' in Markham.

Today the Town of Markham continues to develop from its identity as an "edge city" towards a "complete city". It has already begun to identify key development directions including: fostering a denser urban fabric with a greater range of housing types and price ranges; a stronger identity as a creative hub for innovation; greater integration of sustainable practice into everyday activities; an emphasis on collaboration and fostering new types of businesses (as with the Convergence Centre); and a strong urban infrastructure that supports these practices.

PROJECT THEMES

Students in Year Three of the Institute without Boundaries' City Systems project will examine the various systems that make up the municipality and explore and propose new sustainable urban practices in the Town of Markham. The final proposal would be a holistic urban plan focused on the main streets of Markham that would include design strategies and key interventions for Highway 7 and the other main streets of Markham: Main Street Markham, Main Street Unionville, Woodbine Avenue in Buttonville, Old Kennedy Road (TBC) in Milliken (and Yonge Street in Thorn Hill).

In addition to proposing new design strategies specifically oriented towards the Main Streets project direction, projects would also serve to enhance Markham's existing growth and economic development strategies and its commitment to sustainability. This would be accomplished through the following themes:

MAKING MARKHAM A SUSTAINABILITY LEADER
Enhancing Markham's identity as a sustainability leader through the strong branding of high-profile sustainable projects on each of the main streets targetted. This would build on the convergence of several of Markham's target development directions as well as featuring the town's commitment to sustainable development practice.

21ST CENTURY INFRASTRUCTURE
More sustainable and resilient infrastructure is an important tool in creating a truly 21st century city. The traditional model of infrastructure like roads, sewers and electricity distribution has been centralized; the future might be de-centralized by using "light" infrastructure that incorporate multiple smaller inputs and outputs and considers the "soft" infrastructure such as the social and digital as part of an integrated whole. This distributed model infrastructure would play an important role in the redesign of the main streets.

SUSTAINABLE TRANSPORTATION INFRASTRUCTURE
Complete cities feature robust, multi-modal transportation infrastructure. If the Town of Markham is to successfully increase both residential and commercial density, a more diverse approach to transportation will be a key element. Currently, the dominant form of transportation in Markham is the car and the structure of roads supports this. Main streets are an ideal test-ground for mixing "competing" modes of transportation in order to enhance the public space, create safer streets and improve accessibility for all users.

COMMUNITY CULTURAL COHESION
More than half of the residents of Markham are new Canadians. This diversity of rich cultural heritage represents a major opportunity for the town. Main street interventions are a prime opportunity to feature inter-cultural exchange that might take the form of shared business opportunities and cultural events and spaces.

LIVE/WORK RESIDENTIAL DEVELOPMENT & INTENSIFICATION

Supporting live/work businesses is an important step in the cultivation of an innovation-economy. Many new businesses get their start in people's homes, and go on to play a significant role in the economy as they expand into small- and medium-sized enterprises. But increasingly, this category of worker is leveraging the networked working world and choosing to telecommute for much of their day-to-day work. Freelancers and home-based entrepreneurs can benefit from housing designed with integrated flexible working space.

CREATIVE INDUSTRY HUBS

Expanding on the support of residents who choose a live/work model, local resource centres (such as the business focused Convergence Centre) that offer complementary business services such as shared meeting spaces, teleconferencing facilities, access to shared administrative/support services, peer-networking, training and education services.

CURRICULUM STRUCTURE

The IwB curriculum is delivered in a studio environment where students work on real projects as an integral part of the program. Faculty, mentors, and guest experts teach courses, provide feedback, and collaborate directly with the students. Students' learning is structured through classes, lectures, seminars, and field trips. Assignments and projects involve both individual and group work and emphasize interdisciplinary design development and strategy. A number of design charrettes facilitate learning and push the boundaries of projects through participation by the public, other students, and industry. Throughout the year, students develop design skills, strategies, and tools that support their work. They also learn about design history, theories and issues that contextualize the Institute's mandate and the City Systems Project.

CITY SYSTEMS YEAR 3

In Year 3 of the City Systems Project, the nine month school year is broken into two semesters: Fall, from September to December, and Spring, from January to the first week of June, 2012. The program is a combination of short and long-term projects as well as several courses that connect over the entire year.

FALL 2011

In the Fall, four intensive design projects that relate to the City Systems Project and that cover different design disciplines will be covered in this sequence: Product, Systems & Services, Environment and Communications. Three semester-long courses will also run concurrently: Design Issues, History & Theory; Integrated Design Process 1; and Major Project: Preparation. In addition, students will enroll in a design elective to further develop their skills and abilities. There will be a half-week of orientation preceding the start of classes, which begin the day after Labour day on Tuesday, September 6. In addition to regular trips to the project partner site in Markham, there will be a variety of field trips to nearby sites and cities, and a 1-week charrette which will give IwB students their first opportunity to work closely with students from other programs at the College and other schools both local and international.

SPRING 2012

In the Spring, the students will work together on one semester-long project that explores aspects of City Systems in more depth. Due to the fluid and flexible nature of this program, the specific structure and project focus of the Spring will be determined during the fall semester. Students will have the option of taking another George Brown elective, preparing and delivering their own "master class" to the other students, or contributing to one of the Institute's projects outside of the curriculum. There will be at least one inter-disciplinary design charrette during this semester that will again partner IwB students with students from other disciplines. The final month of the semester will be focused on the communication strategy to promote and disseminate details about the project to the client, the public and to members of the design community.

PROJECT DELIVERY

The program will be delivered through a series of courses that address the major project at a philosophical, strategic, tactical and practical level. Each course will develop critical thinking and skills while also undertaking a series of small projects that create the building blocks that will make up the final overall result.

DESN 4010
MAJOR PROJECT: PREPARATION

This course introduces students to the academic year's major project. The students will work towards proposing a solution for the needs of an industry partner as indicated in the course theme. Students will apply the skills learned in other courses towards preparing for the Major Project. During this term, students will conduct background research, engage with the community they will be designing for, and work with industry representatives to learn about the challenges and opportunities they will be designing for in Major Project: Development. Students will present their ideas and approaches to the partner, faculty and external advisors. By the end of the semester, students will create a background research document, project objectives and a working plan for their main spring semester project.

DESN 4007
DESIGN ISSUES, HISTORY AND THEORY

This course will provide an introduction to the historical and philosophical underpinnings of design theory. Lectures and think-tank style discussions will centre around topics that range from Russion Constructivism, the Bauhaus, and De Stijl to Charles and Ray Eames, Buckminster Fuller and Marshall McLuhan.

DESN 4008
INTEGRATED DESIGN PROCESS 1

Each class will cover different aspects of the design process, from an integrated design approach, using triple-bottom line sustainable practices and design evaluation within human-centred principles, and all topics will be integrated including research methods, theoretical discourse, design exploration, concept development, human interaction, experience design, and project management proficiencies. Practical skills will be acquired in financial analysis, managing real estate property development, evaluating social and economic returns, general project management skills. Students will be exposed and expected to engage in fast-paced, studio-style de sign methodologies by participating in short assignments that will expect them to develop tools that explore individual as well a group skills, explore innovation, techniques for brainstorming, auditing, conceptualization, visualization and synthesis of design concepts.

DESN 4004
DESIGN PROJECT: PRODUCT

This course will provide an introductory understanding of 'Product Design' and the current disciplines and techniques used throughout the product development cycle. Students will focus on researching and developing a product concept suitable for the city of Markham. In class lectures, discussions, and learning modules surrounding design research, concept creation, design development, and design presentations will form the course. Technical skills such as sketching, mind-mapping, model-making, material selection, manufacturing processes, and design presentation techniques will be introduced and practiced as the student develops their product design. A final presentation to faculty and guest professionals will enable students to participate in a critique of their product concepts.

DESN 4006
DESIGN PROJECT: SYSTEMS & SERVICES

The intent of this course is to teach students a systems design approach to addressing urban revitalization. Students will be expected to understand and evaluate the relevance of the IWB World House Matrix and City Systems Matrix within the context of the design problem. In addition to the lectures and desk critiques provided by the co-presenters of the course, students will benefit from expert guest speakers and studio time during course hours to work on their designs and presentations.

DESN 4005
DESIGN PROJECT: ENVIRONMENT

This course introduces students to the design of environments through the development of a 600 sf residential unit that considers affordable, sustainable, and prototypical housing solutions. The project will introduce students to flexible and resilient design criteria and use a chosen site in Markham, Ontario as the context for the infill residential unit(s). Different scenarios for inhabitation and the potential for changing usage over time will be explored. The unit design will be set within the context of a overall planning strategy for the site. The project will be used as a platform to explore design conceptualization through rapid and systematic iteration of design concepts. Students will develop skills in design planning, strategy, development, visualization, and communication.

DESN 4003
DESIGN PROJECT: COMMUNICATIONS

This course provides an introduction to graphic design, communications, design brief writing, critiques, design for fabrication, fabrication experience and peer review through the context of creating the 2012 IwB Interior Design Show booth. This course is an opportunity to work in a real world, real time context to clearly communicate the objectives and essence of IwB in a compelling way. From the ideation and planning phases through design, fabrication, installation and personal communication students will experience every part of a design process, eliminating the disconnect between design and fabrication. Students will work individually and in groups to complete the IDS Booth project through a phased process of deliverables, planned to closely follow that of an actual studio design project. Students will be expected to communicate not only the end project, but clearly communicate with their instructors, their studio team and their suppliers to achieve the best possible outcome. Deliverables will be tailored to the abilities of each student, with built-in challenges to expand student understanding of producing a project from idea to actuality. The course will include guest lecturers such as a strategist specializing in creative briefs, an experienced fabrication project manager and an architecturally-trained communications designer.

DESN 4009
DESIGN CHARRETTE I

This course allows students to explore design issues and develop solutions in a team environment through the design charrette process. This is an intensive, collaborative process that brings together students from different disciplines with design professionals to develop innovative solutions for complex issues. Over a few short days of brainstorming, discussion and expert consultation, teams will create a broad range of ideas around the central theme, and eventually focus down to a single best concept. The charrette originated as a design process used by architects, urban planners and designers to connect community members, developers and professionals – groups that often hold competing interests and agendas – to address complex projects such as neighbourhood planning, urban development and construction projects. Working side by side in a charrette, these groups are able to develop feasible solutions that meet everyone's needs. The term charrette is drawn from the late 1800s, where proctors at the École Des Beaux-Arts in Paris would circulate a cart (charrette) to collect drawing submissions, as students rushed frantically to finish their work. Our charrette process develops a similar momentum, and is key to the success of the event.

DESN 4003
DESIGN PROJECT: COMMUNICATIONS

This course provides an introduction to graphic design, communications, design brief writing, critiques, design for fabrication, fabrication experience and peer review through the context of creating the 2012 IwB Interior Design Show booth. This course is an opportunity to work in a real world, real time context to clearly communicate the objectives and essence of IwB in a compelling way. From the ideation and planning phases through design, fabrication, installation and personal communication students will experience every part of a design process, eliminating the disconnect between design and fabrication. Students will work individually and in groups to complete the IDS Booth project through a phased process of deliverables, planned to closely follow that of an actual studio design project. Students will be expected to communicate not only the end project, but clearly communicate with their instructors, their studio team and their suppliers to achieve the best possible outcome. Deliverables will be tailored to the abilities of each student, with built-in challenges to expand student understanding of producing a project from idea to actuality. The course will include guest lecturers such as a strategist specializing in creative briefs, an experienced fabrication project manager and an architecturally-trained communications designer.

DESN 4021
MAJOR PROJECT DEVELOPMENT

Building on DESN 4010 Major Project Preparation, this semester-long project brings together all of the students to tackle a real-world design challenge in consultation with industry partners. Students individually and as a team propose and execute a design project, resulting in reports, schematic designs, budgets and implementation plans. Based on research, skills, tools and techniques learned in the first semester, students draw from their personal experience and expertise to contribute to the larger initiative, using a holistic, interdisciplinary and systems-based approach. Projects address economic, social and environmental concerns and consider innovative local solutions that may be adapted to global contexts. The course includes lectures, guest teachers, seminars, studio work, presentations and critiques.

DESN 4021
MAJOR PROJECT DEVELOPMENT

Building on DESN 4010 Major Project Preparation, this semester-long project brings together all of the students to tackle a real-world design challenge in consultation with industry partners. Students individually and as a team propose and execute a design project, resulting in reports, schematic designs, budgets and implementation plans. Based on research, skills, tools and techniques learned in the first semester, students draw from their personal experience and expertise to contribute to the larger initiative, using a holistic, interdisciplinary and systems-based approach.

DESN 4024
CHARRETTE 2

This course allows students to explore design issues and develop solutions in a team environment through the design charrette process, an intensive, collaborative process that brings together students from different disciplines with design professionals to develop innovative solutions for complex issues. Over a few short days of brainstorming, discussion and expert consultation, teams create a broad range of ideas around the central theme, and eventually focus down to a single best concept.

DESN 4025
INTEGRATED DESIGN PROCESS II

Building on DESN 4008 Integrated Design Process, this course will explore and apply practical and creative techniques for achieving social and environmental innovation through interdisciplinary, collaborative design in greater depth. Each class will cover a different aspect of the complete design process including: generating ideas, pitching a concept, developing a project according to stakeholder interests and finally, managing the project's implementation. Course discussions and in-class assignments will support the major project work for the year.

DESN 4022
MAJOR PROJECT COMMUNICATIONS

Students will collaborate to package their work from DESN 4021 Major Project Development for public distribution. Formats may include exhibitions, publications, web sites and conferences. Under the direction of faculty, students will be responsible for compiling, editing, designing and producing materials that are appropriate for target audiences outside of the school and in accordance with the needs of the industry partner. In this way, the original research, tools and design work accomplished by the IwB faculty and students is disseminated broadly.

PROJECT DELIVERABLES

General deliverables will be augmented by project and theme-specific deliverables as appropriate to the project direction selected and the project partners objectives.

RESEARCH DOCUMENT

The first semester will produce a research document that details the project context and explores surrounding themes that may support the solution. This should include:

1. Community profile

2. Design precedents

3. Issues around suburban-urban development

4. City context and larger scale improvement goals

5. Site analysis

6. Research conclusions

PROJECT BRIEF

Based on the research process, students will prepare a document that outline the specifics of the project work that will be undertaken in the second semester. This document should include:

1. Executive summary

2. Team roles

3. Schedule

4. Project objectives & considerations

5. Final deliverables

REVITALIZATION PLAN

Following the guidelines set out in the project brief and in regular consultation with the Town of Markham, a sustainable development plan will be developed. This should include:

1. Design concept(s)

2. Concept exploration

3. Schematics

4. Budget projections

5. Material specifications (if appropriate)

6. Site maps and plans

7. Municipal impact evaluation

8. Programming options

9. Implementation strategy

EXHIBITION & PUBLICATION

Project results will be promoted and shared as part of a public exhibition, a book and video project. These exhibits and publications will communicate the details of the project and share the information with the public both in Toronto and in Markham.

FACULTY BIOS

STEPHEN CHAIT

Stephen Chait has served as the Town of Markham's Director of Economic Development since 1995. Under his direction, and with the leadership and support of Markham's Mayor and Council, Markham has been awarded numerous domestic and international marketing awards for its successful "High-Tech Capital" campaign, and for its leading edge strategic plan "Markham 2020".

Stephen is currently the President of the Economic Developers Association of Canada, and sits on several business and community advisory boards in Markham and York Region. The Town of Markham is a founding sponsor of the YTA and regards the association as a cornerstone of the high-tech cluster in the Greater Toronto Area.

SCOTT CHIN

Scott Chin is the owner of See'D Design, a Toronto-based design strategy company focusing on brand identities, product design to sustainable living spaces.

ROBERTO CHIOTTI

Roberto Chiotti is a Toronto architect and founding partner of Larkin Architect Limited. He is a LEED® (Leadership in Energy and Environmental Design) Accredited Professional and a founding member of the Strategic Planning Committee for the Greater Toronto Chapter of the CaGBC (Canadian Green Building Council). In addition to obtaining his professional architectural degree, Roberto completed a Master of Theological Studies degree from University of St. Michael's College, University of Toronto, with a specialty in Theology and Ecology granted by the Elliott Allen Institute for Theology and Ecology at St. Michael's. Roberto has authored numerous articles on sustainable design and has been invited to speak on the topics of LEED®, the Integrated Design Process, Green Design, Sacred Space, and the Cosmological Response to the Ecological Crisis as it relates to Architecture and Education at Universities, Community Colleges, Religious conferences, and professional organizations across southern Ontario. Currently he serves as a member of the Advisory Council for both the Greening of Sacred Spaces Initiative and the World Centre for Inter-Spirituality and Ecology in Toronto. His firm's widely published St. Gabriel's Church is the first worship space in Canada to achieve LEED® Gold Certification and is the recipient of the 2007 City of Toronto Green Design Award.

MONICA CONTRERAS

Monica Contreras is an expert and visionary technology leader, committed to design excellence in the field of integrating technology within our built-environment. A Project Manager, Planner and Registered Architect, Monica has 25 years of experience directing and managing the planning, design and construction of award-winning sustainable landmark building and infrastructure projects for various stakeholders, within complex organizations. She has specialized in complex institutional buildings for the financial and

educational sectors, in urban and suburban contexts. She has a depth of experience and knowledge both from the perspective of a consultant as well as an in-house design manager and development agent.

Throughout her career, Monica has been involved in all aspects of the development process, including: developing policies, strategic and capital project master plans, obtaining complex approvals; authoring design briefs; managing the design process; selecting and coordinating large multi-disciplinary teams of consultants; working as project architect; managing on-site construction; coordinating contracts; commissioning, and conducting post occupancy evaluations. Recently, she has intersected her interest in research, technology and creation of strategic partnerships within the university environment to create funding opportunities to support and foster new facilities for learning and research.

Formerly, Monica was Strategic and Capital Projects Manager for York University where she directed over $200 million of capital buildings, consisting of additional academic and commercial spaces of 52,000 GSM and 1,360 parking stalls. She was Assistant Dean and Director of Planning & Information Technology at the University of Toronto where she completed 84 projects of varying sizes and complexities for university users which transformed 16 University buildings including the construction of two new facilities in the St. George campus.

Monica is engaged in planning, architectural and development services as a partner in Conifer Consultants, a consulting company specializing in unique institutional and commercial development projects. She is also actively engaged in teaching and research. She is an Academic Associate at the Institute without Boundaries at George Brown College and a Lecturer in the Real Estate and Infrastructure MBA specialization program of the Schulich School of Business at York University.

Monica is currently the Director of Digital Futures Implementation at OCAD University, where she is responsible for the strategic design, plan implementation and capital project budgeting for the planning, design and management in the creation of new research laboratories and new technology-rich learning environments that support the expansion of the University Campus and the transformation of studio-based art and design education with digital technologies.

BRENDAN CORMIER

Brendan Cormier is a co-founder of Department of Unusual Certainties - a Toronto-based research and design collective working at the interstices of urban design, planning, public art, spatial research and mapping.

He is a trained urban designer with an M.Sc from the Bauhaus Universität-Weimar. In the last few years he has spent time living in Germany, Holland, Jamaica, and Canada, working on various urban design and research projects.

GARY MICHAEL DAULT

Gary Michael Dault is the author or co-author of numerous books. He was a contributing essayist to Gordon Lebredt: Nonworks 1975-2008 (Plug-In Editions, 2011). He has also published a number of books of poetry. Dault contributed a weekly visual arts review column (Gallery Going) for over a decade to The Globe & Mail, and has written frequently for a number of Canadian and International magazines and journals and is a prolific writer of art gallery catalogues and artists' monographs. His study of Spanish painter Jose Ciria was published (Ciria: Beyond) by the Monasterio de Nuestra Senora de Prado, Valladolid, Spain, in 2010. And hs interview with artist David Blackwood appeared in the catalogue, Black Ice: David Blackwood, Prints of Newfoundland (Douglas & McIntyre and The Art Gallery of Ontario, 2011). Dault has held a number of teaching posts, including staff positions at the Ontario College of Art (1970-76), Ryerson Polytechnical Institute (1985), Brock University (Art History), and positions within the Faculty of Architecture, Landscape Architecture and Design in the University of Toronto, first as Resident Critic (1996), and then as Adjunct Associate Professor (1997-2001). He is currently Adjunct Associate Professor at The School of Architecture in Cambridge, Ontario (U. of Waterloo). As a teacher and commentator, Dault has contributed regularly to numerous radio and TV networks including CBC, CTV, Bravo!, Vision TV, and, most frequently, to TVO's Studio 2. He has written extensively for television, his most ambitious project to date being the writing of the script for the internationally seen six hour mini-series Inside the Vatican with Sir Peter Ustinov.

As a writer for the stage, Dault was commissioned by The Festival of the Sound to write new texts for Saint-Saens' The Carnival of the Animals (2002), and the text for the musical composition The Goal by composer Eric Robertson, a tribute to Bobby Orr, performed at the inauguration of the Bobby Orr Hockey Museum in Parry Sound, Ontario (site of the Festival of the Sound) in the summer of 2003 (and repeated in the summer of 2004). Dault's Alice in the Orchestra, an entertainment for actors and symphony orchestra (with composer Gene Di Novi) has been performed to great acclaim both in Canada and also in the Netherlands, where it was mounted (in its chamber orchestra configuration) in both the summer of 2005 and in the winter of 2006 at the Concertgebouw in Amsterdam. Dault is also a practicing artist of much acclaim.

ARLENE ETCHEN

Arlene Etchen is a Senior Research Consultant for Canada Mortgage and Housing Corporation (CMHC) responsible for the promotion of sustainable communities through workshops, presentations and community outreach. In her current role, she works with a wide range of stakeholder groups to advance the development of sustainable, affordable and accessible housing.

Arlene has been working in the urban planning and energy sectors for over 15 years in a communications and stakeholder relations capacity, with a specialty in sustainability initiatives. She completed her undergraduate degree at Ryerson University and post-graduate studies at both Ryerson and York Universities. Arlene has volunteered with Habitat for Humanity, the Track 3 Ski Association and Earth Day Canada.

LUIGI FERRARA

Luigi Ferrara is a Registered Architect, a member of the Ontario Association of Architects and the Royal Architectural Institute of Canada. He is the Director of the School of Design at George Brown College, and oversees the Institute without Boundaries, a post-graduate program that aims to foster collaboration between disciplines to create innovative local solutions to 21st century global challenges. Luigi previously served as a principal of Ferrara Contreras Architects Inc., President and CEO of DXNet Inc., a network for design and innovation that redefined the practice of design using digital media and advanced computing and telecommunication platforms, Vice-President of the Design Exchange and in various architectural consulting roles at Stirling, Wilford Associates, Peter Turner Architects, Paul Reuber Architect and Russocki Zawadzki Architects. In addition to his roles as architect, designer, entrepreneur and educator, Luigi has curated exhibitions and authored books and catalogues for the University of Toronto, the Joseph D. Carrier Gallery, the Ontario Heritage Foundation, the Triennale of Milan, the Architectural Literacy Forum and the Design Exchange. Most recently he has written a second volume in the Canada Innovates series focusing on sustainable building design following on the first volume that covered digital creativity in Canada. In his role at Dxnet, Luigi founded Digifest, a festival for new media.

MICHELE GUCCIARDI

Michele Gucciardi has more than 10 years experience in all aspects of the architectural design industry. Michele's project experience includes projects from 1,000 to 6,000,000 square feet. In his role as Design Manager / Team Leader he has supervised the provision of programming services through to project implementation. Experienced in the implementation of major, complex projects, he is highly skilled in the facilitation and communication skills necessary to achieve results within a collaborative process. He excels in his role of creative, complex, fast-track designer for corporate clients. Michele's strong design leadership, communication and project management skills guide the corporate workplace teams throughout HOK's project. He is responsible for team performance and for the coordination of work to successfully meet project goals and schedules.

MARK GUSLITS

Mark Guslits is a graduate architect, development consultant, and developer who's primary focus has been on the development of affordable housing along with market driven urban infill and larger mixed tenure and mixed income communities. He is currently Principal of Mark Guslits and Associates, a residential and community development, design, planning and consulting firm, created in August 1997 to undertake and advise upon urban development initiatives. As a practicing architect during the 70's and 80's, Mark worked in England and Canada de-signing residential communities along with institutional and recreational developments. These ranged from work on the "Chunnel" connecting the United Kingdom and France to the design of an award winning marina complex on Vancouver's False Creek and several first nations residential communities in Manitoba and Northern Ontario.

For many of those years he also taught architectural design and planning at Universities in Vancouver, Winnipeg and Toronto. Between 1988 and 1997, Mark became a partner in and Vice President in charge of Development at the Daniels Corporation, a large Toronto based residential real estate deve-loper. He subsequently acted, for 4 years, as Spe-cial Advisor to the City of Toronto on affordable housing initiatives and has most recently spent 5 years as Chief Development Officer of the Toronto Community Housing Corpo-ration where he was responsible for, among other major initiatives, the redevelopment of Regent Park in Toronto's down-town east side.

MATTHEW HEXEMER

Matt Hexemer graduated in 1996 with the OCAD medal in Industrial Design. As an independent consultant, Matt has been the key creative component in advanced re-search groups, collaborating with engineers, scientists and manufacturers regarding body protective equipment, ozone purification technologies and fuel cell implication into consumer lifestyles. Several patents and successful products have been introduced to market as a result of his design input. In 2003 Matt started the design firm "Apparatus Inc." focused on converging product, graphic, and interactive disciplines into powerful user experiences. Matt's customer base spans Canada, USA, Europe and Asia.

MICHELLE HOTCHIN

Michelle is the Program Coordinator and Project Manager for the Institute without Boundaries at George Brown College. She teaches in and coordinates the post-gradu-ate program Interdisciplinary Design Strategy while also managing a variety of related research and design projects for the Institute. Her professional experience in project management and design research began in 2003 when she graduated from the Indus-trial Design program at OCAD. Prior to completing her bachelor's degree she worked in a wide range of fields including financial services, web development and mental health services. Her diverse professional experience has given her a unique perspective when it comes to solving business and design problems.

Before joining the IwB, Michelle was the Manager of Research & Operations at the Beal Institute for Strategic Creativity, a think-tank created in 2005 in partnership with the Ontario College of Art & Design (OCAD) that specialized in providing design thinking consulting to non-design businesses. Some of the clients she managed projects for in this capacity include Motorola, Whirlpool Canada, and the Joseph L. Rotman School of Management. She brings extensive experience in project management, design research, IP development, communications and resource management to her focus on sustainable design and social innovation. Michelle has also won numerous design awards, including 2nd place in the international design competition BraunPrize for her thesis project on residential electricity consumption and mitigation.

DANIEL KARPINSKI

Daniel Karpinski is a principal and owner of the firm Daniel Karpinski Architect located in Toronto and providing services across Ontario. Between 2005 and 2008 he was an owner and vice President of OMNIPLAN Architecture.

His architectural work has won a number of awards and has been published, in Architectural Design and The Canadian Architect among others. His arcitectural artwork has been exhibited in galleries, including the Museum d'Orsay in Paris, the Aedes Gallery in West Berlin, the International Congress of Architecture in Berlin 2002, and the Cracow Biennale. He has a significant record of professional practice including residential, commercial, institutional, and urban design in America, Asia and Europe. Among earlier projects are Housing for Single Parents, IBA, Berlin, Germany (completed in1994), a prize-winning redevelopment of the Jewish Town in Cracow, and Governor General's Award for Emery Yard, North York (1994 with Julian Jacobs). In Berlin he was working together with Zaha Hadid (a Pritzker Prize Winner) on the development of the Blok 2 in South Kreuzberg, West Berlin, where his building was constructed.

MILES KELLER

Miles Keller is one of Canada's most highly regarded industrial designers. He is based in Toronto, Ontario, Canada and has over twenty years of professional experience in all areas of product design. His design office, MKDA industrial design, provides services in all aspects of the design process including concept development, mechanical & product design, marketing strategy, human factors analysis and production methodology. Clients have included Corning Glass, Herman Miller, Teknion, The Getty Museum, Umbra, and Zenon Environmental.

He graduated from the Ontario College of Art and Design (OCAD) in industrial design in 1989. He has also studied architecture at the University of British Columbia and industrial design at the University of Calgary. Quite active in the design community, he has been on the boards of the both the Financial Post Design Effectiveness Awards and the Humane Village international design conference. Miles also served as president of the Association of Chartered Industrial Designers of Ontario (ACIDO) for four years (1996-2000).

MKDA industrial design has been widely recognized, including the ID Magazine Annual Design Review (1989), the IDEA Awards (1997,2005), the Virtu Canadian Design Awards (1995, 6, 7, 8, 9), the Ildex/NeoCon Canada Awards (2002), the Best of Canada Design Awards (2002), and the Good Design Award (2002, 2003, 2004, 2005). In2006, MKDA received a silver IDEA award, as well as a silver Design Exchange Award, for the "ZW1000 municipal water filtration system" by Zenon Environmental. The IDEA awards, sponsored by the Industrial Designers Society of America and BusinessWeek, are recognised as "the world's most prestigious and coveted design accolade". Recent awards include a silver Design Exchange Award for MMA equipment made by Reevo in Waterloo, Ontario.

SUSAN LEWN

Susan Spencer Lewin is a Principal and Director of Sustainable Strategies at CS&P Architects. With over twenty years experience as a professional architect, her project experience and design background is extensive, with a continued focus on sustainable, accessible buildings and communities. Recent projects include the North Toronto Collegiate Institute Redevelopment, a new secondary school and high rise residential redevelopment, the Niagara Convention and Civic Centre, and the Regent Park Community Centre, all of which are targeting LEED-NC Gold certification.

Susan is a LEED-BD+C Accredited Professional, a member of the Royal Architecture Institute of Canada and of the Ontario Association of Architects, Past Chair of the Canada Green Building Council- GTC, Chair of the OAA Sustainable Built Environment Committee, Faculty at the Institute without Boundaries, George Brown School of Design, and a member of the Future of the Gardiner East Stakeholder Advisory Committee.

XAVIER MASSÉ

Xavier Massé is the Creative Director of Wolfson Bell, which is an audiovisual & motion graphics production studio, leader in the corporate event production field. His strengths include extensive new media experience, European and North American start-up and management, and a solid design foundation that combines traditional classical rendering and storyboarding skills with the audacity of a New Media pioneer. His responsibilities at WB include: Creative direction, brand authenticity, and development of work methodology; Recruitment for creative and production teams; Client executive support and account management; Consulting projects with clients, including online strategies and IT and Project leadership and management of project teams. He started to teach Interactive design at George Brown's School of Design in 2010.

A native of France, Xavier brings broad international design and web experience to the firm. Prior to joining WB in 2003, Xavier managed the interactive division of Publicis Consultant at Publicis Group's head office, located in Paris, France. And prior to his position at Publicis, Xavier built and managed teams of Internet specialists, from web designers to IT developers, at Logica, a UK based IT and consulting group. Xavier is a graduate of Paris's prestigious École de Communication Visuelle [ECV], where he studied art direction and design.

FIONA LIM TUNG

Major Project Faculty & Coordinator at the Institute without Boundaries, Co-Director at Krona & Lion, Adjunct Assistant Professor at the University of Waterloo Architecture Department.

MAZYAR MORTAZAVI

Mazyar Mortazavi is principal with TAS DesignBuild. Mazyar received his undergrad in Environmental Studies and his Masters Degree in Architecture from the University of Waterloo. He has been involved with the family owned and managed business from a young age, his exposure to the industry started on construction sites and he has progressed

into his present role as managing partner at TAS DesignBuild. His passion of community based initiatives and deep understanding of the socio-cultural underpinnings of design and development have played an instrumental role in establishing TAS as a recognized industry leader.

Mazyar's vision was instrumental in establishing TAS's corporate philosophy, The Four Pillars of Sustainability™ that focuses on converging social, cultural, environmental and economic considerations in its development projects. TAS DesignBuild is also recognized as a leader in environmentally sustainable buildings; the company was awarded the coveted 2009 Green Builder of the Year by the Toronto Home Builder's Association, BILD. Mazyar currently holds the Chair position at the Artscape Foundation Board.

KAMILLA NIKOLAEV

Kamilla Nikolaev came to Canada in 2005 and started at George Brown College to pursue her passion for graphic design and visual arts. Before immigrating to Canada, she graduated from a Moscow University with a B.A. in law, and completed a five-year course in English Philology with the University of World Languages of the Republic of Uzbekistan.

She has an extensive background in music: eight years of classical music school, performing and songwriting for a number of indie-rock bands, writng soundtracks for multimedia projects she works on.

After graduating from the Institute without Boundaries in 2009, Kamilla stayed with the Institute for a while, working on a number of print projects including the award-winning Biennial of student work for the School of Design that the Institute is part of. Her following work experiences included working as a Senior Designer for PPX Inc., and a Senior Marketing Designer for Umbra. Currently she is employed with the A.K.A. New Media as the Art Director working on interactive and print projects for not-for-profit, governmental, and commercial clients. Her recent projects include websites for the Womens' College Hospital Foundation, Oakville Trafalgar Hospital Foundation, Hockey Helps the Homeless, and the new Institute without Boundaries website. Kamilla also teaches Flash for Beginners at George Brown College, and will be consulting the students of IwB on the graphic design related aspects of the 2011-2012 project.

CHRIS PANDOLFI

Christopher Pandolfi is a Toronto-based artist, cartographer, urban designer and visual journalist; who works independently and part of the Toronto-based art and design collective Department of Unusual Certainties, which he co-founded in early 2010. The core of Christopher's practice deals with uncovering, exploring and then experimenting with the occurrences of everyday existence, which lead to the creation of new systems and new futures. Many of these experiments have been published in a wide variety of local, national, and international publications. Recently his practice/methodology has also moved toward public engagement. Christopher also teaches on the visualization of information, both its techniques and application in society.

DIMITRI PAPATHEODOROU

Dimitri Papatheodorou is a member of the Ontario Association of Architects, Royal Architectural Institute of Canada, and the Toronto Society of Architects. He is a principal of Papatheodorou & Wodkiewicz Architects, a practice located in Toronto. He currently teaches studio in the Architectural Science Department at Ryerson University in Toronto, and at the Institute Without Boundaries.

WARREN PRICE

Warren brings to his work a background in architecture and extensive experience in all aspects of urban design, including contextual analysis, community visioning, master planning and design guidelines. His many downtown plans focus on creating opportunities for growth and reinvestment while supporting a traditional urban environment. Guided by principles of sustainability, he has led numerous campus design and planning projects, transit-oriented development studies and innovation/business park master plans.

SUSAN SPEIGEL

Susan Speigel is the Principal of Susan Speigel Architect Inc as well as part time faculty and a guest lecturer at the Institute without Boundaries in the School of Design at George Brown College. Her completed projects include urban design, architectural and landscape renovation of more than 20 public spaces for Toronto Community Housing Corporation, interior design and renovation of several community health centres, a new bank building for the Bank of Nova Scotia, a new library building addition and school renovations for the Kind City School Library and Resource Centre, and various residential renovations. Before starting her own architectural firm, Speigel's worked for such firms as thinkthinkthink Internet company, Isosceles Development Incorporated, and Brown and Storey Architects. She obtained her Bachelor of Architecture and her Bachelor of Arts from the Univeristy of Toronto, and also studied at the New School for Social Research in New York. Speigel has also been published numerous times in Canadian Architect.

LAUREN WICKWARE

After graduating from the Ontario College of Art & Design with a degree in sculpture and installation, then working in the world of visual arts publishing and art galleries in Toronto, Canada, Lauren headed south of the border and received a post-graduate graphic design degree from Parsons The New School for Design in New York City. Since, she has worked at a number of magazines and studios in both Toronto and New York and has received awards and accolades from the AIGA (50 Books/50 Covers), The Advertising & Design Club of Canada, the Alcuin Society, Applied Arts, Coupe Magazine and RGD Canada.

RICHARD WITT

Richard Witt was born in Portsmouth, England in 1971. After moving to Canada in the late 1980s, he graduated from the University of Waterloo in 1997. His studies included a term spent in Rome and a work placement in London. He received the Kaderali Award of Excellence for his thesis work. After graduation Richard moved to Europe, working for Aukett Ltd in Prague, Geneva and London, then moving to Foster and Partners main offi ce at Battersea in 2000. At the end of 2001 Richard returned to Toronto, and re-joined Quadrangle in 2003 where he was promoted to Associate in 2006. In mid 2007 he founded RAWdesign.

Throughout his career three commonalities have permeated Richard's work. The first is urban intensifi cation and development. Projects such as NBlox/Cube Lofts and Stage East have set new standards of expectation for development along Toronto's avenues and are featured in the City of Toronto's Avenue Design Guidelines. These smaller infill projects are also mirrored by larger scale urban masterplans such as the Fort York Neighbourhood. The second is adaptive re-use; From his work on Toronto's fi rst loft conversion, the Candy Factory, he went on to work on projects across Europe, such as the Goswell Road Distillery conversion in London and the Proctor and Gamble European HQ in Geneva - from a former UBS bank. More recently he worked as the project architect on the conversion of the Humber College Student Centre in the former Mimico Lunatic Asylum and The Loretto Abbey conversion in Toronto's Annex neighbourhood. The third commonality is sustainable design which frequently builds upon historical and traditional means of energy reduction and offer a fi rst principles approach rather than a bolt on remedy. These are best illustrated in projects such as the Dubai Canal District. Richard was one of three Ontario architects invited to represent the province's green build sector in the Premier's 2009 CleanTech trade mission to India.

As an integral part of Richard's professional development he has received many accolades & awards for his competition entries (including a Canadian Architect cover) such as The Absolute, Urban Splash's River Irwell (Costa del Salford), Due Ponti Sul Tevere and EuroPan 6 (SlowCity-FastCity). RAWdesign was one of fi ve companies recently selected to submit for the Fort York Visitor Centre competition in Toronto.

PHOTO: The canühome, built on principles of the Worldhouse.

IWB PREVIOUS YEARS

WORLD HOUSE PROJECT

The World House Project confronts the issue of shelter for coming generations by developing housing systems that operate on the principles of sustainability, universality, technological responsiveness and ecological balance. The faculty and students seek to create advanced housing solutions that are globally responsible and locally appropriate.

Building on the core value of inter-professional collaboration for design innovation, the team works with real world clients to propose, test, and generate knowledge. In its first two years, the World House Project integrated the expertise of students, faculty, and experts to examine housing solutions for clients ranging from the Canada Housing & Mortgage Corporation to the Government of Costa Rica.

VISION, MISSIONS & VALUES

Creating next generation housing solutions.

To create a knowledge base for housing design that serves people worldwide.

The World House Project is grounded in the notion that all design and human activity should be compatible with the long-term prosperity of all cultures and living systems.

To this end, the Institute without Boundaries has categorized the basic elements of housing into twelve systems - water, food, waste, construction, air, energy, finance, mobility, communication, social, spatial, and identity - which are evaluated using four values - sustainable, universal, intelligent, and balanced. In every project, these elements combine and integrate to generate designs that promote creative prosperity for all species and cultures. This World House Matrix provides a framework for generating innovative ideas and auditing the quality of the results.

In summary, all World House Project work seeks to encompass the following characteristics:

- Promote the long-term health of nature and human cultures
- Address the challenges of urbanization in developed and developing countries
- Create houses that avoid resource depletion, waste and environmental degradation
- Encourage appropriate consumption
- Built for the use of all people
- Create healthy buildings for people of all income levels
- Built so that residents can live comfortably, safely, productively and independently
- Adaptable over time for new users regardless of age or physical ability
- Help people reach their full potential of good health and productivity
- Foster innovation in human shelter

OBJECTIVES

The World House Project was a multi-year initiative that developed over time through continued dialogue with other educational institutions, design studios, non-profit organizations, and community groups. Through this process of collaboration, review and evolution, the World House project endeavoured to:

- Create a knowledge base for housing design that can be shared internationally through print, exhibition and multimedia platforms.
- Create a series of design methodologies that can be adapted and used by diverse groups in the development of housing and community design projects.
- Host collaborative design events to foster interaction between diverse groups (such as educational, government, private, non-profit, and community) in the development of housing and community design projects.
- Provide open public forums for feedback on the World House knowledge base.
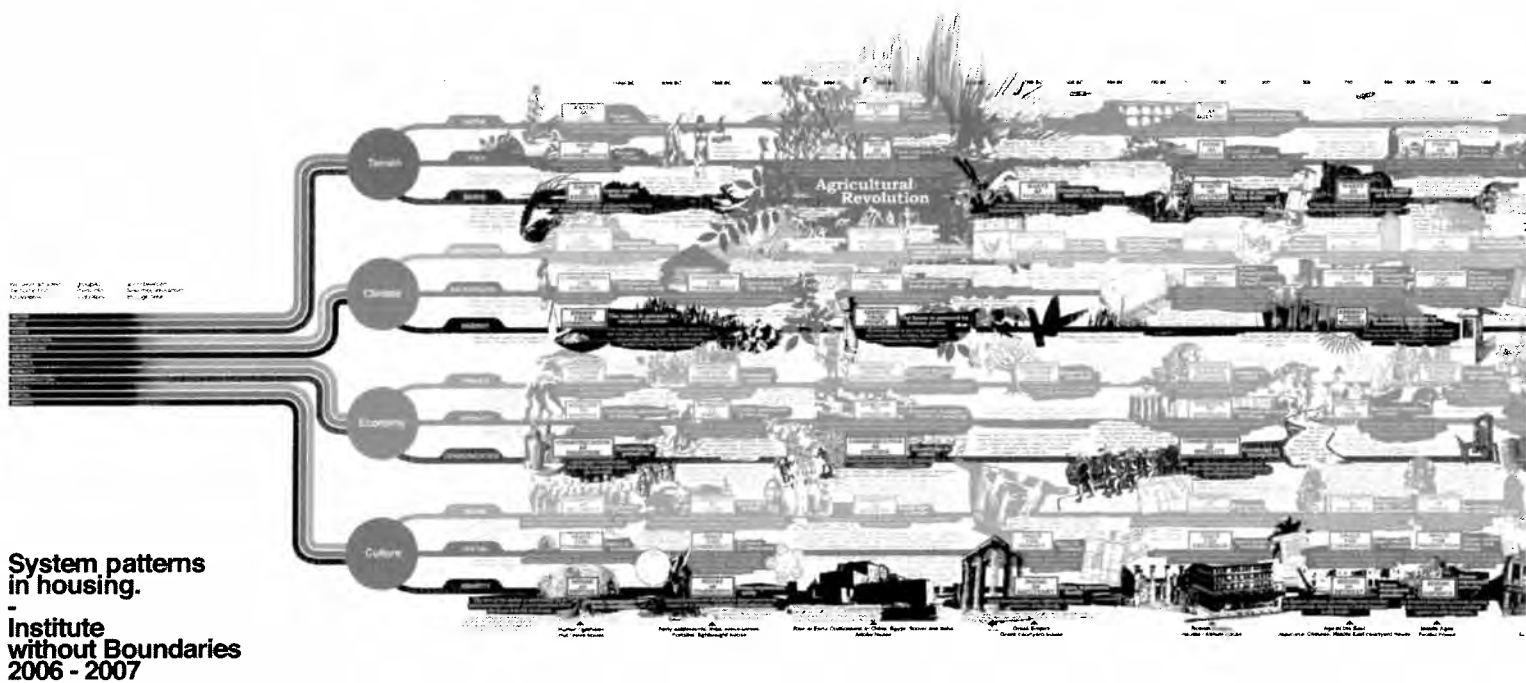
**System patterns
in housing.
-
Institute
without Boundaries
2006 - 2007**

PHOTO: Systems timeline from Worldhouse Year 1.

Industrial Revolution

Information Revolution

●●● towards a house that grows my food

towards a house that produces zero waste

● towards a house that creates energy

●● towards a house that communicates to/for me

●● towards a house that is/knows my identity

WORLD HOUSE YEAR 1: 2006-07

In the first year of the World House Project, we developed a "System Patterns in Housing" timeline that identified twelve systems, from construction to identity, and significant trends throughout history and cultures. The team also examined the underlying philosophy, principles, and conceptual prototypes for next generation accessory living units to infill urban and suburban areas.

The Institute began a tradition of active participation in community innovation and socially responsible design through charrettes. The first World House Interdesign conference brought together 154 participants from around the world to explore and develop solutions for challenges related to housing and water for clients such as Downsview Park, Waterfront Toronto, the Town of Port Perry, and the Mount Dennis community.

MEDIA

System Patterns in Housing
This research and design project uses a linear timeline to illustrate the interaction and evolution of the 12 World House systems over the last 8000 years.

World House Documentary
The team conducted an international survey asking participants what they like and dislike about their places of residence. Responses came from over 32 countries, sharing stories that cross terrain and housing typologies and income classes. Together, their sentiments intertwine to give a better understanding of the true essence of home.

System Home: First Year Student Essays From the World House Project
This collection of essays assesses both past, present and future trends in the 12 World House systems.

Watershed: The World House Guide to Designing Water's Future
This guidebook explores civilization's relationship with water, and catalogues specific ways to capture, cleanse, conserve and affect change of water use in private residences.

Matrix Cards
To aid the Interdesign process the team developed a set of Matrix cards and a design process workbook to use as design audit tools.

EXHIBITIONS

Green Building Festival, October 2006
The team used this exhibition as an opportunity to receive feedback from industry experts on their research proposals, with an interactive video, scrapbook and photo shoot.

Let's Talk About Love
A student art exhibition and fundraiser was held in the Institute space with musical and artistic performances and installations.

Interior Design Show, February 2007
At this show, the team premiered the World House Matrix research, exhibited on a wall system constructed from recycled cardboard. The Institute received acclaim from the Toronto Star for its booth design and the Matrix concept.

Doors Open, May 2007
At this event, the team asked visitors to imagine, play and create alternative options to the traditional home, using magnetic poetry and drawing templates.

World House Living Model 1.0, June 2007
The World House Living Model, Version 1.0 is a 256 square foot metaphor for home, that encourages audiences to question their choices and investigate the best practices for our individual and collective futures.

Digital Home
This project looked at a hypothetical world house design scenario 25 years in the future based on the life of a person born today. The house illustrated intelligent design solutions for the digital home.

CHARRETTES

Habitat for Humanity, Sept 2006
The team collaborated with architect Dean Goodman to redesign social housing units for Habitat for Humanity.

Harney, October 2006
The team produced concepts for a family pavilion intended to revitalize an abandoned ravine space at the back of a North Toronto property.

Marotta, March 2007
The team produced concepts for an addition to a Scarborough residence intended to accommodate the evolving needs of a family of four.

Architectural Technology Student Collaboration, March 2007
In celebration of the College's 40th anniversary, twelve teams of third-year architectural technology students partnered with an Institute team to design a 400 square foot living space that could be placed in laneways, on rooftops or in suburban backyards.

World House Interdesign, June 2007
At this Icsid (International Council for Societies of Industrial Design) anniversary event, designers from around the world collaborated on four local, urban design.
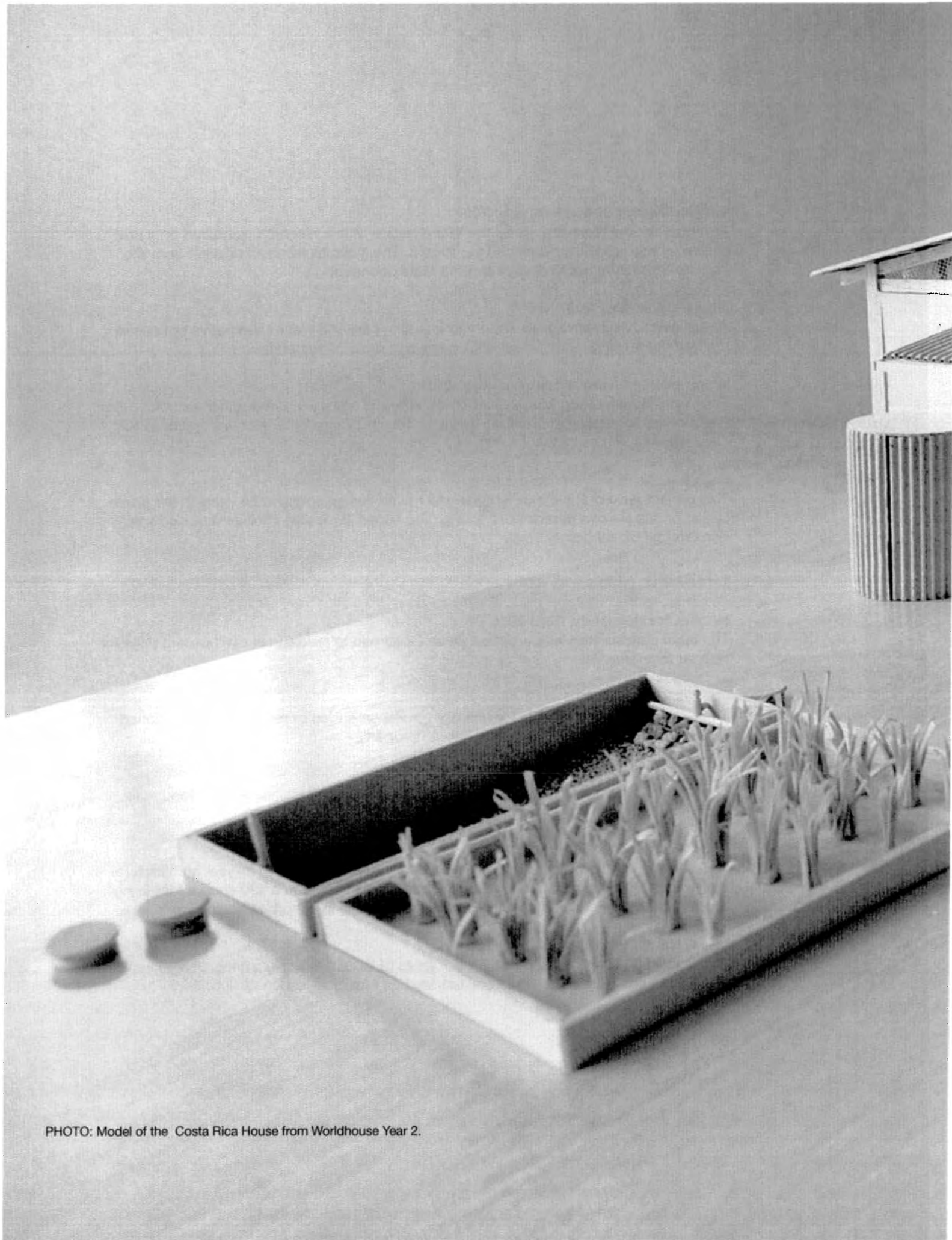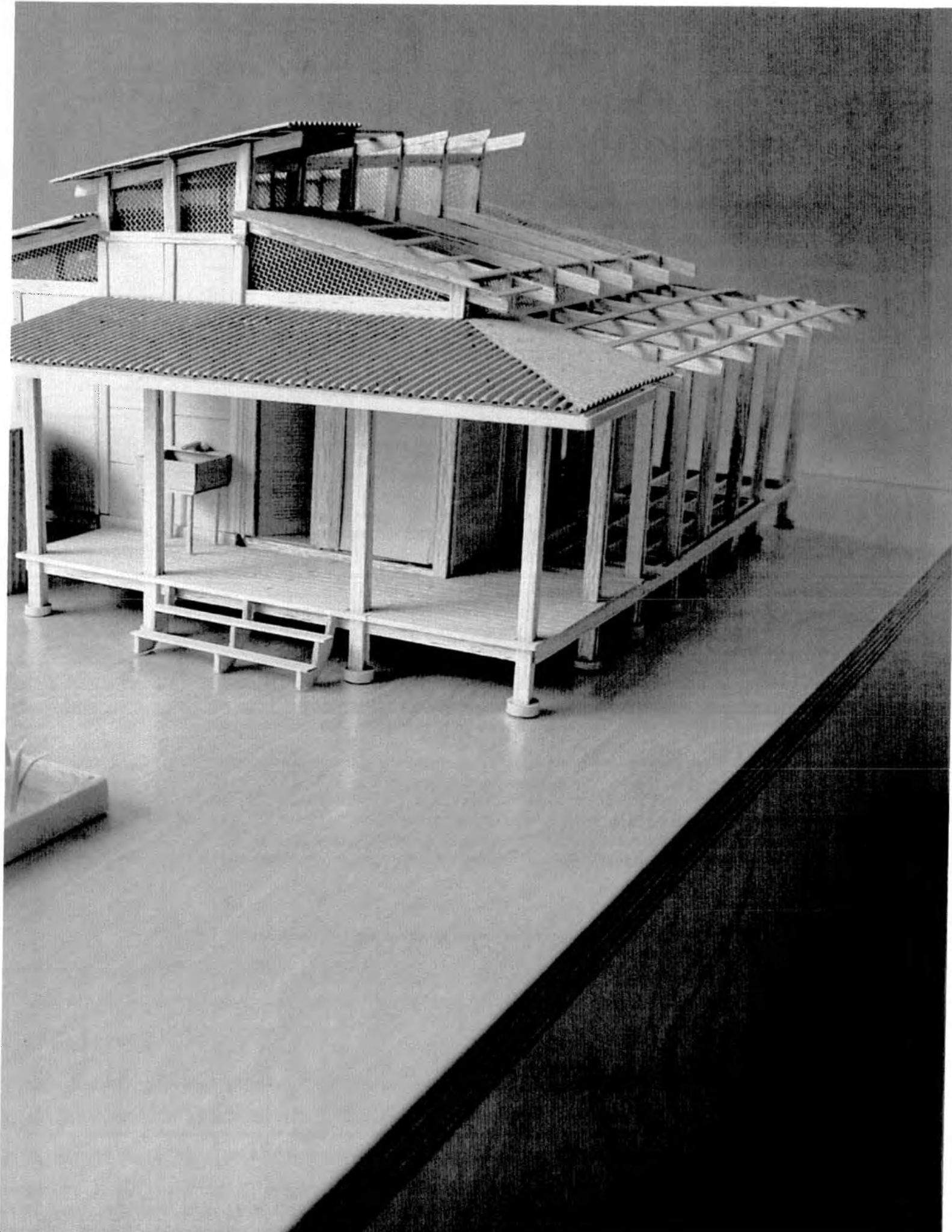
PHOTO: Model of the Costa Rica House from Worldhouse Year 2.

WORLD HOUSE YEAR 2: 2007-08

During the second year of the World House Project, the Ministries of Culture and Housing of the Government of Costa Rica asked the Institute to explore solutions for rural community redevelopment in regions experiencing rapid tourism growth. The Institute was also tasked with developing a sustainable re-design for government-sponsored social housing units.

The Institute developed its design innovation research to create an advanced modular housing unit, the Canühome, in partnership with the Canada Mortgage and Housing Corporation, which is now touring Canada and the world. The Institute conducted charrettes with the School of Architecture at Veritas University in Costa Rica, the Windsor Essex Community Housing Corporation, and participated in the Changing the Change conference in Torino, Italy.

MEDIA

World House Costa Rica Research Report
This report is a compendium of information and resources regarding Costa Rican climate, politics, culture, history, architecture and design. This research informed the development of the design projects.

World House Costa Rica Design Projects
Students developed detailed designs and implementation plans for three elements that could help to revitalize the town of Matapalo, the surrounding region and similar areas affected by tourism. These included:

- Designs for a 400 square foot housing unit, targeted to mid to low-income families, that is financially, environmentally, and socially sustainable.
- A plan to revitalize the town square, which will help to strengthen the local economy and culture.
- A master plan that consists of a set of tools and recommendations for maintaining and developing self-sufficient, sustainable communities.

12 Community Housing Projects Book
This publication analyzed community housing typololgies and ideologies, beginning with prehistoric cliff dwellings. The publication targeted the Canadian design community and the public.

Ideator
Students developed a publication in newspaper format to explain the IwB and World House projects and processes to the public.

EXHIBITIONS

Interior Design Show, February 2008
The booth featured the Ideator and solicited feedback from the public.

Global Development Village (GDV), October 2007, May 2008
Happening once in October as a trial run, and once in May as a much larger event, the Global Development Village provided the Institute with an opportunity to showcase its research in a much different forum, and targeted a young adult audience. The Global Development Village provided interactive, educational workshops that provided youth with practical ideas for actions to tackle the eight Millennium Development goals.

World House Costa Rica, 2009
An exhibition demonstrating the results of World House Costa Rica will travel in Canada and to Costa Rica, featuring housing designs, plans for the revitalization of Matapalo's town square, and planning tools to aid in the development of sustainable communities.

CHARRETTES

Veritas Charrette, December 2007
This charrette combined students from the IwB and the Veritas University architectural program to create solutions for the World House Costa Rica Project. Presentations from both schools on their social housing unit design preceded the charrette and served as a basis for further investigation.

Matapalo Community Charrette, December 2007
This charrette took place in the community of Matapalo, Guanacaste, Costa Rica. It involved a collaboration between the Institute students, Matapalo residents, Costa Rican NGOs, as well as local and foreign project partners.

World House Costa Rica OnSite Charrette, February 2008
This charrette provided an opportunity for schools around the world to take on the World House Costa Rica challenge, led by the Institute students.

PRODUCTS

Dashboard
The Dashboard is a physical manifestation of a design theory created by students as a tool to negotiate complex real-world projects. The Dashboard provides a menu of design options, assisting the user to question their relationship with the client (how much involvement is necessary on the part of a designer?), the form of the design (communication, environment, product, service and/or system?) and its impact (social, ecological, economic?).

PHOTO: Year end show for W___ ___ ___ar 3's Rennovate Your N___

WORLD HOUSE YEAR 3: 2008-09

In Year 3, the focus of the Institute shifted back to North America in partnership with Habitat for Humanity Canada and Evergreen at the Brick Works in Toronto.

World House Year 3 investigated the development of a synergistic model for creating communities that harmonize nature and cities, provide housing and dignity to citizens, and promote social innovation and justice. The team researched, designed, and conceived a collaboration model for Evergreen and Habitat for Humanity entitled Renovate Your Neighbourhood. The program culminated in the production of an exhibition and a book, with several not-for-profits interested in following through with aspects of the program.

MEDIA

Renovate Your Neighbourhood Exhibition Catalogue
This double-sided book features a review of the research, ideas and strategies behind the Renovate Your Neighbourhood program, as well as a mock-catalogue featuring twelve renovation projects in four areas of a typical neighbourhood: house, mall, school, and park.

EXHIBITIONS

Interior Design Show, February 2009
Students designed and constructed an interactive booth featuring previously collected quotes on the question: "How Do You See the Street?" The exhibit was awarded "Best Student Booth" at IDS '09.

Renovate Your Neighbourhood Exhibition, Summer 2009
Featuring 12 projects to rejuvenate housing, parks, schools and malls in the inner-suburbs of Toronto, this interactive exhibition encouraged visitors to engage in the discussion on how we can build communities that promote healthy living and nature, affordability, diversity and involvement. It asked visitors to imagine what they might do to change their own neighbourhoods, and showcased the Renovate Your Neighbourhood program. A proposal for a marketing campaign and a new "GreenStore" collaboration for Habitat for Humanity and Evergreen were also presented.

CHARRETTES

Brick Works Farmers' Market Charrette, September/October 2008
This charrette asked students to propose a concept that would enhance the Evergreen Brick Works Farmers' Market's usability, flexibility, accessibility and or diversity of reach. Design solutions combined aspects of product, environmental, communication and service design, and reflected holistic design principles as outlined by the World House Matrix. Designs, which ranged from safe (bike infrastructure) to wacky (a gondola for transportation through the Don Valley) were targeted to improving the experience of client groups: visitors, vendors, Evergreen and the City of Toronto.

Habitat for Humanity Mississauga Charrette, November 2008
In collaboration with the Department of Architectural Technology at GBC, students pro-
posed design options for affordable housing using an existing Habitat for Humanity site,
located in Mississauga, as the context.

TAS Design Build Urban Condo Charrette, March 2009
In this charrette, the Institute without Boundaries collaborated with the Department of
Architectural Technology to propose new user-centered design options for the Giraffe
Condo by TAS Design Build. Each student group focused their research and design on
one of three user-groups: young professionals, young couples, or elderly couples.

PRODUCTS

During the fall Design courses, students explored new products for the Evergreen Brick
Works retail store, including: reusable diapers, a "seed sucker" for children to help in
the garden, a cinder-block planter, and a system of refillable containers for kitchen and
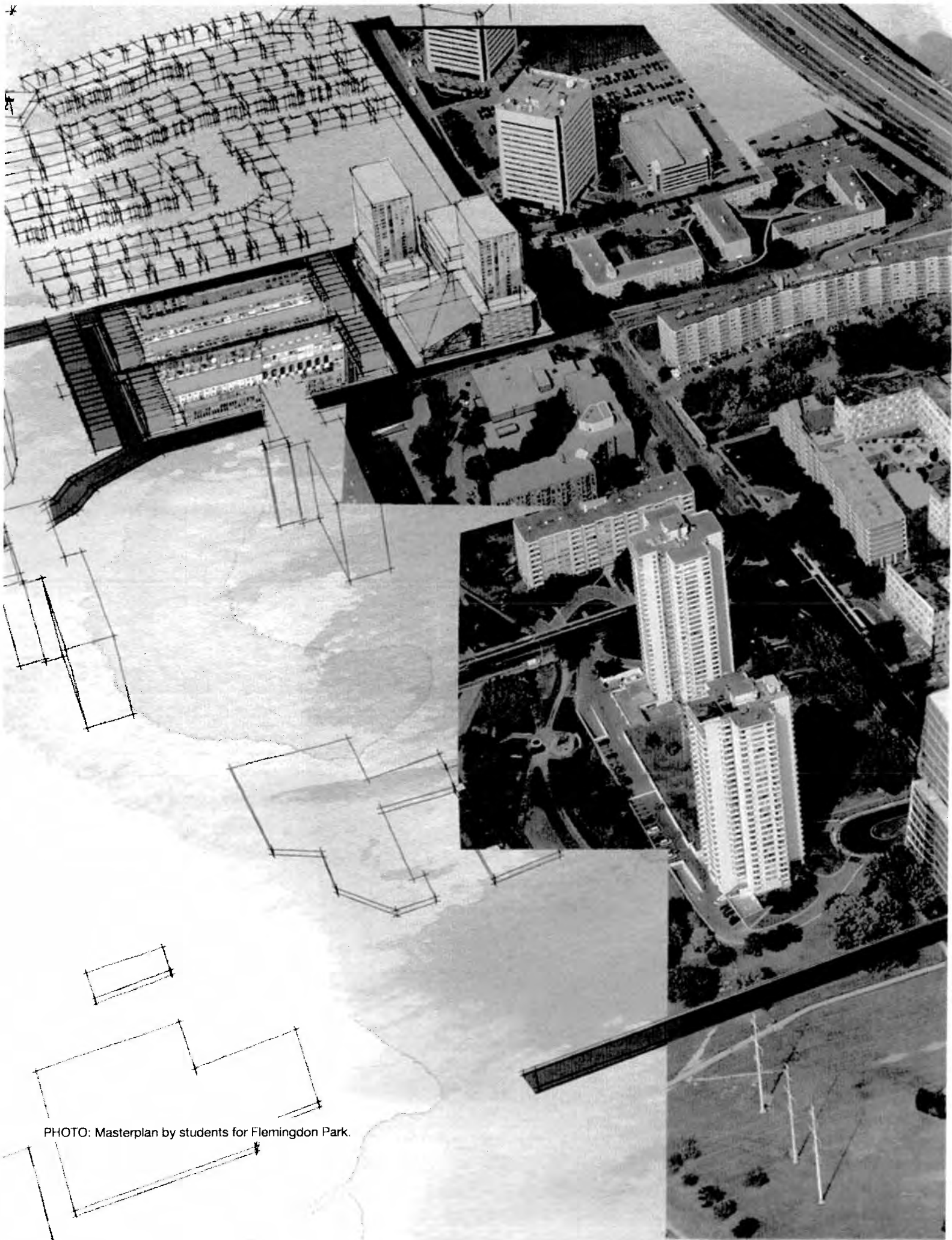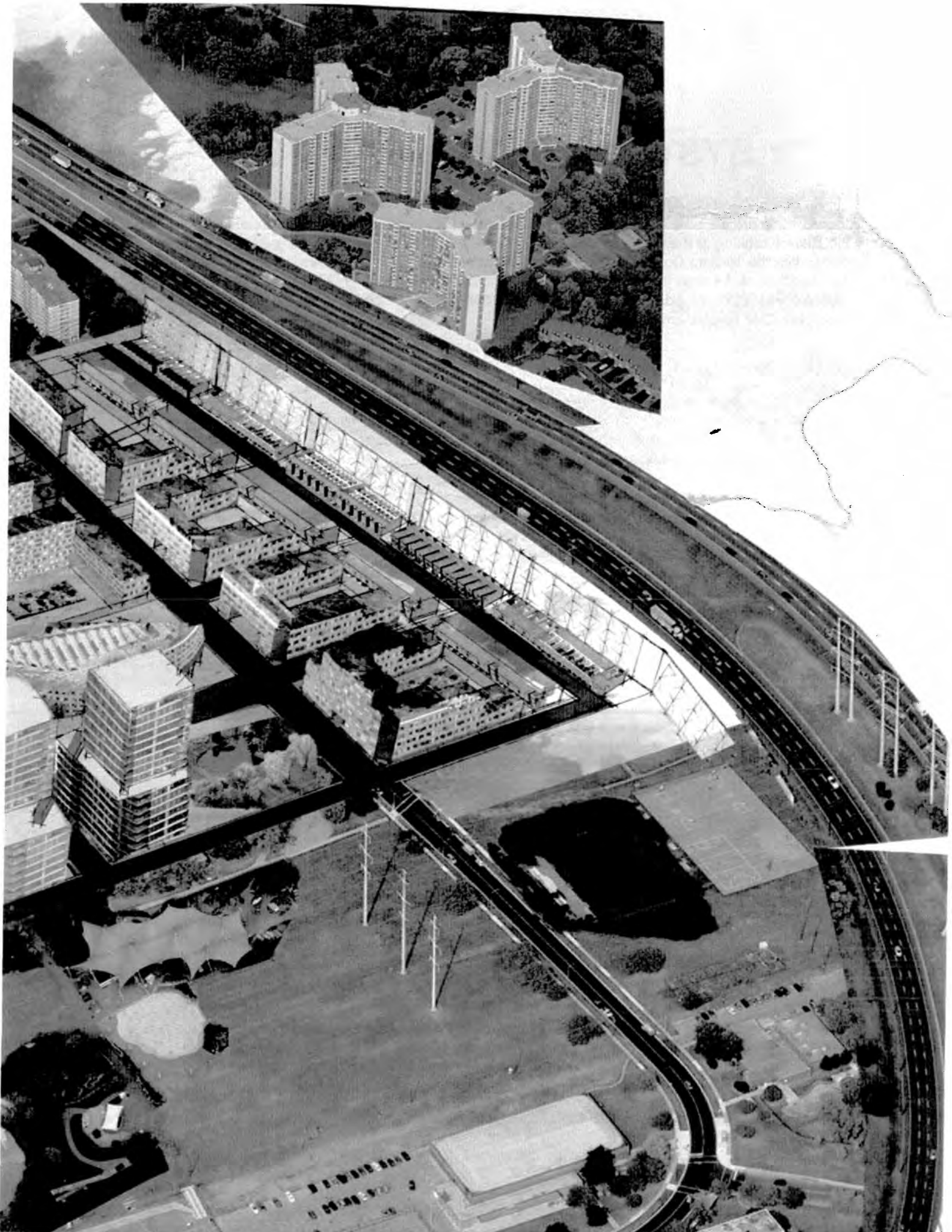bathroom liquids.

PHOTO: Masterplan by students for Flemingdon Park.

CITY SYSTEMS YEAR 1: 2009-10

Year 4 of the World House project was also the first year of the City Systems project. The focus of this project built on the previous years' gradual shift from looking at the home in isolation to looking at the greater context these homes existed within. This year partnered with the Toronto Community Housing Corporation (TCHC) and focused on one of 13 priority sites the organization had identified as in need of complete revitalization. This neighbourhood, Flemingdon Park, would become the case study site for the year and all projects would revolve around this location.

MEDIA

Falstaff Charrette Research Document, October 2009
This detailed research document was created to support the fall charrette. It included detailed information about the project site including maps & drawings, photographic site tour, community meeting results, case studies and design precedents.

Flemingdon Park: Major Research Project, December 2009
Extensive research supported the major project design development. This report included ethnographic data, case studies, physical site details, environmental information, economic and cultural details about Flemingdon Park.

Building Relationships: A Revitalization Plan for Flemingdon Park, May 2010
This document covers the details of the proposed master plan changes for the TCHC site Flemingdon Park including background information, design strategy, neighbourhood impact, operations, built form and financial strategy.

Univerally Local: An Exploration of City Systems, June 2010
This book represented the culmination of the first year of the City Systems project and breaks down the City Systems into 7 ideal characteristics that make up a well-functioning city. These characteristics are illustrated by both proposed designs from the Flemingdon Park project and case study examples from around the world. A workbook for integrating the systems into your own neighbourhood revitalization project concludes the book.

City Systems Year One (Video), June 2010
This video documents the process and experience of the class of '09/10 as they explored Flemingdon Park, learned about the systems that make up a city, exhibited their work both locally and internationally, and finally created a unique and workable proposal for TCHC.

EXHIBITIONS

Urban Evolution, December 2009
This student exhibit at the School of Design showcased a semester of research into the history of city systems and plotted major urban developments on a DNA-inspired timeline. Pivotal moments and developments were highlighted in 3D and lit with high-efficiency LEDs.

Interior Design Show, January 2010
Students designed and constructed an exhibit for the Toronto Interior Design Show that showcased the concept that "People Power Public Space". This interactive exhbit included media examples of communities in action and encouraged viewers to participate by lighting up the signage by pedalling a bicycle. Their exhibit was selected by the show sponsors and awarded best student exhibition.

F Gallery, February 2010
The "People Power Public Space" exhibited for a month at George Brown College's F Gallery at 207 Adelaide St. East following the success at the Interior Design Show.

Fabrica del Vapore, April 2010
The "People Power Public Space" exhibition was also invited to showcase during the largest furniture fair and design week in Milan, Italy. Prize money from the IDS10 booth combined with fundraising efforts by students enabled the IWB to ship the booth, accompanied by students, to show at this prestigious design event.

Universally Local, June 2010
The year-end show for year one of the City Systems project was a multi-media exhibit that featured a scale model of the proposed changes for Flemingdon Park, down-projected video demonstrating the proposed design changes to the site, and light-box information panels that detailed each of the 7 City Systems characteristics.

CHARRETTES

Falstaff Charrette, November 2009
Design teams made up of students from George Brown College, the Institute without Boundaries and OCAD worked collaboratively over four intensive days to develop new and innovative solutions for the landscape of Falstaff, a community of over 6000 residents. Working with Susan Speigel Architects, a firm with a track record of improving Toronto Community Housing Corporation sites and changing lives, student teams produced design proposals for the TCHC to make affordable and sustainable improvements to this community.

Flemingdon Park Unit Design Charrette, February 2010
This 4 day charrette tackled the creation of a unit design for Flemingdon Park. Working together with teams of Architectural Technology students, each IwB student lead a team in the development of user-centred designs for the residents. Guest professor Margherita Pilan from the Politecnico di Milano guided the students in the use of personas and storyboards as they designed a range of different unit typologies.

Evergreen / Brick Works Children's Greenhouse Charrette, June 2010
More than 40 students from the IwB, GBC's Graphic Design & Architectural Technology departments, U Guelph's Landscape Architecture program, U of T's Architecture & Landscape Architecture departments came together to design an educational greenhouse and chicken coop for the Evergreen Brickworks site. Working together in interdisciplinary teams for an intense 3-day charrette, 5 teams each developed innovative design solutions that brought education about the natural cycles of life, growth, and the natural environment to the forefront.

PHOTO: The Year End Show for City Systems Year 2

CITY SYSTEMS YEAR 2: 2010-11

In the second year of the City Systems project, the program focus shifted scale to look at issues in a larger city in a rural environment. The project partner was the community of Lota, a small city in Chile that was devasted first economically in 1997 by the closure of the main employer in the region, a coal-mine called El Chiflon del Diablo, and then physically by a severe earthquake that occured in February 2010.

This project depended on the cooperation of numerous partners in Canada and Chile. In addition to this international collaborative effort, many other particiapants came together and the result was a revitalization plan for Lota that built on the strength of the people of the community. People Change Places was a guidebook for change.

MEDIA

Lota Charrette Research Document, November 2010
This document supported the fall charrette, Community in a Container. It included details about the case study city, Lota, as well as information about emergency relief precedents and existing organizations.

Lota: Major Research Project, December 2010
Based on the research conducted during the October visit to Lota, this document included research and analysis on many different aspects of the city including transcripts of interviews with residents and community leaders, photographs and maps of pertinent areas as well as key insights that would later lead to design solutions for the city.

Sustainable Tourism Charrette Handbook, February 2011
This project document brought together highlights fromt he Lota: Major Project Research Document with tourism information and a brief that supported international teams of students and expert advisors.

People Change Places: Yo Soy Lota, June 2011
The year-end book recorded the design strategy and details that made up the project including mapping, financial projections and business details. It was all incorporated into a perfect-bound document that featured many of the photographs and design renderings.

Change Agents, Video, June 2011
This 3 part series on the role of people as change agents featured interviews with students and local professionals. It launched at the year end show.

EXHIBITIONS & EVENTS

Silent Auction Fundraiser, December 2010
Students organized and ran a silent auction to raise funds to offset the travel expenses associated with travelling to Chile to conduct the research and charrette component of the project.

Interior Design Show, January 2011
Students designed and constructed an exhibit for the Toronto Interior Design Show that showcased the concept that "People Change Places". This interactive exhibit focused on cultivating connections between the viewer and the city of Lota, Chile, through the use of acrylic tiles that visitors could sign and hang.

Imaginando Lota, January 2011
In parallel with the Interior Design Show exihibit, students installed a series of case installations at the School of Design that told the story of Lota and of their year-long project. These exhibits were launched with a public open house event that included both student and faculty presenations about the IWB and the Lota project.

People Change Places, June 2011
The year-end show launched the book and the video as well as the exhibit that featured all the design strategies and details.

CHARRETTES

Ciudad del Diseno Charrette, October 2010
Students from the IWB travelled to Lota and partnered with students from DuocUC, a Chilean University in Concepcion. Together they envisioned future possibilities for the City of Lota.

Community in a Container, November 2010
Students from the IWB worked with students from Architectural Technology and Graphic Design to design universal solutions for delivering housing, healthcare, and other community needs in post-disaster situations such as the city of Lota after the earthquake of February 2010.

Sustainable Tourism in Chile, February 2011
This charrette tackled varying aspects of the tourist attractions needed in a city such as Lota in order to compete in the global tourist market. Participants came from Chilean, Italian and Danish schools to collaboration with IwB and other post-secondary students from a variety of schools in Ontario.

PHOTO: Student Team Celebrates the completion of the first Charrette of three that will take place during the Markham Project

CITY SYSTEMS YEAR 3: 2011-12

Currently underway as the major focus for City Systems Year 3, the Markham Project continues to be explored through a series of smaller projects.

DESIGN PROJECT: PRODUCT

Through this course, the students were taught an introductory understanding of 'Product Design' and the current disciplines and techniques used throughout the product development cycle. Students focused on researching and developing a product concept suitable for the city of Markham. In-class lectures, discussions, and learning modules surrounding design research, concept creation, design development, and design presentations formed the course. Technical skills such as sketching, mind-mapping, model-making, material selection, manufacturing processes, and design presentation techniques were introduced and practiced as the students develop their product design. A final presentation to faculty and guest professionals enabled students to participate in a critique of their product concepts.

CHARRETTE

This event allowed students to explore design issues and develop solutions in a team environment through the design charrette process. This is an intensive, collaborative process that brings together students from different disciplines with design professionals to develop innovative solutions for complex issues. Over a few short days of brainstorming, discussion and expert consultation, teams created a broad range of ideas around the central theme, and eventually focused down to a single best concept. The charrette originated as a design process used by architects, urban planners and designers to connect community members, developers and professionals – groups that often hold competing interests and agendas – to address complex projects such as neighbourhood planning, urban development and construction projects. Working side by side in a charrette, these groups were able to develop feasible solutions that meet everyone's needs. The term charrette is drawn from the late 1800s, where proctors at the École Des Beaux-Arts in Paris would circulate a cart (charrette) to collect drawing submissions, as students rushed frantically to finish their work. Our charrette process develops a similar momentum, and is key to the success of the event.
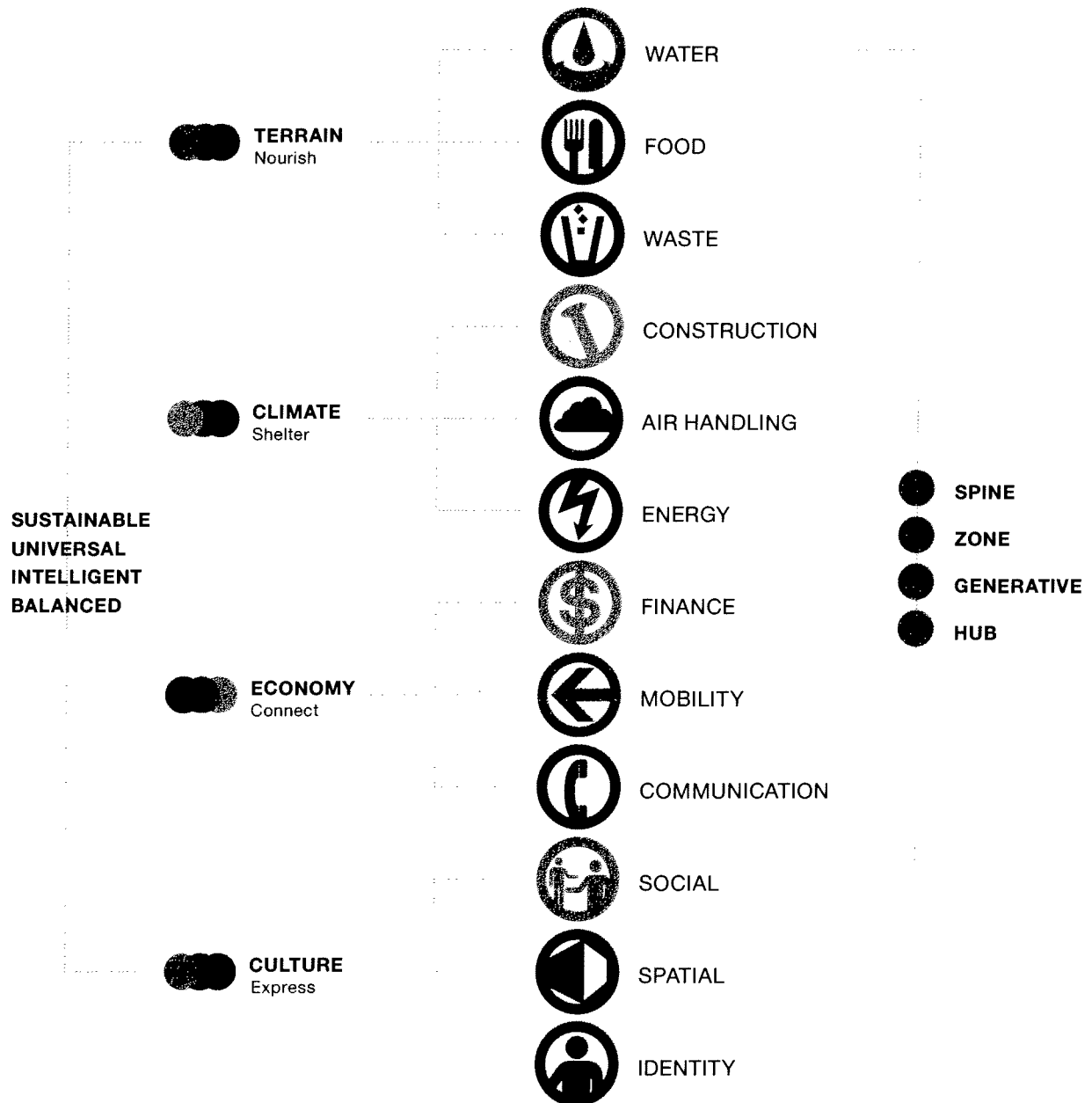
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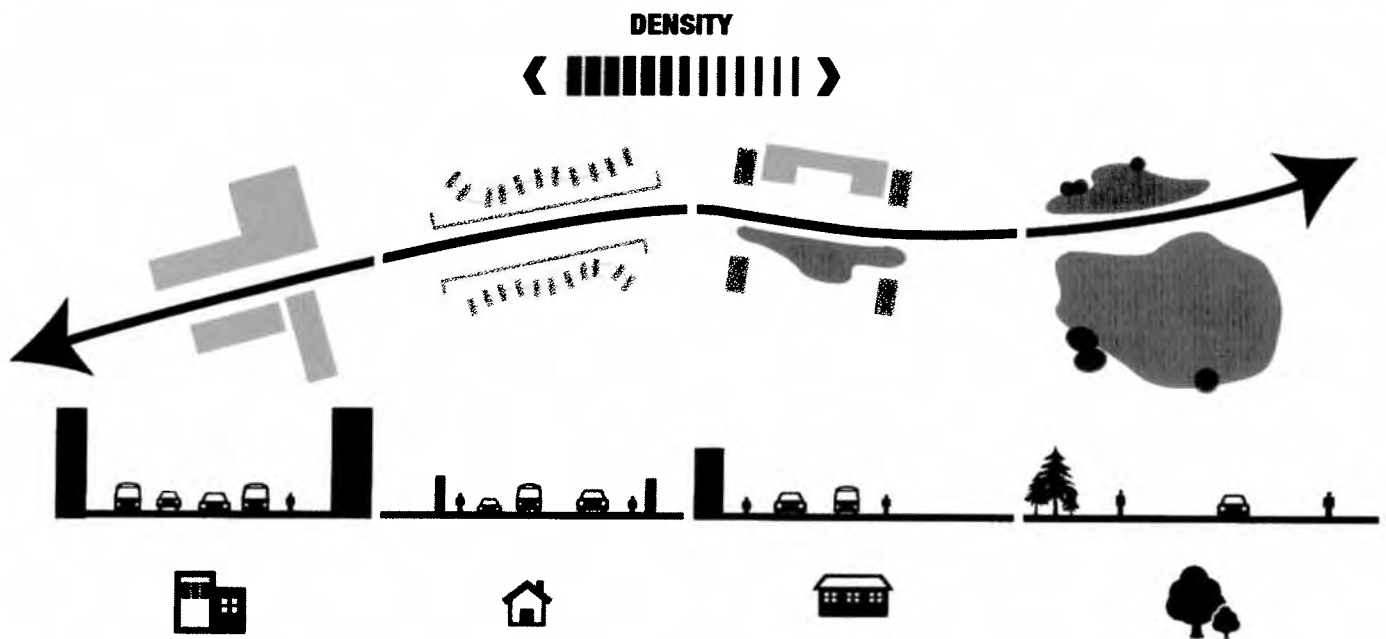
IMAGES from 1-month project addressing the streetscape and branding of Highway 7

4 FILTERS   **4 FACTORS**   **12 SYSTEMS**   **4 MODES**

TERRAIN
Nourish

WATER

FOOD

WASTE

CONSTRUCTION

CLIMATE
Shelter

AIR HANDLING

SUSTAINABLE
UNIVERSAL
INTELLIGENT
BALANCED

ENERGY

FINANCE

SPINE

ZONE

GENERATIVE

HUB

ECONOMY
Connect

MOBILITY

COMMUNICATION

SOCIAL

CULTURE
Express

SPATIAL

IDENTITY

THE WORLD HOUSE MATRIX

The Institute without Boundaries has categorized the basic elements of housing design into twelve systems, which can be further grouped into the categories of terrain, climate, economy and culture. In every project, these elements combine and integrate to generate designs that promote the long-term health of all species and cultures. This Matrix provides a framework for generating innovative ideas and auditing the quality of the final product. The Institute uses the Matrix primarily for housing design challenges, although it can be adapted to suit other scenarios.

SUSTAINABLE

How can we meet the needs of today without compromising those of the future? Sustainable design considers the distribution, allocation and management of resources, including human resources, to achieve local and global objectives.

The IwB is committed to ecologically and socially sustainable practices. The World House project will rely on conceptual tools such as:

* The Third Client (Brault/Croteau)
* The Hannover Principles (McDonough), www.mcdonough.com/principles.pdf
* The Natural Step Principles, naturalstep.org/learn/principles.php
* LEED
* Social Venture Network Standards for Corporate Responsibility, http://www.svn.org/initiatives/standards.html
* Five Principles of Ecological Design (Cowan. Van der Ryn.), http://www.ecodesign.org/edi/ecodesign.html

UNIVERSAL

How can we design products and environments for all people, to the greatest extent possible, without the need for adaptation or specialized design? Universal design takes into consideration flexibility, simplicity and self-evidence to accommodate individuals' various life stages, circumstances and needs.

Principles of Universal Design:
1. Equitable use
2. Flexibility in use
3. Simple and intuitive use
4. Perceptible information
5. Tolerance for error
6. Low physical effort
7. Size and space for approach and use

The World House Project will incorporate best practices developed by the Canadian Mortgage and Housing Corporation's prior research initiatives such as the Flex House and the Healthy House.

INTELLIGENT

How can we use technology to promote the long-term health of nature and human cultures? By combining hi-tech innovations with traditional knowledge and processes, we can design systems for the home that complement our daily routines.

REFERENCES:
http://architecture.mit.edu/house_n/
http://delta.pratt.duke.edu/smartcentral/urls.php
http://xxydesign.ucsd.edu/twiki/pub/Experimentalproduct/
VirtualEnvironments/09bubble_smartness.pdf

BALANCED

How can we strike a balance between extremes? From work to leisure and impoverishment to excess, balancing both our individual and collective lifestyle habits is an important step in achieving peace and health.

TERRAIN

Nourish: Water, Waste, Food,
How does our home help to nourish us? The home, and the human body, is dependant on and a part of local and distant ecosystems. Food and water enter the home and are stored to feed and sustain us. They leave, along with other inorganic materials, to reenter the system as nutrients or as pollution. How can our homes nourish the land?

Water
Where there is water, there is life. We rely on it daily in our homes for cleaning and for nourishment. Is water a human right or commodity? How can we improve its collection, conservation, reuse and distribution, to ensure fair access for all nations? Imagine a home that recycles its greywater for reuse.

Waste
Waste is the by-product of life. In our homes alone we generate biological, organic, chemical, and synthetic waste products, each of which requires its own management system to avoid polluting soil and water and to prevent outbreaks of disease. Today, the sheer volume of our waste threatens not only cities, but also our entire planetary balance. Imagine a home that achieves a zero-waste footprint by managing its resources intelligently.

Food
There is nothing like the smell of baking bread or the feel of a warm cup of coffee to invoke a sense of comfort. Food maintains life, and is also an integral part of cultural identities and lifelong memories. But moving meals from field to table is dependent on a complex social and economic network that is global, mechanical, biotechnical and media driven. Advances in appliances and preserving techniques makes eating increasingly hassle free for the modern-day homeowner. How can we embrace new technologies without losing connection to the healthy food traditions that define our humanity?

CLIMATE

Shelter: Construction, Air, Energy
How does our home mediate our relationship with the elements? We shield ourselves from sand storms, rainstorms and animals, yet welcome in wind and sun to make our spaces more comfortable to inhabit.

Construction
Shelter is the result of materials extracted and fabricated into building parts, then crafted together by human and mechanical labour. How can we improve this process to increase local sourcing and owner participation? Imagine a home that grows out of and returns to nature by using innovative building materials.

Air
Imagine a home that maintains high air quality levels by using natural convection, cross ventilation, stack effect and breathable membranes. Moving, replenishing, moderating and maintaining air quality within and around a home is fundamental to the health and well being of its occupants. How can we capitalize on the basic laws of physics (convection, conduction and radiation) and use primarily passive systems to achieve what is often referred to as HVAC: Heating, Ventilation and Air Conditioning?

Energy
Electricity and fuel, combined with technology, grant us mechanical efficiency within our homes. We can make light in darkness, heat in cool climates, and cool food in warm ones, simply by plugging into the energy grid. The sources that support this grid however, are not without limits. How can we tap into alternative and renewable sources of energy, as well as achieve designs that are energy efficient? Imagine a home that creates more energy than it consumes by harnessing natural elements such as sun, water, wind and bio-waste.

ECONOMY

Connect: Finance, Mobility, Communication
How does our home connect us to each other, our environment and the world? Communication and transportation devices bring us together to form business and social networks. As a result, we can exchange information, goods and services to support and enhance each other's lifestyles.

Finance
Houses are often the reward of our life savings. Mortgages, sweat equity and innovations in financial lending make ownership possible for consumers in many income brackets. As well, the housing industry accounts for 67% of GDP growth in developed countries, providing invaluable labour opportunities. Imagine a home that creates wealth for the community by using local suppliers and laborers, and a financial model that helps to leverage shelter into an affordable bracket for a greater number of citizens.

Mobility

The flow of people and goods to and from the home, and also within the home, both physically and virtually, permits networks to form, business to take place, and economies to grow. How can the design of our homes facilitate quick movement of ideas and objects to promote physical activity and free time in our daily routine?

Communication

Sharing ideas is a powerful way to shape societies. Whether by mule, telephone or video broadcast, we constantly send messages out from our dwellings and accept new information in. Every year, our homes make room for new gadgets that minimize the distance between doorsteps: radios, televisions, telephones and computer devices. We also continue to create new methods for our home to communicate with us. Imagine a home that communicates to and for us by using interfaces that stimulate all five senses.

CULTURE

Express: Social, Spatial, Identity

How does our home express our ambitions? The home is the intersection between public and private, and is also an avenue for self-expression, directly influencing how we interact with each other.

Social

Often, the design of a house determines the nature and degree of interaction that will take place between family members, roommates and neighbours. It can be open to the street or fenced in; it can provide space for group gatherings, or dictate isolation. Imagine a home that contributes to the community, promoting social interaction and providing safe and welcoming spaces.

Spatial

People inhabit space. It has depth, breadth and height. Its configuration, along with the play of light and shadow, can assign it with characteristics such as public or private, dangerous or safe, open or confined. Today, a popular question is how to increase density in cities without infringing on individuals' desire for personal space. Imagine a home that has spaces that can adapt to different functions.

Identity

"Home is where the heart is." Houses shelter us from the elements and also support the actions and intentions of our lives. They are extensions of our dreams and desires. A house – its form, materials, location and period – presents an image to the world at large about its occupants. But what is the image of a healthy lifestyle?
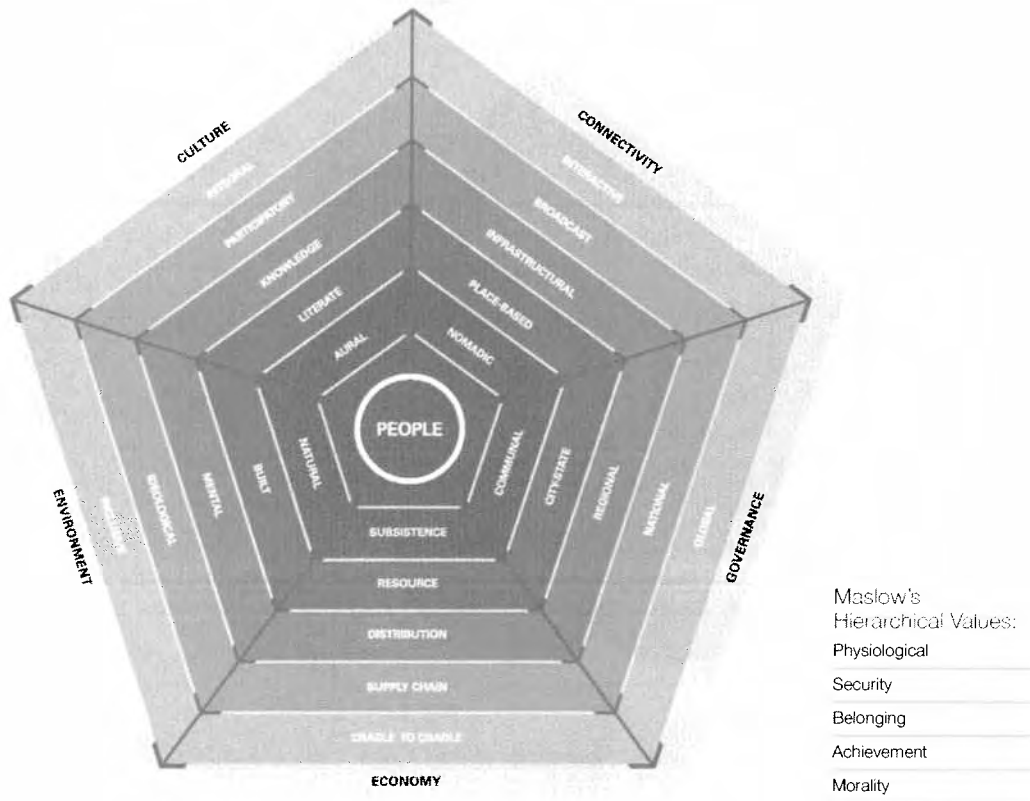
CITY SYSTEMS MATRIX 1.0
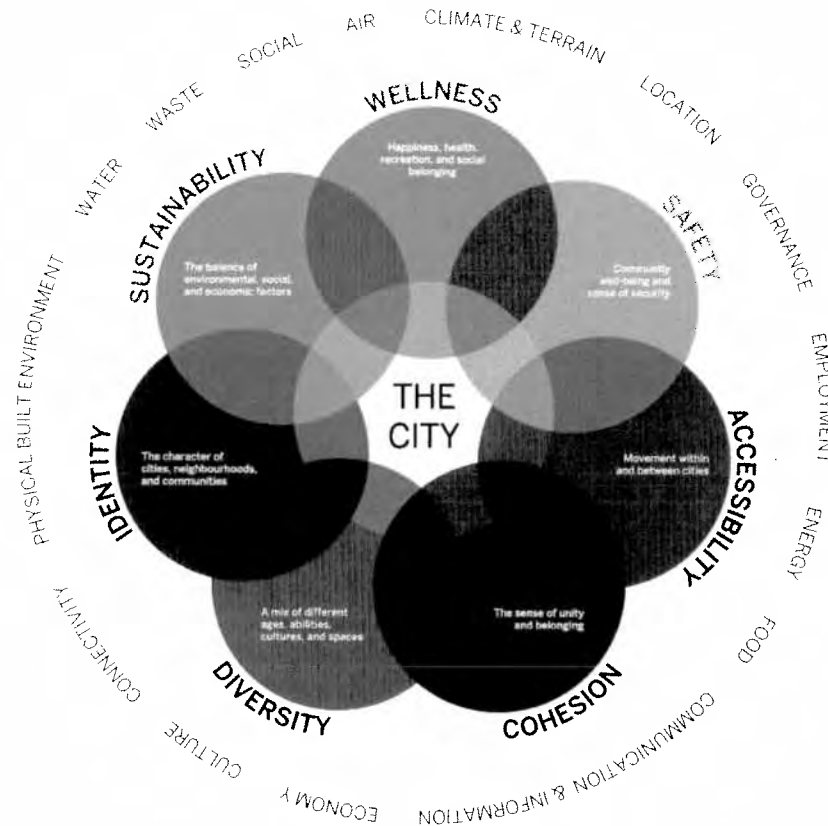
This tool is a framework for organizing information to better understand the elements that shape a city, and the different ways they can be configured or combined to improve the urban landscape. This framework is a model for thinking of a city as a series of interconnected relationships. By looking at urban issues at different scales, this framework can be applied to problems that range from a citizen looking to improve their local park, to an urban professional working on the redevelopment of a brownfield site. Using this tool you will be able to:

- Understand the different systems that make up a city
- Understand the ideal principles of a city
- Identify gaps and problems within your city or neighbourhood
- Create relationships that address weaknesses and build upon strengths within your city or neighbourhood

The City Systems Framework has seven Characteristics, represented in the inner coloured circles of the above graphic, and fifteen City Systems, represented in the outer loop of the graphic. Characteristics are ideal principles that a city should aspire to, while systems are what makes a city function.

CITY SYSTEMS MATRIX 2.0

Maslow's
Hierarchical Values:

Physiological

Security

Belonging

Achievement

Morality

The second year of the City Systems project (2010-2011) used this new evolving matrix to identify and understand what makes a city resilient. The IwB worked with the City of Lota in Chile to understand the effects of economic collapse and natural disaster. This provided an opportunity to test and advance the City Systems year one matrix.

The matrix is a framework tool to propose immediate solutions and to forecast the future needs of citizens, industry and the environment.

The team focused on the systems and characteristics that make up a resilient city and the relationship between residents and their natural environment. This resulted in a Resilient City framework that helps to identify the importance of collaboration, knowledge transfer and revitalization catalysts and, in particular, the need for community actors.

Resilience is a process that is dictated by a hierarchy of needs. Once a level is attained in the hierarchy of needs, actions must be taken in order to reach the next level of resiliency.

ENVIRONMENT

The goal is to reach a state that goes beyond the basic needs of survival to one that is of a high quality of life that meets the physical, social and emotional needs of a person and city.

CULTURE

This is the quest of reaching a community's full potential. This is the process that continues to grow with new opportunities to create a resilient city.

CONNECTIVITY

Once a person's physiological and safety needs are met, social needs and the need to belong are important motivators. Interacting with others will create a community that changes to reflect the future needs of the city.

GOVERNANCE

Once individuals feel they belong to a community, the need to attain a level of importance emerges.
A city's success lies in its reputation and recognition to
foster multiple levels of development; creating a prosperous community.

ECONOMY

Once physiological needs are met, a citizen's
safety and security must be addressed. A city must rise to a state of wealth and abundance so that citizens' physical and emotional well-being are assured.