Open Source City
A proposal for a City Tool Shop

by

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Abstract
Despite a history of participatory planning, urban activism and DIY building culture in Vancouver, Canada, current approaches to city-making have limited the agency of individuals in engaging with the built environment. This work investigates the changing conditions that have made it difficult for ordinary citizens to participate in small-scale construction, building repair, and navigation of permitting and rezoning processes. It addresses these barriers with a proposal for a facility that will support the work of DIY enthusiasts; individuals engaged in renovations or repairs; and neighbourhood activists and advocates. The proposal is presented in the form of a business plan for a City Tool Shop, a socially-enterprising non profit business located in Vancouver, Canada.
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1 | Introduction
1 Introduction

There is notable commonality in everyday conversations about how we interact with space: the satisfaction of rearranging furniture or planting a garden, the pursuit of a new place to live, the arduous process of renovating, the fear of neighbourhood change. Embedded in these conversations is an intuitive understanding of how and where we exert control over the built environment, and where that control ends. In *The Structure of the Ordinary*, N.J. Habraken posits that the impulse to hang a picture on a wall or to reorganize the furniture is not essentially different from the motivation to rebuild an entire neighbourhood, but rather that these actions all stem from the motivation to exert control over a space, or ‘live configuration’, of the built environment, albeit at different scales (18–19).

A city is not a single live configuration, with a clear individual agent that exerts control over the urban environment, but rather a complex assemblage of many configurations, and many agents vying for control. Government, industry and citizens all play a role in the evolving production of the city: each group participates in a collaborative and competitive process to control elements at a variety of scales. For example, home-owners maintain their residences, making decisions about the materials and aesthetics of their home’s façade. Neighbourhood zoning, building codes and sometimes heritage restrictions may supersede the home-owner’s level of control, dictating the parameters within which that individual’s decisions must fall. In a democracy, control ultimately loops back to citizens, providing voters with an opportunity to decide who is in charge of rule-making and, in some cases, what the rules are.

This project is primarily concerned with the opportunities for ordinary people to interface with the built environment in the city. Their contributions are realized through activities that include the renovation or repair of dwellings, facades and outbuildings; participation in neighbourhood visioning and participatory planning; initiation of rezoning or permitting applications; and the construction of small-scale interventions in the public and private realm. One way of understanding the role of ordinary citizens in the production of the city is to separate the professional from the non-professional contributions to the process, that is, contributions from

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1 Habraken defines a live configuration as “any grouping of parts entirely under control of a single agent, such that their distribution in space has been determined or accepted by that agent and can be changed by that agent” (18). From the author’s examples, it is clear that live configurations can be nested within each other: for example, the condominiums within a strata are each themselves a live configuration controlled by individual owners or renters, nested within the live configuration of the entire strata controlled by a strata board (the agent).
those whose jobs are concerned with city-making – planners, trades-people, architects, civil engineers – from those whose contributions are made outside the context of a vocation.² Non-professional contributions to the built environment tend to be smaller-scale,³ and less technically and financially complex. People construct gardens, fences and sheds; they build furniture and undertake repairs or minor renovations; business owners create signage and revamp facades, changing the look of the street; and community groups establish temporary or permanent installations in the public or private realm.

These projects help make a city interesting and unique, providing a genuine character and sense of identity and place.⁴ The wisdom of a city’s “organic intellectuals” includes idiosyncratic, site-specific, on-the-ground knowledge; techniques and strategies imported from elsewhere; and knowledge from other eras or areas of practice. Without these contributions, the city is at risk of becoming generic, monotonous and placeless – what Richard Sennett refers to as a “brittle city,” where a culture of “control-freakery” and technocracy has overridden the modest, slow, idiosyncratic contributions of the community (1-2). Some of the non-professionals most directly engaged in the production of space include DIY enthusiasts – gardeners, artists, and tinkerers; those engaged in renovations and repairs; and neighbourhood advocates and activists.

Despite Vancouver’s international reputation for its progressive, participatory planning processes, urban activism⁵ and prolific DIY culture⁶, aspects of rapid urbanization in the 1990’s and 2000’s have put the agency of these particular individuals to engage with the built environment at risk. These moves, some of which can be linked to a “branding” of Vancouver for

² Different cities and sites within cities demonstrate varying proportions of these kinds of contributions. At one end of the spectrum, favelas and slums represent extreme levels of emergent planning and non-professional contribution, with a lesser degree of professional intervention. At the other end of the spectrum, gated communities with stringent design guidelines represent a hyper-regulated, master-planned approach, with lesser opportunity for individual contribution.

³ Section 60 (h) of the Architects Act of BC clearly defines parameters for sizes, uses and types of buildings that require the seal of a registered architect, including “any other building in excess of 470 m² gross area, being the aggregate area of all floors”.

⁴ A good Vancouver example is Vincent Fodera’s shrine to Jimi Hendrix, located at 207 Union Street in homage to Vic’s Chicken and Steak House, where Hendrix spent summers working for his grandmother in the once mostly black neighbourhood then-called Hogan’s Alley.

⁵ See Punter (14) on the Vancouver Achievement and Harcourt and Cameron, 2007 on “Saving Strathcona” (31 – 55).

⁶ There are a number of new organisations in Vancouver that support non-professionals engaged in this type of work, including the Vancouver Tool Library and the Vancouver Co-Lab. The purpose of this project is not to replicate their work, but rather to provide a different kind of support to their audience, and perhaps the organizations themselves. This is explored in more detail in Chapter Three, City Tool Shop, under the heading ‘Partnership Opportunities’.
an international community and others which are tied to general trends in approaches to urbanism, are creating an imbalance in professional and non-professional collaboration and are jeopardizing the benefits of bottom-up, emergent approaches to city-making. I locate this by identifying a number of “problem clusters” – essentially roadblocks that limit non-professionals in engaging with the built environment:

- the prolific development of high-density residential building typologies (Harcourt and Cameron, 1), which has reduced access to garages, basements and backyards – spaces where DIY building and other activities of ‘making’ typically occur
- a general ‘scaling up’ of projects in the city, in terms of size, cost and the complexity of permitting and rezoning processes
- a decline in access to tools and equipment through cooperatives, educational institutions and industry

In the past, the means of production for intervening in the built environment, including tools, workspaces, capital, and learning opportunities were within reach of a broader group of people. For example, where the majority of Vancouverites once lived in single-family houses, approximately two-thirds now live in denser typologies, such as apartments, condominiums, and row houses (Statistics Canada). Single-family dwellings not only provided space to store and work with tools and materials, but also produced a demand for this type of work, requiring maintenance and repair, as well as spatially allowing for furniture, gardens, etc. Anecdotally, this can be described as a kind of garage culture – of tinkering with tools and minor repair at home, and was consistent with the design of objects in a way that allowed for the user to take apart, understand, and repair the things they owned. Many of the skills required for this type of work, such as the use of tools, were once more commonly developed through vocational training in schools and obtained through work experience in industries such as manufacturing (see Matthew Crawford’s Shop Class as Soulcraft).

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7 This is consistent with a trend of over-determination discussed by Richard Sennett in “The Open City,” where “the proliferation of zoning regulations in the twentieth century is unprecedented in the history of urban design, and this proliferation of rules and bureaucratic regulations has disabled local innovation and growth, frozen the city in time” (Sennett, 1).

8 For example, until the 1970’s, home radios were sold with circuit diagrams, allowing the owner to disassemble and rewire the radio in the case of failure.
As the scale of construction projects, land costs and complexity of administrative processes in the city has risen, alongside a decline in access to work space, tools, and learning opportunities, access to the means of production is limited to a narrowing group of increasingly professional people. For example, developers with access to large amounts of capital are able to afford to hold land throughout a permitting process, which can be lengthy due to an increase in the ways the built environment is regulated – through zoning, bylaws, and permitting requirements.

In response, I address these problem clusters by proposing possible alleviation points, or specific opportunities to improve this balance and support the work of non-professional 'city-makers':

• providing community-members with affordable access to tools, materials and workshop space;

• developing an educational model that will help to demystify City permitting and rezoning processes to the general public;

• supporting a program that will bring a diverse cast of professionals and non-professionals into the same space, initiating two-way dialogue and face-to-face contact.

This paper is intended to lay the groundwork for a larger, applied project, which is the development of a socially-enterprising non-profit business model for a City Tool Shop. The introductory section describes the changing conditions in Vancouver that have limited the agency of individuals in interfacing with the built environment, and anticipates the risks associated with a failure to support the work of this group. It also provides a philosophical stance for the project, adopting the open source model promoted in *The Hacker Ethic* (Himanen) as a means to define the relationship between professional and non-professional contributions to the built environment in the city.

Chapter Two, *How to Get There*, contextualizes this paper within a long-term project to develop a City Tool Shop, an incubator for agents and activities that will help to resolve the “problem

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9 The plan follows a format recommended in a report entitled “The Canadian Social Enterprise Guide,” the second edition of which was published in Vancouver in 2010.
clusters”. Here I give the scope and structure of the work presented within the paper, identify the immediate next steps beyond the scope of the thesis, and lay out a timeline for the next six years of the project. This section also identifies important project-milestones, and provides a framework for understanding if and when a meaningful improvement to the problematic situation has been made.

The motivation to use certain approaches, such as the decision to adopt a socially-enterprising non-profit business model, will be given here. I discuss the need to build partnerships with institutions and industries; to self-generate a significant portion of revenue; and to maintain an arm’s-length relationship with the City of Vancouver. I also discuss the choice to prioritize a site for the project on Great Northern Way, as it pertains to key partnerships.

Chapter Three, City Tool Shop, is a Business Plan to develop a socially-enterprising non-profit in Vancouver, Canada. It follows the structure recommended by Enterprising Non-Profits, a BC-based organization that provides community groups and non-profits with resources and planning tools for social enterprise growth. A general overview for that structure is:

- Executive Summary
- Market Analysis - Industry Overview, Demand, Target Market, Competition
- Business Model – Precedent Models, Facilities, Service Overview, Product Overview, Partnership Opportunities
- Operations – Legal Structure, Implementation Strategy, Staffing Structure
- Financial Plan – Overview, Sources of Revenue, Projected Budget, Financial Assumptions

The concluding chapter revisits the intention for the project, predicting how the intervention of the City Tool Shop will have a long-term effect at the city scale, both in terms of social outcomes and built form. It speculates about how the City Tool Shop may grow and be replicated in time, anticipating a pattern of branching out from the Great Northern Way location into a number of satellite locations throughout Metro Vancouver. The conclusion reiterates the need for a City Tool Shop and returns to the project milestones given in chapter two, ensuring a clear methodology to analyze if and when the objectives of the project have been met.

Philosophically, this project adopts ideas promoted in open source theory, introduced in texts such as Eric Raymond’s 1997 “The Cathedral and the Bazaar” and the writings of Pekka Himanen,
Linus Torvalds and Manuel Castells in *The Hacker Ethic*, and applies them to the city. The term ‘open source’ originated in the 1990’s as a software development strategy in which source code was made openly accessible, and self-identifying contributors could participate in the development, critique, and ‘debugging’ of a program. *Open Source City* uses this as a metaphorical principle on which to build the relationship between professionals (planners, architects, engineers and policy-makers) and the public in the production of the urban environment.

A common misperception is that thousands or tens of thousands of programmers write popular open source software. The process, like the writing of commercial code, is actually quite elitist. For example, Mockus et al. (2000) report the top 15 developers have contributed from 83% to 91% of changes in the Apache code. By way of contrast, the reporting of bugs is much more democratic. (Lerner and Tirole, 822)

Mimicking this relationship between leadership or expertise (the “elite”) and the broader group “reporting bugs,” this project champions the idea that the general public can and should be involved in the critique of the built environment, as well as participating in some portion of the actual production of that environment. It does not ignore the need for professional expertise, specialized fields, or top-down planning: rather, it seeks to create a situation where top-down and bottom-up approaches of contributing to the city are mutually beneficial and drive a better outcome than possible from either approach in isolation.

1.1 | On Vancouver

Vancouver is globally lauded by urbanists, tourists and residents alike for its spectacular geographical backdrop, its high-density urbanity, and its youthful and leisurely demeanor (Punter, xiv). With an international reputation as an innovative, green-thinking, and liberal safe-haven, the city only recently dropped to number two from its decade-long occupation of the number one spot on the Economist Intelligence Unit’s list of “Most Livable Cities”. Often cited for its high standard of urban design, the ‘Vancouver model’ has been studied and exported around the world, most literally in the development of the Dubai Marina, a full-scale replica of Vancouver’s False Creek seawall and its podium-tower building typology, in the United Arab Emirates (Boddy, 18).
This “branding” of the city is not incidental, but rather economically and politically strategic, helping to drive tourism and investment in the region. By positioning and marketing itself as a place of “outstanding opportunity for outdoor adventure [with] the sophisticated amenities of a world-class city” (Tourism BC) and “an innovation incubator - a place where new ideas, products and services are born” (Vancouver Economic Commission), Vancouver has access to a global market of wealthy elite, bringing an influx of foreign capital and immigration to the region, both of which have boosted the city’s population and economy. Land values, currently among the highest in the world (Ladurantaye), have soared creating an extremely expensive real-estate market and making it profitable to develop the high-density building typologies that have come to be associated with Vancouver’s downtown landscape.

In striving to build its image as a world-class city, Vancouver has prioritized political and economic strategies that contribute to that image, including intensifying residential densification; stimulating rapid large-scale development of new buildings; dismantling industrial production and manufacturing in the city; and increasing the use of regulatory control over the built-environment. If stimulating a productive economy is the primary goal, there are numerous metrics that show how this “brand-scaping” has proven effective: immigration accounts for a large portion of the region’s population growth, tourism makes up 8% of the overall economy, and the city attracts wealthy elite with a high-end real-estate market (Vancouver Economic Commission). However, these strategies also have the effect of diminishing the agency of the individual to play an effective role in shaping the city, limiting both opportunities to make physical contributions to the built environment and opportunities to make abstract contributions to policy and planning.

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10 These conditions are consistent with third-phase gentrification, as described by Neil Smith and Jeff Derksen in “Urban Regeneration: Gentrification as Global Urban Strategy”: “Links between gentrification and global capital are tied to tourism and the city’s image, but also to economic restructuring and official governmental policies, such as immigration and multiculturalism” (Smith, 66).

11 Matthew Rofe identifies and defines an emergent global gentrifying class in “I Want to be Global: Theorising the Gentrifying Class as an Emergent Elite Global Community” (Rofe, 2519).

12 A notable example is the city’s post-EXPO ’86 sale of the industrial lands along the north shore of False Creek to Hong Kong investor Li Ka Shing (Boddy, 15), which has subsequently been developed into a multitude of residential podium-towers by Concord Pacific.

13 Statistics Canada shows that immigrants make up approximately 40% of Metro Vancouver’s population.
The speed and scope of residential densification, particularly in Vancouver’s downtown core, cannot be underestimated. Between 1971 and 2011, the residential population downtown jumped from 1380 to 30,129, contributing in large part to a city where 62% of residents live in units other than single-family dwellings, like apartments, townhouses, and condominiums (Statistics Canada, 2006). Residential development took place primarily in Yaletown and Downtown South, with podium-tower typologies replacing decommissioned industry along False Creek. These developments are typically primarily made up of small apartments (under 500 square feet), several street-level townhomes, and a few larger penthouse suites. The trend for high-density residential development has recently been re-articulated in a City charter entitled “Eco-Density,” which projects for, among a variety of forms of added density, intense development at transit nodes and along transit corridors.

Residential towers place limitations on individuality in a couple of ways. Aesthetically, they are unified configurations, designed to look cohesive from the exterior: symbols of order and control. Often strata councils impose rules about the type of blinds or curtains a resident may use, place restrictions on hanging laundry or storing items on balconies, and certainly present no opportunity for an individual to make any changes to a building’s exterior. Concrete and steel towers (any building in Vancouver taller than six stories) present technical barriers to reconfiguring space too: structural systems cannot be dismantled or altered on the small-scale, the way light-frame wood constructions can be; individuals cannot attach heavy items to concrete-backed drywall, making the hanging of shelves or even pictures difficult; there is no option to change the size, location or proportion of windows. Finally, these typologies provide little space to work with materials, having no room to spread out, make noise, produce dust, or store tools.

The development of so many towers in Vancouver is part of a larger trend of the ‘scaling-up’ of development in the city in general. The use of discretionary zoning (as opposed to administrative zoning), guided by the recommendations of Vancouver’s Urban Design Panel and City Planning department, is intended to create a higher standard of urban design (Punter, 14). It gives the city

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14 “Living First,” an article written by former Vancouver Director of Planning Larry Beasley, articulated the priority that would be placed on residential density downtown. It was originally published in the April 2000 issue of Zoning News, the American Planning Association’s monthly newsletter, and discussed the changing demands on land use that Vancouver faced in the 80s and 90s, particularly in the city’s core, citing an explosive rise in the regional population and a surplus of commercially zoned square footage downtown. It was this combination that fueled the adoption of a sweeping new Central Area Plan, officially enacted by City Council in 2001 and modeled on the principles described in “Living First”.
the authority to manage the “big picture” of the urban environment and to allow for case-by-case analysis of rezoning and development applications (curtailing the one-rule-fits-all principle of administrative zoning, which is consistent but certainly has its problems too). Comprehensive Development zoning and density bonuses favour developers and professionals with large amounts of up-front capital and the expertise to navigate the often-lengthy process of rezoning negotiations. Albeit with good intentions, the heavy use of discretionary zoning really complicates the process of applying for a permit or rezoning for an ordinary layperson, as the city always maintains the authority for the Director of Planning to override the rules as set out in zoning or policy, presenting individuals with increased barriers when undertaking renovations, business development or building projects.

These shifts in development and urban design strategies in Vancouver have occurred in tandem with a general decline of sites in Vancouver where individuals learn about, encounter, or work with materials and tools. Since the 1980’s, high schools have largely dismantled shop classes and vocational training (Crawford, 11 – 13), in favour of technology-based and digital media training. To date, the Vancouver School Board has continued to offer some shop classes to the general public (about 5 – 6 woodworking and welding classes) through the Continuing and Adult Education Programs, although whether this will continue beyond 2012 is currently being debated. The demand for the classes does exist – the Roundhouse, the only Community Centre to offer woodworking access, runs dozens of woodworking classes each year, and provides open woodworking access to individuals for an hourly fee every day.

The shifting conditions described here have not negated all opportunity for non-professional contribution to the built environment, but rather have eroded or restricted the means of production for this group. An absence of appropriate and affordable spaces to work, a complex administrative and regulatory structure, and a disconnect between the work of professionals and non-professionals have put participatory, bottom-up approaches to city-making at risk. In striving to maintain our reputation and culture as an enormously successful, “livable” city (Harcourt and Cameron, 1), it is a critical moment to intervene.

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15 Crawford’s sources are based in the United States, but anecdotal information provided by Mark Milligan, longtime shop teacher for the Vancouver School Board, indicates the same general trend is true in Vancouver.
1.2 | Position

This project proposes a process to support the means by which non-professionals can contribute to the city, with a particular focus on the production of built form. It stems from the supposition that it is crucial to the future success and stability of cities to employ a balanced combination of top-down (professionally-led) and bottom-up (emergent) approaches to city-making, and that this balance must occur in both the abstract and physical realms of city-making. While recognizing that many of the top-down processes are operating effectively in the study area undertaken, I assert that there is still work to be done in cultivating opportunity for bottom-up processes.

Embedded in this agenda is my belief in the value of cultivating resourcefulness and ingenuity, and that, by giving a broader public access to the means to participate in certain aspects of city-making, a more productive, resilient and just city will emerge. It envisions a democratic type of citizenship that recognizes the right to participate in how the built environment takes shape, and enables that right by providing access to the means to contribute. This is not an attack on the fields of planning, architecture, construction or engineering; or on professional practice in general. Rather, it is an attempt to provide one avenue by which professional expertise may be balanced and augmented with broader, grassroots knowledge, and to mobilize the general population of a city to take part in understanding and driving change.

I assert that a key strategy for achieving this goal is to give professionals and non-professionals a good reason to be in the same place at the same time. In the same spirit that Jane Jacobs described the social life and unexpected contact that occurs on city sidewalks (Jacobs, 57), the program of the City Tool Shop will produce both incidental and formal contact between professionals and non-professionals, makers and thinkers, academics and organic intellectuals. In order to target several specific and diverse groups of people, the programming is multi-faceted, providing goods, services and amenities that will attract different people for different reasons, with the goal of bringing these people together.

I believe that cultivating interdisciplinary dialogue and knowledge-sharing among a city’s population, coupled with embedded processes for dialogue between the professional and non-professional community, promotes a more bottom-up culture and strengthens community networks. When these activities are undertaken around focused topics related to the built
environment, they can successfully and critically augment work already undertaken by professional groups, such as planners and engineers.
2 | How to Get There
2.1 | Mental versus Manual

There are innumerable resources on cities, DIY construction, renovation, and repair: books, links, websites, lectures, and articles on these topics are available in droves, and Vancouver has done a good job of making these resources available through the public library system, dozens of lecture series, the Museum of Vancouver, and the City’s archives, in addition to the vast resources available on the internet. A lack of access to information does not present a barrier to Vancouverites wanting to engage in activities of making. Rather, the barriers that do exist are such that inhibit action: a lack of access to tools, equipment and affordable work spaces; and a complex regulatory system that restricts certain types of work.

In my experience, action, or the active process of doing something, is a critical form of learning and an important strategy for driving participation and engagement, regardless of the activity or outcome. Through the investment of labor, time, and attention, an active participant is engaged in both observing and responding; a process of exchange. There is also a productive quality to action - an outcome to the work. People need and want to have something to do in order to feel like a useful member of a community, and their energy and curiosity dissipates if there is no productive action for their work.

It is in this spirit of championing action that I am compelled to pursue a strategy that will drive an applicable, non-academic outcome beyond the scope of this paper. Thus, I have laid out a process, both for my own work and for the work conditions that I hope to initiate for others, that focuses on instigating action. Through this process, I hope to support the work of the city’s makers in their endeavours to repair and renovate homes, to construct gardens, to rethink facades, and to contribute to projects beyond the scope of my own imagination. The following section outlines a timeline for this project, beginning with work presented here through to the operation of a fully functional, primarily self-funded enterprising non-profit. Important project milestones are indicated as benchmarks for project evaluation, along with a matrix for understanding if and when those milestones have been achieved.

2.2 | Phase One – Research (2011 - 2012)

One of the primary intentions of the first phase of this project, which began in the spring of 2011, was to analyze the existing processes by which non-professionals contribute to the built

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16 This term is taken from Matthew Crawford’s eloquent writings on our changing relationship with information and objects in Shop Class as Soulcraft.
environment in Vancouver. An important area of inquiry has been to identify where points of opportunity exist for this already, thereby also identifying where there are barriers or gaps in opportunity. I have attempted to show how large-scale planning and policy moves, such as the residential development of Yaletown, downtown, and False Creek, have affected these opportunities, resulting in a shifting balance between top-down and bottom-up approaches to city-making.

This research phase has also included the study of precedent programs and projects, including the Center for Urban Pedagogy (Brooklyn, NY) and the ReBuilding Center (Portland, OR). As a means for understanding the audience I identify as DIY enthusiasts, tinkerers, renovators and makers, I have initiated a couple of pilot programs and tests:

- In June of 2011, I developed and taught Urban Cartography as a Continuing Studies course through Emily Carr University of Art + Design. This was a good test to gauge whether there is interest amongst the general public to learn about city-making through the lens of cartography, and if so, how to teach the subject to students with a diversity of backgrounds and skill sets. The process of offering this course also provided a valuable financial model, provided in Appendix C.

- In the spring of 2012, I hosted Lloyd Kahn, the editor of Shelter Publications, to give a public lecture on his books, including Builders of the Pacific Coast and Tiny Homes, Simple Shelter. This was a valuable test for the City Tool Shop in that the lecture, on DIY building techniques and owner-built homes, represents the type of programming the Tool Shop would host. Holding the talk allowed me to see whether there’s an audience for this type of lecture, and who that audience is. The talk attracted approximately 235 attendees, 60 persons beyond the capacity of the venue. They represented an interesting mixture of baby-boomer aged home-owners and hobbyists, adults in their twenties and thirties investigating home ownership under increasing financial constraints, and designers and builders interested in the idiosyncratic construction techniques documented in the books.

- Through 2012, I have contributed to planning the Emily Carr Tech Shop, a membership-fee workshop and studio facility at Emily Carr University of Art + Design. This new technician-supported work space will allow members of the public to access work space, tools and equipment for a monthly or term-based fee. The project is planned to launch in September
of 2012. The planning of this facility has been valuable in establishing a relationship with a potential partner for the City Tool Shop (i.e. Emily Carr University). As the service comes online, it will help me to understand what types of individuals seek work space and tools, and what kinds of projects they are involved in, the equipment and types of space they are seeking, and their cost tolerance.

This research, both theoretical and empirical, is intended to inform a research document and preliminary business plan. These materials will serve as guiding documents for subsequent stages of work.

Project Milestone No. 1: Completion of a research document (thesis) and preliminary business plan – spring 2012. The academic community at the University of British Columbia will provide feedback on the merit of this phase of work, with a metric for success being successful completion of a Master’s Thesis.

2.3 | Phase Two: Implementation (2012 – 2016)

This phase of the project is the most complex, and is the time during which a plan on paper will be translated into a functioning facility. This phase has been explicitly laid out in the following chapter, City Tool Shop, under “Implementation Strategy,” which presents a breakdown of Phase Two into four stages: planning; initiation and development; growth and stabilization; and independence.

Project Milestone No. 2: This phase will be complete when the Tool Shop has been in operation for five years, and is generating approximately 75% of its own revenue, the remainder of which funding will be provided by an Industry Partner and the City of Vancouver. Please note that within Phase Two, each stage has its own milestones, described in detail in chapter three, City Tool Shop.

2.4 | Phase Three: Evaluation (2017)

An important step, both from a funder’s perspective and for the purpose of evaluating social outcomes, is to establish an evaluation point, at which time the activities of the Tool Shop will be summarized in a formal report, and new goals will be set. The metrics that will be evaluated at this phase of the project include: the number of through-the-door visitors to the Tool Shop, tracked on a monthly basis; a breakdown of revenues from classes, shop services, deliveries and other
revenue sources; and the percentage of self-generated revenue versus revenue from funding bodies. These numerical metrics will be augmented with a narrative evaluation, that will tell the story of the types of projects that the Tool Shop has supported, from small-scale work undertaken by individuals to large-scale projects undertaken by groups. This report should also point out problems encountered in the first operational years and make recommendations for the future.

*Project Milestone No. 3:* This milestone will be reached when senior staff at the Tool Shop have completed a detailed five year project evaluation, reporting on the aforementioned metrics and narratives. At this point, we will also create a new five-year plan, establishing goals and new criteria for success in the years 2017 – 2022. This is also the point at which the development of satellite branches throughout the lower mainland will be examined in detail.

### 2.5 | The Socially-Enterprising Non Profit Model

The decision to adopt a socially-enterprising non-profit model as a core strategy was made in order to give the Tool Shop the best chance to establish important partnerships with other organizations, the ability to prioritize affordability and access over revenue generation, and the means to develop enough financial independence to maintain a critical stance. These priorities are consistent with the reasons *Enterprising Non Profits* gives for developing socially-enterprising non-profits:

1. [To] fill a need the market will never meet on its own.
2. [To] provide an opportunity to advance mission, particularly in areas of cultural and environmental activities.
3. [To] enhance an organization's financial sustainability through the generation of profits that flow to a social purpose.

*(Reasons for Starting a Social Enterprise)*

For a detailed descriptions of the partnership relationships the Tool Shop will pursue, see 'Partnership Opportunities'.
3 | City Tool Shop
Note: Some of the information presented in Part One is reiterated here, in the interest of producing a stand-alone document with potential for future use.

3.1 | Executive Summary

The City Tool Shop is a publicly accessible workshop space, material salvaging centre and classroom space located in Vancouver, Canada. The aim of the City Tool Shop is to foster the opportunity for public participation in the production of the urban environment by supporting activities such as small-scale construction, material refurbishment, renovation, community visioning, navigation of civic administrative policy and community-based planning.

The City Tool Shop uses a socially-enterprising non-profit model to generate a mix of revenue and social capital. Operating on a membership basis, members may access materials, tools and shop space; take workshops and short courses taught by industry professionals; and rent tools and equipment for offsite use. The Tool Shop situates materials-based learning and abstract learning close together, connecting them visually and pedagogically and mimicking the larger-scale means by which the city gets produced. It is made up of three symbiotic programmatic and spatial elements: a material salvaging centre, a fabrication and assembly space, and classrooms. These spaces are highly programmed and designed for intensive use.

The primary objectives of the proposed City Tool Shop are:

• to provide customers with the means to salvage building materials for reuse, thereby diverting this material from landfill sites and reducing demands to transport new and waste material

• to teach the public practical and affordable ways of repairing, designing and building; cultivating the development of resourcefulness with materials and skills-based knowledge through accessible tools and work areas, affordable materials and vocational training

• to foster cross-disciplinary communication, networking and knowledge-sharing between professional and non-professional communities
3.2 | Market Analysis

Industry Overview
This proposal operates at the intersection between three distinct industries: Continuing Education, Community Amenities and Construction Material Sales.

Continuing Education is the offering of fee-based courses, workshops and learning opportunities to the general public. These courses can be of an academic or non-academic nature, but are generally offered without a formal application process or academic outcome in mind. Students may be youth or adults, but generally can be termed as “life-long learners” who may have other more formal academic credentials or not. Courses vary in length between very short workshop models to several-month programs with multiple courses. Continuing Education programs are most often offered within a larger educational institution, such as a university or a school board. They broaden access to facilities, resources and educators within that institution and strengthen institutional outreach to a community. In some cases, Continuing Education programs also provide a revenue stream to their institution.

Community Amenities are resources and facilities available to members of a community, such as fitness centres and parks. They can be publicly operated or non-profit, and provide community members with facilities that prioritize access and affordability. Generally, these are amenities that are not feasible, economically or otherwise, for private ownership. The City Tool Shop will act as a community amenity, similar to Vancouver’s Roundhouse Recreation and Arts Centre.

Construction Material Sales are retail operations that sell building materials, such as lumber, hardware, glass, fixtures, plumbing, and windows. Many of them also sell or rent specialized hand and power tools that are used in construction. Please note that material sales at the Tool Shop will be offered by an adjacent partner organization, such as a location of a Habitat for Humanity Re:Store.

Demand
The catchment area for the City Tool Shop, defined as Metro Vancouver\textsuperscript{17} due to the geographical and psychological porosity of the region, has a population of 2.3 million people. Of

\textsuperscript{17} Metro Vancouver is made up of Vancouver, West Vancouver, North Vancouver, Burnaby, Port Moody, Port Coquitlam, Pitt Meadows, Maple Ridge, Langley, Delta, Surrey, Richmond, and various other small communities in the immediate vicinity of Vancouver (Member Municipalities).
this, approximately 84% are over the age of 15 (Statistics Canada, 2006). Within this area, there are a number of changing conditions that contribute to the demand for a facility of this nature:

Residential Densification – Vancouver’s well-documented move towards residential densification in recent decades, led through policies such as Living First (2000) and Eco-Density (2010) has contributed to a city where 62% of residents live in apartments, condominiums, and town houses (Statistics Canada, 2006). These smaller, denser dwelling units do not often include garages, basements, or outdoor spaces where messy, noisy or dusty work with materials can take place. Providing an accessible, urban space for this type of work to take place is a major opportunity.

A deficit of shop access – Though a number of studios and wood shops do exist in Metro Vancouver, there are barriers to their accessibility, which include affordability, a lack of training opportunities, and lengthy wait times. Most of the existing shops are private or cooperative, requiring individuals to make a long-term financial investment in tools and the lease of space. The Roundhouse Recreation and Arts Centre is one of the only facilities that offers affordable, open shop time, which is heavily in-demand. (See following section “Competition” for a full analysis of existing shop access in Metro Vancouver.)

A surplus of waste construction materials – Construction and demolition material make up approximately 22% of Metro Vancouver’s landfill waste (Advanced Permitting for Deconstruction). Approximately 75% of these materials are reusable (depending on building typology and deconstruction technique); facilitating salvaging operations can divert a large portion of solid waste from the landfill and mitigate transportation costs (both environmental and financial), while also keeping a valuable resource within the city.

The increasing complexity of regulations – In the last hundred years, cities in general, and Vancouver in particular, have seen an enormous surge of regulations and controls on the formation of the built environment through building codes, bylaws, zoning, and historical preservation movements (Sennett, 1). As the language and bureaucracy increases in complexity, members of the general public – lay-people – face increasing barriers in navigating these processes.

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18 Analysis of data from Statistics Canada shows this densification process is occurring in other Metro Vancouver municipalities too, but at rates slower than in Vancouver.
A gap in ways to learn about the city – Although Vancouver has a well-developed culture of leading professionals, recognized scholars, and academic programs in fields of planning, architecture, urban studies, and construction, there are extremely limited opportunities that extend this type of learning to the general public through adult and continuing education programs. These types of programs exist in abundance in other cities; in Vancouver there is an educational gap. (For a description of successful programs operating elsewhere, see ‘Precedent Business Models’.)

**Target Market**
A diversity of appeal is fundamental in order to meet the City Tool Shop’s aim to foster the building of new networks of interdisciplinary individuals. Therefore, the target market includes a number of distinct groups:

- **DIY enthusiasts seeking a venue to work**
  This group may include artists, tinkerers and hobbyists, such as seniors, who have moved from single family dwellings to smaller accommodation units, like apartments, who are seeking space to perpetuate their hobbies and crafts.

- **Home owners and renters with a desire to repair or renovate**
  This group includes those who want to build a window box, replace a banister or build a shed. Classes, materials, tools, access to bylaws and building codes and shop space will all support the work of this group.

- **Neighbours, advocates and activists**
  This group will include individuals and larger groups with a particular interest in either learning about city-related policy, zoning or bylaws; or a desire to advocate for a particular city-related cause.

- **Practicing trades-workers**
  Carpenters, contractors and other trades-workers will seek the Tool Shop as a point of access to inexpensive, salvaged building material; specialized tools; and information about bylaws, zoning and city-policy.
Customers will have a participatory mentality; they will want to be directly involved in the selection of materials, the production of an object, the use of a tool, or the conversation about their neighbourhood. Some will have experience working with their hands and simply want to access space to do so; others will be beginners looking for more learning support.

Customer needs will fall into one or more of the following three types:

- **Access to tools and facilities** – Customers will seek access to hand and power tools and workshop facilities suitable for dusty and noisy projects.

- **Instruction and facilitation** - Customers will seek both hands-on and dialogue-based learning from skilled instructors.

- **Materials** – Customers will seek inexpensive materials, and the means to refurbish them.

**Competition**

All of the services and facilities proposed by the Tool Shop do already exist in Metro Vancouver, and fall within the three distinct industries described above. However, none of the existing models operate at the intersection of these industries or offer this combination of services and facilities, which presents a major opportunity. With that in mind, competition exists in two capacities: first, single-industry competition presented by existing businesses in the three separate areas – Continuing Education, Community Amenities, and Construction Material Sales. Second, a threat of future competition exists if another model were to combine goods and services in the same way.

**Single-Industry Competition:**

Continuing Education opportunities are offered in abundance in Metro Vancouver, with courses offered on topics ranging from Web Design to Spanish to Accounting. As mandated by the BC Ministry of Advanced Education, all of the region’s major post-secondary institutions offer Continuing Education courses in addition to adult courses offered through school districts and independent schools; in 2009-2010, Metro Vancouver’s adult and continuing education programs reached over 20 000 students.¹⁹ (Ministry of Education, 24 – 27).

¹⁹ This total is made up of 11 725 students in school district-run programs and 10 226 students in continuing education programs run by post-secondary institutions. These statistics represent students working towards a certificate of
Although there is considerable competition for a market-share of the continuing and adult education sector in Metro Vancouver in general, there is notably little competition in the offering of courses and workshops that are hands-on or applicable to the topics prioritized by the tool shop. The most similar offerings are the woodworking classes (three in total) offered by the Vancouver School Board, taught in high-school shops in the evenings and on the weekends, and woodworking classes offered at the Roundhouse Community Centre (approximately 45 classes per year, which consistently fill). None of the continuing or adult education offerings have a focus on renovation or home repair, material salvaging, zoning, community planning, mapping, or navigating permitting processes, which are the primary target areas for the City Tool Shop.

Because tuition gathered from courses and workshops makes up an important component of the Tool Shop’s projected revenue, this is an important sector within which to operate competitively.

Community Amenities

There are notably few accessible facilities to make noise, produce dust, or work with materials in Metro Vancouver. The facilities that do exist have opened in the last three years, indicating an increasing cultural interest working with materials and an increasing demand. Demand may be rising partly due to a trend in densification of urban dwelling typologies, which do not have work spaces like basements, garages or back yards, where this type of activity often takes place. The new spaces for materials-based experimentation and work that have opened in Vancouver since 2009 include the Vancouver Hack Space, a 10 000 sq. ft. “physical space where every creative type can gather to share ideas, equipment, and opinions” (About, Vancouver Hack Space) and the Vancouver Co-Lab,\(^{20}\) which is “an open and accessible workshop where makers, hackers, artists and tinkerers can create, destroy and re-build” (About, Vancouver Community Laboratory).

Construction Material Sales

The sale of new and used building materials is a retail sector in which there are many competitors in Metro Vancouver, including “big box” stores, such as Home Depot and Rona; wholesale and

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\(^{20}\) The Vancouver Community Laboratory is located at Great Northern Way, and has expressed interest in a partnership opportunity, so does not necessarily represent a competitor.
commercial lumber and hardware stores, such as Home Hardware, Dicks Lumber and Windsor Plywood; and used material sales at Habitat for Humanity’s Re: Stores and Jacks New and Used.

The direct sale of construction materials is an aspect of the Tool Shop’s program which should be offered in partnership with an existing retail outlet – a particularly good fit would be Habitat for Humanity’s Re: Store. In this case, a portion of the Tool Shop’s warehouse would be sub-leased to Habitat for Humanity at a below-market value rate of $15 000/yr (triple net), and their organization would take on the sale of materials.

One aspect to the retail-outlet service that the Tool Shop would offer would be cutting services. For example, Home Depot will cut down lumber to a length for a customer, which allows for easier transport, and in the case of simple projects, eliminates the need for customers to cut the lumber themselves. This is an important area for the Tool Shop to develop as a competitive service, as it will serve the dual function of bridging the gap between material sales with shop access, and will also draw customers to the Tool Shop who need more complex service than what’s available at competitive retail outlets. It will also allow customers who do not want to invest in developing the skills to use the tools themselves to still access custom-cut materials.

3.3 | Business Model

Facilities and Services

The City Tool Shop is made up of three symbiotic programmatic and spatial entities: a material-salvaging shop, fabrication and assembly space, and classrooms. Each of these entities will provide both physical infrastructure, such as space, tools and materials; and services, including instruction, cutting services, and project consultation services to support the mandate of the City Tool Shop.

The material salvaging shop is a space where individuals may take apart waste building materials, such as lumber, hardware, windows and fixtures and prepare them for reuse. Salvaging activities include separating and sorting components, sanding, repairing, gluing and cleaning – processes which are difficult to carry out in a confined space without proper ventilation. The salvaging shop would be located in direct proximity to a partner retail-outlet, selling used building materials.

A fabrication and assembly area will allow students and community members to work with these
materials, accessing space for the kind of work that is difficult or impossible in smaller, urban dwelling units, such as condominiums and apartments. An assembly area allows people to make noise, produce dust and access stationary power tools in a safe work environment with supervision, ventilation and proper equipment. This area includes a full service woodworking shop, equipped with stationary power tools like table saws, circular saws, drill presses, sanders, planers and joiners. Ear protection, a ventilation system, a full-time technician, and regular shop safety demonstrations will all contribute to a safe work environment.

Learning and knowledge-exchange are central to the project, in both informal and formal ways, and a large amount of flexible classroom space will provide the venue for workshops, talks, events and 'short courses.' These workshops will support both the materials-based learning in the assembly area (for example, basic shop safety and tool use) and provide broader learning about the city. The delivery model for these workshops and courses follows the Continuing Education model.

The Tool Shop is also intended to be a venue for community charettes, public lectures, screenings, dialogues and social events. It is essential that the space is heavily programmed, and in a way so as to encourage constant opportunity for proximal contact – both formal and informal – between the professional community that drives the development of the built environment (planners, politicians, developers, designers and trades workers) and the public community (students, parents, senior citizens, activists, historians, enthusiasts). In essence, this proximal contact replicates the relationships that exist in the city as a whole; the City Tool Shop concentrates this contact around the focused topic of city-making itself. The Centre must be vibrant, both visually and programmatically: the production of maps, models and community plans, the exchange and deconstruction of building materials, talks by visiting scholars and professionals and a rich array of short courses will all contribute to this liveliness.

**Service Overview**

Shop Services – Shop services such as custom-cutting, pre-drilling, planing and sanding will be offered by technicians on a fee-per basis. These services are available to customers who do not want to be directly involved in fabrication; they may want lumber cut to a transportable size, or custom-cut in a way that is beyond their technical means. Paid technicians will provide shop services 7 days a week, and will assess fees on a case-by-case basis.
Tool Library – A tool lending library, equipped with a variety of hand and small power tools, will provide members with tools to use in the Tool Shop’s Fabrication and Assembly area. They can also borrow the tools for short periods of time to take offsite.

Pickup and Delivery Service – The Tool Shop will provide pickup and delivery services of building materials throughout Metro Vancouver on a fee basis. Pickup service will dovetail with the City of Vancouver’s Deconstruction Incentive, which provides renovators with an advance permit to deconstruct at least 75% of demolition material during a renovation (Advanced Permitting for Deconstruction).

For a full breakdown of services and fee schedules, please refer to Appendix B.

Curricular Overview
The Tool Shop will offer a rotating calendar of short courses and workshops in a variety of formats. A pool of faculty, made up of industry professionals, will deliver courses as set out by the Tool Shop’s Program Director. It is important to note that while the structure (length and format) of the workshops and courses are proscribed and should remain somewhat consistent, the content of the courses maintains a high degree of flexibility, allowing for adjustment based on demand, the emergence of new course ideas generated by faculty or students, and the addition of customized programs on an as-needed basis.

Workshops – Workshops are three or six-hour single-day courses with very focused learning outcomes. Workshop topics might include ‘Deck Board Replacement’ or ‘How to apply for a Building Permit’. A shop safety workshop will be offered frequently, as it will be a requirement for all shop users to complete this workshop prior to accessing the shop. Workshops will range in cost from $30 - $80.

Courses – Courses are four to eight weeks in length, and will generally be offered in weekly, three hour blocks, for a total number of course hours ranging from 12 to 24, depending on the scope of the course. Topics may include ‘Basic Woodworking,’ ‘Container Garden Construction’ or ‘Urban Cartography’. Courses will cost between $80 and $150.
Product Overview
Salvaged Material Sales – Salvaged building materials, such as lumber, hardware, lighting fixtures, and doors will be processed, sorted and sold by an adjacent partner organization, such as Habitat for Humanity’s Re: Store.

Storage Lockers – Lockers for storing materials and in-progress projects will be available for weekly rental. This will allow returning visitors to leave projects set up to dry or avoid having to transport them to-and-from home before they’re complete.

Precedent Models
Our Community Bikes, Vancouver, BC
An important precedent business model for the City Tool Shop exists in bicycle repair shops such as Our Community Bikes (OCB), which offers bicycle and bicycle parts sales, bike repair lessons (on an individual, drop-in basis or in formal group lessons), and access to tools and workshop space. For a nominal hourly fee, you can take your bicycle in to OCB to use specialized tools in a workshop space, access four degrees of assistance (do it all yourself, ask staff an occasional question, have a staff-member with you to teach and instruct you, or simply drop off your bike for service), and purchase new or used bike parts and tools (How OCB Works).

There are a number of advantages to this model, the most important and relevant of which is that it attracts a variety of customer groups, from leisure-cyclists and commuters with little or no bicycle-maintenance knowledge to highly knowledgeable cyclists needing simply to access specialized tools or work space. The shop acts as a venue for both formal and incidental learning: formal learning occurs when customers register for a class or pay for staff assistance; informal learning occurs when those of differing skill-level are working side-by-side.

The ReBuilding Center, Portland, OR
The aforementioned ReBuilding Center is a non-profit venture operated by Our United Villages in Portland, OR. With a primary mandate to “strengthen the environmental, economic, and social fabric of local communities,” the ReBuilding Centre employs thirty staff and upwards of 2000 volunteers each year. This team runs a 50 000 square foot material warehouse, processes 8 tons of materials each day (all of which gets diverted from a landfill for reuse), and receives over 300 daily visitors (Endicott).
Used materials are sold at 10 – 50% of the cost of their new equivalent, financially incentivizing customers to visit the centre and to purchase used materials instead of new. Material sales do not provide the ReBuilding Center with a source of revenue; revenue in their model comes from deconstruction services sold as a market-rate service. Deconstruction services provide the ReBuilding Center with enough revenue to cover staffing costs, operate their facility seven days a week and maintain a fleet of 10 vans and trucks (Endicott).

The Center for Urban Pedagogy, Brooklyn, NY
The Center for Urban Pedagogy (CUP) is a non-profit organization in Brooklyn, NY that “collaborates with designers, educators, advocates, students, and communities to make educational tools that demystify complex policy and planning issues” (About CUP). Municipal governments generally take on the role of providing access to information about civic policy and planning issues, and there are few programs that operate independently or at arms-reach from the government or educational institutions. Providing education and access to information about cities in ways that make sense to a broader public and in independent forum are essential factors in creating a population that is critical and effective in driving urban change.\footnote{In many ways, the work undertaken by the Center for Urban Pedagogy fulfills a role taken on by Jane Jacobs in the 1950’s and 60’s in New York. Jacobs translated the technical jargon and high-level language used by policy-makers and planners into terms that her neighbours and supporters could understand, making it possible for them to actively critique the City and oppose its plans.}

One example of a project CUP has undertaken is called “Know Your Lines”. Through CUP’s Making Policy Public program, a design team called We Have Photoshop collaborated with the Brennan Center for Justice to produce a fold-out brochure that explains redistricting (the process of changing electoral boundaries) in clear and simple terms. This document, available as a free download or as printed copy for $8, is intended for use by community groups and advocates in understand the redistricting process, how it may affect them, and how to intervene to change this process (Know Your Lines).

The strategies adopted by the Center for Urban Pedagogy to broaden the accessibility of policy and planning matters provide a valuable precedent for the Tool Shop, particularly in the way that they engage a variety of professionals, designers, citizens and youth to create a growing collection of resources. Projects produced by CUP provide a good precedent example of the type of teaching and work that will be undertaken in the Tool Shop’s classroom.
Partnership Opportunities

There are enormous opportunities to approach this project in partnership with a number of institutions in the city. In some cases, the objectives of the City Tool Shop respond directly to targets and strategic plans set out by major Vancouver organizations, including the City of Vancouver and the Great Northern Way Campus coalition. The opportunities for partnerships are significant in that they will allow the Tool Shop to capitalize on resources and initiatives already underway and help to rapidly establish a network of customers, volunteers, participants and contributors. Local partnership opportunities include:

Great Northern Way Campus

The Great Northern Way Campus is an 18.5 acre piece of land in central Vancouver, along the south-eastern edge of the False Creek Flats. In 2001, Finning International, a longtime property-owner donated this land to four of the area’s post-secondary institutions: the University of British Columbia, Simon Fraser University, the British Columbia Institute of Technology and Emily Carr University of Art + Design. The site, known as Great Northern Way Campus (GNWC), is held in joint ownership by the four aforementioned schools, and managed by a Board of Directors made up of representatives from each school, as well as representatives from a variety of industries and financial institutions in Vancouver. With a vision to “create a vibrant and sustainable community that attracts businesses and academic programs in a collaborative, innovative environment,” the site is currently home to Centre for Digital Media (a partnership Master’s of Digital Media program offered through the four schools), as well as a number of other tenants.

Largely undeveloped since the 2001 handover from Finning International, the activities at Great Northern Way currently occupy the administrative and industrial buildings that were built in the 1960s and 70s. However, there are a number of plans and proposals underway for False Creek Flats, and Great Northern Way in particular:

In September, 2011, the Centre for Digital Media broke ground in the development of a 51 000 sq. ft. building adjacent to their current location, which will provide new classroom and technology space for the Digital Media program on the first floor, with 76 units of dedicated student housing on three floors above. The anticipated completion date is September 2012.
The City of Vancouver

In 2009, City of Vancouver Mayor Gregor Robertson assembled a ‘Greenest City Action Team,’ a group of 18 industry experts, educators and policy-makers, to set out a course of action for Vancouver to become a “global leader in progress toward an environmentally sustainable future” (Vancouver 2020) by the year 2020. The team produced a major report in 2009, entitled *Vancouver 2020: A Bright Green Future*, which became a steering document for a more detailed city-initiated document entitled the *Greenest City Action Plan* (2010).

In 2012, the City of Vancouver released an updated version of the *Greenest City Action Plan* (Greenest City, 2), which gives direction and measurable targets to improving the city’s environmental performance and green economy in the next decade. The GCAP has now expanded to include input from “over 60 City staff, more than 120 organizations, and thousands of individuals” (Greenest City, 6). With repeated reference to the need to build partnerships and garner citizen participation, the plan details both long-term goals (2050 targets) and mid-term goals (2020 targets) in ten key areas. The City Tool Shop responds and contributes directly to three of these goals, with potential to contribute to others in secondary ways:

**Goal 1 – Green Economy:** one of the “highest priority targets” is the “establishment of a Green Enterprise Zone. This area would make the Downtown Eastside and False Creek Flats the “greenest place to work in the world” by focusing green companies and organizations, green infrastructure, as well as innovations in building design and land use planning in one location. The lessons learned from this zone would then be applied city wide” (Greenest City, 12).

The City Tool Shop, if located in False Creek Flats, would respond to this goal two-fold: first, it would provide a showcase for collaboration between the community, the city and businesses engaged in waste salvage, learning and dialogue. Second, it would provide a resource to other green businesses and organizations in the area, allowing them to access tools and materials and facilitate the greening of their business more easily.

**Goal 5 - Zero Waste** is manifest in the target to “reduce solid waste going to the landfill or incinerator by 50% from 2008 levels” (Greenest City, 35). Here, among the “highest priority actions” of this goal, the creation of a building deconstruction program is listed: “Develop a building deconstruction program. This action focuses on policies to prevent wood and other
materials from being sent to the landfill or incinerator through a process that takes apart buildings and salvages materials, rather than a traditional demolition method” (Greenest City, 36).

The Tool Shop, through the Material Salvaging Center, is projected to divert approximately 770 tons of material from the landfill annually.  

Goal 7 – Lighter Footprint: This goal is concerned with reducing the ecological impact of the everyday actions of Vancouver citizens. It prioritizes funding for community-based organizations, and calls for City data, building on resources like the Open Data Catalogue, to “work to make Greenest City data available and enable other organizations to use and share it in innovative and useful ways” (Greenest City, 47).

Emily Carr University of Art + Design

Emily Carr University of Art and Design is a niche post-secondary institution (1800 FTEs in 2010-11) that considers the cultivation of material practices as essential to art and design pedagogy. The school consistently provides access to state-of-the-art shop facilities, tools and technical assistance, giving students the chance to experiment in a hands-on environment. This core value is clearly stated in Emily Carr’s 2010-2015 Strategic Plan, “Creating Our Future,” which iterates that the school “will affirm the centrality of material and critical practices as a means of investigating new pathways for learning and professional collaborations and will strengthen access to its programs for a diversity of learners, including lifelong learners, and by using multi-modal platforms” (Fouquet, 11).

Emily Carr is currently in the feasibility-study phase of a campus relocation plan, which anticipates a move to Great Northern Way in 2014-15. The timing of Emily Carr’s plan to relocate presents a unique and important opportunity for partnership between the school and the Tool Shop. Given that two of the central tenets of Emily Carr’s mission are to foster material practices among a diverse group of students and to pursue professional collaborations, the Tool Shop is a good pedagogical fit. The Tool Shop could benefit enormously from the institutional support of Emily Carr, specifically in securing an appropriate facility at Great Northern Way, obtaining funding and insurance, and possibly gaining administrative or technical support. In turn, the Tool Shop could provide Emily Carr students with highly affordable materials, workshop space.

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22 This is based on the material-processing capacity of the ReBuilding Center, which is three times larger and handles an average of three times this amount of material.
and support, and contact with industry professionals.

Habitat for Humanity Re:Store
This partnership is quite straight-forward: a portion of the Tool Shop’s warehouse space would be sub-leased to Habitat for Humanity for a new location of their Re:Store, a retail operation that sells materials that are “new, gently used or customer returns that would otherwise end up in a landfill” (ReStore). Habitat for Humanity already operates 73 retail locations across Canada, and hundreds in the United States. Currently they do not have a central Vancouver location, and would possibly be interested in pursuing a partnership if it meant the opportunity to obtain a low-cost, centrally located venue, as well as access to large customer base through the Tool Shop.

3.4 | Operations
Legal Structure
The City Tool Shop will operate as a socially-enterprising non-profit, as defined in the 2nd Edition of the Canadian Social Enterprise Guide. This means that, through its programming and operations, the City Tool Shop will strive to generate both revenue and social outcomes that serve the mandate of the organization. The financial implications of this legal structure are that funds generated by the operations of the Tool Shop must be reinvested into the organization; no owners or shareholders may profit from this business. Achievement of Charitable Status, as defined by the Canada Revenue Agency, will be a future milestone in the legal structure of the Tool Shop.

Implementation Strategy
An implementation strategy (Phase Two of ‘How to Get There’) for the City Tool Shop is described in a six year plan, which includes four key stages: Research and Planning; Initiation and Development; Growth and Stabilization; and Independence. These four phases are described in detail, with project milestones identified in the timeline below.

Stage One: Research and Planning (Year One)
The primary focuses of this stage are to develop a core working group for the project, to complete a detailed and financially sound business plan, and to identify and consult key stakeholders early in the planning phase. The second and third steps should happen in tandem, as embedding the goals and broader institutional agendas of key stakeholders in the project from the outset will help to ensure its long-term success. Finally, this phase will include a major fundraising focus, generating the significant capital required to initiate the Tool Shop.
Develop a Core Working Group – The critical first step of forming a small team of two - three people to work on the Tool Shop’s development and implementation should happen at the project’s outset. Building on the research developed in this paper, this group will develop a core mission/mandate for the project, identify potential stakeholders and partners, and confirm key project milestones. The core team will have a balance of skill-sets and experience that, among its members, account for each of the three areas of the Centre: continuing education and learning about the city, construction and shop technology, and community-based, non-profit enterprises. These roles may or may not transition directly into senior staff roles at the centre.

Complete a business plan – Building on the research and expertise of the core team, a detailed business plan will be completed in the first year of the project. Professional input and advice in business planning will be sought through a consultancy program such as Propellor Consultants or Building Opportunities with Business. A critical component of this phase is a detailed fundraising strategy for the initiation of the Tool Shop.

Identify and Consult Key Stakeholders – In tandem with the development of a business plan, the core working group will identify and pursue relationships with key stakeholders in the project, including potential partners, like the Great North Way Campus coalition and the Vancouver Tool Lending Library, and potential customers, such as contractors, DIY building enthusiasts and home-owners. The interests and agendas of these groups will directly influence the structure of the business plan, so this portion of the project should be initiated while the development of the business plan is still underway. This step may also include the creation of an Advisory Board, who will provide stewardship and advice to the organization, and will also champion the project in networks beyond the scope of the Core Working Group.

Stage One Milestone: The establishment of a core working group and buy-in from key stakeholders. An objective at this stage is to obtain enough funding to sustain a year of planning, including professional consultation services.

Stage Two: Initiation and Development (Year 2 – 3)
This phase is the major push to get the Tool Shop up and running, and will require the greatest amount of seed funding, volunteer hours and intensive work. A major marketing campaign will be undertaken in the six months surrounding the Tool Shop’s opening; one year after the launch,
a formal evaluation of the first 12 months of operations will analyze and suggest amendments to the business model. The financial target for this phase is for 82% of the Tool Shop’s operating budget to be self-generated 18 months into the centre’s operation.

Facility Lease – Obtaining a long-term, low-cost lease on a suitable facility is critical in Stage Two of the project. The assessment criteria for space include size, location, zoning and permitting requirements, accessibility by transit and vehicle, and land ownership. This is a key point when partnership relationships will be leveraged to gain access to an appropriate facility: priority will be placed on venues owned or leased by potential partners, such as the Great Northern Way Campus, as a means of obtaining a discounted or donated lease on space for the first 18 months of the Tool Shop’s operation. The budget projects to pay $2.75/sq ft. on a triple-net lease, with an anticipated increase of 5% at the end of the third year, based on a facility of approximately 15 000 sq ft. A significant portion of this space would be sub-leased to a retail partner, such as the ReStore, for an annual lease of $15 000.

Major renovations – A period of six months from the beginning of the lease on a facility has been assigned to adequately prepare the space for use. This includes obtaining development and building permits, as necessary; completing renovations and repairs to make the space safe, comfortable and functional; and upgrading and installing power, ventilation, lighting and heating, as required. The Core Working Group will work closely with contractors and volunteers to complete renovations. This period is an opportunity to build long-term relationships with these groups as future customers, and giving them a sense of ownership and investment in the development of the Tool Shop. The renovation phase should also be used to develop partnership opportunities with post-secondary and secondary faculty members and student groups, who may be able to participate in construction as a portion of their education, through design-build studios, internships, apprenticeships or co-ops.

Equipment Acquisition – A significant amount of specialized equipment is required to support the programming of the Tool Shop. Stationary tools (such as power saws and sanders), hand tools (such as clamps, hammers and drills), furniture and storage systems will need to be acquired through purchase or donation in the first six months of Phase Two. Some classroom and office technology, such as a digital projector and a computer, will also be needed.

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23 This is approximately 30% of market value, based on commercial lease rates for similarly-sized, centrally located warehouse spaces in March 2012.
Stage Two Milestones: Securing an appropriate facility, completing major renovations and equipment acquisition, and opening the doors the Tool Shop.

Marketing – A major campaign to promote and market the facilities and services at the Public Tool Shop will be undertaken in the months leading up to and immediately following the opening of the Tool Shop. This includes the development of a visual identity and brand for the Centre, purchasing print and media ads, and creating a website.

Ribbon Cutting – The doors of the Tool Shop will open with a basic program of services, facilities and courses available. In its first six months of operations, programmatic priorities will be placed on safety training for new members (effectively building the pool of customers allowed to use the shop), beginner-level courses (again to build up a pool of students with prerequisite requirements for advanced course offerings) and free events that draw diverse audiences to the Centre. This may include public lectures, charettes, or tool swaps.

Mid-Project Evaluation – At the end of the first year of operations, senior staff will undertake a formal evaluation process of the Tool Shop, with metric actuals measured against those projected in the business plan. The purposes of this evaluation are to:

• report to project funders with an overview of the initial phase of operation

• analyze and adjust product and service offerings to maximize adherence to the Tool Shop’s mission and meet or exceed revenue targets

• provide quantitative and qualitative analysis of the first year of operations for the purpose of others who may want to undertake a similar endeavour in other locations

Stage Two Milestone: Completion of a mid-project report evaluating activities within the Tool Shops first operational year.

Stage Three – Growth and Stabilization (Year 4 – 6)
The primary aim of the Growth and Stabilization Phase, in Years 4 - 6, is to move towards a greater degree of financial independence and build capacity as an organization. While a primary
measure of growth will be the number of visitors through the door, expansion in key areas will be needed to support this, including the extension of the Tool Shop’s operating hours, staffing numbers, number of courses offered, pounds of materials sold, tools rented, and memberships sold. Financial targets for this phase project annual growth of 5% in areas including membership fees, shop fees, tuition fees and material sales.

Growth of the organization will continue until limits are found based on testing during the Growth Phase in Year 4. For example, shop hours may be gradually extended until the shop reaches an uneconomical attendance rate, or additional courses may be added to the program until enrollment rates drop off, indicating market saturation. At this point, the organization will move towards a stabilization phase, at which point a new five-year plan will be undertaken.

Staffing Structure

The core personnel of the City Tool Shop will be made up of three senior-level personnel: a Programming Director, an Administrative Co-ordinator, and a Head Shop Technician. These three full-time staff members form the core of operations, each overseeing a specific area of programming and service delivery, and coming together to make key decisions. The three senior staff members will each be responsible for overseeing one area of the City Tool Shop’s operations, including managing staff, contractors and volunteers working in their area:

Programming Director – Leads the development of program delivery, including curriculum planning, partnerships, and events. Hires and oversees faculty, consults with outside partners, stakeholders and the City.

Administrative Coordinator – Oversees the administrative aspects of the Centre’s operations, including accounting and financial tracking, contracting and payroll, membership. Manages other administrative staff and contractors responsible for course registration and communications.

Head Shop Technician – Oversees the work of all technicians and volunteers working in the Tool Shop, Fabrication/Assembly Area, Tool Shop, and Material Warehouse. In consultation with other staff technicians, oversees the maintenance of shop equipment, acquisition of new tools and equipment, ordering of supplies, and site safety.
3.5 | Financial Plan

Financing for the City Tool Shop has been outlined in a six-year plan, with three significant phases:

Research and Planning (Year 1)
This phase, which is currently underway, has minimal financial need and low overhead. A budget of $10,000 will provide adequate capital for professional consultancy to develop an advanced business plan. Funding for this phase will be sought through a granting agency, such as the Enterprising Non-Profit Startup Grant (enp British Columbia) in addition to private, corporate and in-kind donations.

Initiation and Development (Year 2 – 3)
This phase relies most heavily on funding agencies and industry donations, which in Year 2 make up approximately 40% of the project budget. That 40%, or $145,000, includes a combination of private sector funding, government grants and bank loans. This phase also projects for the largest percentage of volunteer hours and in-kind donations (the largest of which is a 3 year low-cost lease on a facility), as institutional and community contributions will be vital to the early implementation phase.

Growth and Stabilization (Year 4 – 6)
In Years 4 through 6, the Tool Shop moves towards greater financial independence, projecting a 5% annual increase in revenue, and anticipating a reduction in external funding (notably budgeting to pay market-value rent for facility space beginning in the third year).

Financial Assumptions
This section follows line items presented in the Six Year Budget (Appendix A), providing details as to financial projections and assumptions. Figures project for the Tool Shop’s hours as outlined in Appendix B, anticipating an average of 71 operational hours per week, or 3550 hours per year based on 50 operational weeks per year.
Revenue

Membership Fees – Projected figures anticipate an average of 60 monthly members in the first six months of operations, each paying $60/month, with a steady increase to 100 members by Year Five.

Shop Service Fees – Assumptions are based on an average intake of $18/hour in Year Two, up to $20.32/hour in Year Five. Based on service fees set out in Appendix B, this means an average of three customers per hour would need to request a basic cutting service ($6), with more advanced services bringing in a greater amount of revenue.

Open Shop Fees – On Saturdays, the woodworking shop will be open to customers who have taken a safety workshop to access power tools and equipment for $20/hr (or $40/hour for non-members). Figures project for an average of 8 customers to be using the shop through out the day each Saturday (6 members and 2 non-members), drawing revenue of $200/hour in the first six operational months, and growing steadily by 7% per year, or up to an average of 10 customers per hour. The ratio of customers to technicians is projected to be 12:1, based on safety recommendations by the shop technicians at Emily Carr University of Art + Design. (If the number of customers exceeded 12, an additional technician at a cost of $25/hour would be brought in.)

Tuition Fees – Tuition fees have been calculated based on an hourly tuition rate of $12 - $14/hour (hourly costs go down slightly for longer courses); this is consistent with the lower end of hourly course costs at other Continuing Education course costs in Vancouver, at institutions including the Vancouver School Board, Emily Carr University of Art + Design, and Langara College.
Workshops range in total tuition from $30 - $80/student; courses range from $80 - $300/student.

A sample financial snapshot of a single course can be found in Appendix C.

Assumptions for the total intake of tuition fees are based on the projection to run 40 courses and 20 workshops per year with an average number of eight students in each. This is a conservative estimate, based on an initial target to run 10 courses and 5 workshops per quarter. This adheres to the projected hours and staffing capabilities in the first five years, and presumes that
approximately 20% of courses offered would be cancelled due to low enrollment.

If courses and workshops proved to be marketable and logistically feasible, the total number of courses could climb as high as 144 per year, based on the physical capacity of the Tool Shop and the projected building hours.

Pick-up and Delivery Services – Pick-up and delivery of building materials in a mid-size truck is a service projected to be offered two days per week at a cost to customers of $60/trip within Metro Vancouver.

This is based on cost-recovery of expenses that include driver salary, insurance, truck maintenance and fuel. Projected estimates are for 350 revenue-intake trips per year (an average of three-four per work day, based on a 100 day work year), with the assumption that pick-up service will be provided free of charge when materials are being donated to the Tool Shop.

Driver salary is calculated at $20/hr, based on a 2-day work week, for a total of $16 000/yr. Gas, insurance and maintenance are estimated to be $10 000/yr. based on current ICBC rates for non-fleetplan commercial vehicles, March 2012 gasoline prices in Vancouver ($1.40/L) and average trip distance of 16km.

Facility Sub-Lease – This figure accounts for the annual sub-lease of a portion of the warehouse space to a retail operation, such as Habitat for Humanity’s ReStore, for the sale of construction materials.

Storage Rental – Rental of storage space is based on rates of $30/week, with an average of 3 spaces rented weekly throughout the year. This figure is anticipated to increase proportionately with increases in members, shop users and students.

Facility Rentals – From time to time, companies or organizations may want to lease classroom or workshop space for staff training, special projects or meetings. Fees for facility rentals will be based upon the hourly rates of $600/hour for the tool shop (including tech support), and $200/hour for the classroom. Projections for revenue from Facility Rental are set quite low -
$4000, or 15 hours in the first year - as Facility Rentals are lower in priority than mandate-meeting uses of space such as classes and public use.

In-kind Casual Work – This figure accounts for approximately 1200 hours of volunteer labour, which will contribute each year to the operations of the Tool Shop, based on an in-kind rate of $12/hour. This means that an average of one volunteer will be present 30% of the time (during the Tool Shop’s operational hours), with the expectation that this will fluctuate considerably, with a large number of volunteers contributing their time at key events and during major projects, with a lesser degree of volunteer support at other times.

Equipment Donation – This figure is estimated at $20 000 in the Year Two, projecting for the donation of some portion of major equipment, such as stationary power tools or a delivery truck, from Industry Partners or other sponsors. Each year, the Tool Shop will seek to acquire new equipment in this way, targeted at a value of $6000.

Bank Loan – In the first operational year, the Tool Shop will apply for a bank loan in the amount of $30 000, secured on the personal credit of the senior staff (or, in the case of a partner institution, its institutional collateral). Repayment is projected to occur over a two-year period, with an annual interest rate of 5%.

Fundraising – Regular fundraising activities are expected, through activities including solicitation of donations and one annual fundraiser event.

SENP Grant – The enp is a British Columbia-based partnership of funding body made up of capital from nine institutions, including VanCity, Coast Capital Savings, the Vancouver Foundation, Western Economic Diversification Canada and the Federal Government of Canada, that funds “planning and/or research activities along the development path from opportunity identification and organizational readiness activities ($2500 - $5000) to feasibility studies, marketing plans or business plans (up to $10 000)” (Social Enterprise Development Grants).
This budget projects to receive $10 000 in funding to further develop a feasibility study and business plan in Year 1 of the project, working in greater depth with a professional consultant, such as Propellor Advisors. The steps to meeting the qualifications for this grant, as outlined in the ‘Phase One Implementation Strategy’ include: incorporating as a non-profit in the Province of BC, partnering with a registered charity as a sponsor, and committing to the in-kind donation of matching funds (here outlined through the in-kind contribution of ‘Salary – Program Director’). Spending of the SENP Grant is reported in the budget line item ‘Legal and Professional Fees’.

Great Northern Way Campus In-Kind Lease – One of the major requests in the pursuit of partnership with GNWC is a three-year in-kind lease of an adequately-sized facility (15 000 – 18 000 sq. ft, with other specification as set out in ‘Facilities’), followed by a five to ten-year secure lease on the space at $2.75/sq. ft., increasing by 3% in the fourth year. This is significantly below market value, which is approximately $8 - $12/sq. ft. on a triple-net lease; achieving a feasible leasing agreement will be a major success factor in this project.

Vancouver Foundation Grant – This budget projects to receive $50 000 over a five-year period from the Vancouver Foundation. This project is consistent with their mandate to support educational programs

VanCity Green Building Grant – The City Tool Shop fits directly within the mandate of VanCity’s Green Building Grant program, which seeks to advance green building programs, particularly with a focus on education. The program “encourages partnerships between organizations (government, business and not-for-profit) that enhance cooperation, improve the effectiveness of projects and enable further green building development” (Green Building Grant)

BOB Loan – Building Opportunities with Business is a non-profit organization that works with a coalition of banks and industry partners to provide loans of up to $125 000 for small businesses and community organizations within five Vancouver inner-city areas, which includes the Great Northern Way Campus site in entirety.
Industry Partner – Industry contributions are projected to make up a key, ongoing portion of the Tool Shop’s operational budget. Securing this funding will be a major project milestone.

City of Vancouver – Given the contributions the City Tool Shop would make the several of the City of Vancouver’s current initiatives and objectives, most notably the Greenest City Goals the budget projects a request for $220 000, in gradually decreasing increments over a four year period to come from the City of Vancouver. This could possibly be administered through the Vancouver Economic Commission.

Skills Link / Canada Summer Jobs - The Government of Canada has a number of funding opportunities for youth internship and summer employment (Canada Summer Jobs). These funds will match an organization’s contribution to the hourly wages for youth in training positions. Matching contributions are identified in the budget line item “Youth Employment”.

Salaries – Three annual salaries for core, senior-level staff.

Legal and Professional Fees – These fees are projected to be $10 000 at the outset, attributed to professional consultation in the development of a business plan and legal expertise required for incorporation, the development of liability waivers and agreements and draft human resources agreements. The budget projects for $3000 to be spent annually on the periodic review and maintenance of these documents.

Casual and Contract Work – This category accounts for occasional and casual employment and contract labour needed to support the work of the Tool Shop. It may include facility repairs or maintenance, marketing-related contracting (like professional photography), or project-based assistance. It projects for 500 hours, or 3 months of full-time contract work at $20/hour per year.

Driver – Based on the assumption of a two-day work week, and a 50-week year, this line-item projects to spend $16 000 per year of a diver salary for material pick-ups and delivery service.
Vehicle Costs – This figure projects for fuel, maintenance and insurance on a mid-size truck, insured under ICBC’s Non-Fleet Commercial Vehicle category. Fuel costs are based on March 2012 gasoline prices in Vancouver, BC of $1.40/L, with average trips anticipated to be 16km.

Lease – Lease is projected to fall in the range of $3.00 - $3.40/sq. ft. triple net lease for a facility of 15 000 – 18 000 sq. ft, broken down in the budget into $40 000 for lease of space, plus $18 000/year in utilities. Utilities are estimated at this cost due to the large shop area and power requirements to run stationary tools and ventilation systems.

Insurance – Insurance costs have been estimated at $15 000/year, although this figure is largely dependent upon how partnerships with institutions are established, and whether this project falls within a larger policy or is independent.

Loan Repayment – This budget prioritizes the repayment of a $30 000 bank loan in Year 3 and 4, followed by repayment in Years 4-6 of a loan from Building Opportunities for Business, which is likely to have a lower interest rate and longer repayment term than the bank loan.

Communication Services - $200/month covers a telephone line, internet, and web hosting through Shaw Communications.

Bank Charges and Interest – Based on repayment schedule of bank loan at a 5-6% lending rate, plus monthly bank charges of $83.00.

Accounting Services – Budgets for regular book-keeping and professional accounting services at a rate of $50/month.

Building Maintenance and Cleaning – Anticipates janitorial costs of $400/week, increasing by 3% per year.
Office Expenses and Supplies - $100/month for basic office supplies such as paper, envelopes and postage.

Contingency Investment – A regular investment of $2000/year will be invested for unanticipated expenses including equipment failure or legal expenses.

Volunteer Appreciation – A semi-annual expenditure of $2000 on a volunteer appreciation event, which will also serve as a community-building strategy.

Funding Deferral – This item defers $50 000 in grant revenue from Year 2 for use in Years 4, 5, and 6. The strategy to keep a reserve of funds in the bank is adopted to give a greater degree of financial stability to the organization in the early years, and to mitigate the financial shock of tapering foundation and government funding during that period.

Renovations – A significant budget of $60 000 is allotted to building renovations in the first year of facility occupancy, anticipating semi-major building upgrades in the first year, followed by regular minor renovations and upgrades as needed. Renovations at the outset may include installation or upgrades to the existing heating, ventilation, plumbing or electrical systems, the installation of industrial shelving (for materials storage), upgrades to lighting, and the construction of interior walls.

Faculty Fees – Faculty fees are based on hourly pay rates of $55 - $75/hour, a range consistent with that offered to Continuing Studies faculty at Emily Carr University of Art + Design. Total faculty fees are based on the projection to run 40 courses and 20 workshops per year, as outlined under ‘Tuition Fees’.

Technician Fees – Technician fees are based on hourly pay rates of $25/hour, consistent with the rate offered to shop technicians at Emily Carr University of Art + Design. Total technician fees are based on the projection to have 18 eight-hour shifts for technical staff per week, for duties including shop services, supervision of the fabrication/assembly area, support of workshops and
courses and material sales. This team will be managed and supervised by the Head Technician, and supported by volunteers and casual labourers.

Equipment Acquisition – This figure projects for major equipment investment in the first operational year, including the purchase of stationary power tools (table saw, drill press, sanders, circular saw, chop saw, band saw), hand tools, furniture, and audio-visual equipment. A yearly budget of $6000 is projected for the ongoing acquisition, maintenance and replacement of equipment.

Hospitality – This fund is assigned to the hosting of guests to Tool Shop, the hospitality of potential donors and project funders, and outreach to Industry and partners.

Design Fees – An annual budget of $5000 is allotted to the design of signage, marketing materials and website maintenance. A larger budget of $8000 is provided in Year Two for the development of a visual identity and brand for the Tool Shop.

Marketing, Publicity and Promotion – This line-item accounts for moneys spent on print, web-based and social media advertising for the Tool Shop, direct mail--Outs to organizations, event posters and other communications strategies.
Conclusion
The core intention for the City Tool Shop is to increase opportunity for regular people to engage in small-scale construction, material-salvaging, repair and learning about the city. By providing access to space, tools, equipment, affordable classes, and public programming, the Tool Shop endeavours to strengthen bottom-up, emergent approaches to city-making, including home renovation, repair, small-scale construction and community-based planning. It aims to increase the opportunity for non-professionals to encounter and understand the work of professionals by providing programming that will bring these groups together around focused topics of urbanism, including lectures, charrettes, screenings and workshops.

By facilitating and supporting the work of individuals and groups engaged in these types of activities, the Tool Shop will contribute to a number of long-term outcomes, including:

- a public that is better equipped to navigate permitting and rezoning application processes; more aware and engaged with neighbourhood visioning and rezoning; and more enabled to critique the work of planners, architects, urban designers and engineers

- a process by which individuals may refurbish and reuse building materials

- an increased comprehension amongst the general population of the BC Building Code and construction safety concerns, including safe use of tools

- an increased number of individuals engaged in small-scale construction and building repair, contributing to a diversity of maintenance strategies and vernacular aesthetics

- a decrease in financial and administrative barriers for individuals, community groups, organizations and businesses undertaking small-scale construction or renovation

- a forum and framework by which the public may propose, collaborate and undertake new projects related to city, such as the creation of a new community garden, a neighbourhood composting facility, or the installation of street furniture

The scope of this project has been to propose a process through which the first City Tool Shop could be initiated in Vancouver, Canada. This pilot program, or flagship location, would fulfill two roles in a larger vision. First, it would help to satisfy aspects of several broader institutional
mandates outlined by partner organizations, including the City of Vancouver’s *Greenest City Goals* and Emily Carr University of Art + Design’s strategic plan *Creating Our Future*, positioning the Tool Shop as a showcase for the ways these high-level goals hit the ground. Second, it would serve as an important test facility for satellite locations of the Tool Shop in other municipalities.

The aim to expand the Tool Shop to a number of satellite locations in the lower mainland presents a good opportunity to build on the assets and resources developed by the flagship location, while also tailoring programming and curriculum to municipality-specific needs, such as varying permitting processes. Satellite locations could potentially take the form of mobile units, like trucks, or small “branch” locations, maintaining a relationship and sharing resources with the flagship. Libraries could serve as a precedent model for the relationship between a central location, branch locations, and mobile services. Expansion into satellite branches presents an area of inquiry left to be explored: a likely point at which to ask this question will occur during the evaluative phase at the end of the Tool Shop’s first five years of operation.

With the knowledge that real-world application, particularly in the case of business planning, requires a certain degree of adjustment and flexibility, it is my intention to move this project forward in the way described here. In keeping with the spirit of open source, my aim is to initiate and steer the process of developing a Tool Shop, while avoiding the impulse to pre-determine all of the results. Rather, I will work to set up the conditions for the Vancouver’s people to participate in the production of their city.
Works Cited
Works Cited


Endicott, Shane. Executive Director, The ReBuilding Center. Interview. 6 Dec 2010, Portland, OR.


Appendices
Appendix A – Projected Budget
Appendix B – Service Menu

Services
Basic Cutting Services $5 Setup Fee + $1/Cut
Advanced Cutting Services $10 Setup Fee + $2/Cut
1 on 1 Shop Instruction $60/hr
Material Delivery $60 within Vancouver

Fabrication + Assembly Area Work benches, hand tools, ventilated sanders, hoods
Member Drop-in $6
Non-member Drop-in $20

Power Shop* $20/hr (members)
(Saturdays only) $40/hr (non-members)

*Power shop users must have taken safety-training course.

Resource and material library Free
Tool Library Free (members only)
Storage locker $30/week

Classes
4 weeks x 3hr. (12 hour) $150
1 week x 6hr. (6 hr) $80
Workshop (3 hr) $30 - $50

Monthly Membership
Adult $60/month (Includes 10 drop-ins plus access to tool lending library)
Student/Senior $40/month (Includes 10 drop-ins plus access to tool lending library)

Yearly Membership
Adult $600 (Includes unlimited drop-ins plus access to tool lending library)
Student/Senior $400 (Includes unlimited drop-ins plus access to tool lending library)

Members receive a 10% discount on materials, courses and storage lockers.
<table>
<thead>
<tr>
<th>Hours</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Material Sales</td>
<td>Open weekends 10:00 – 6:00 (8 hr x 2 days) 16&lt;br&gt;Open weekdays 10:00 – 9:00 (11 hr x 5 days) 55</td>
</tr>
<tr>
<td>Open Shop Time</td>
<td>Sundays 10:00 – 5:00 (10 hr x 1 days)&lt;br&gt;Tues + Thurs 10:00 – 9:00 (10 hr x 2 days)</td>
</tr>
<tr>
<td>Shop Classes</td>
<td>Saturdays 10:00 – 1:00 + 2:00 – 5:00&lt;br&gt;Mondays + Wednesdays 6:00 – 9:00</td>
</tr>
</tbody>
</table>
Appendix C - Sample Course Financial Breakdown

As a means of testing the structure and content of a potential course for the City Tool Shop, I conceived of and offered a course entitled ‘Urban Cartography’ through the Continuing Studies program at Emily Carr University of Art + Design in the summer of 2011. The format, content and delivery of the course was deliberately planned to fit the mandate and structure of the City Tool Shop, as a means of testing these ideas in a real-world environment.

Key areas of inquiry in offering this course included:

- Is there a market for this type of course, and if so, what type of students will it attract?
- How does marketing for this type of course get communicated to target students?
- What is the financial background of offering a course like this in a cost-recovery model?
- What does a course outline look like for this course, and how do the learning outcomes contribute directly to the mandate of the Tool Shop?
- What facilities, resources or technical support are required for the delivery of this course?

Financial Background
Urban Cartography was offered as a four-week course, with two 3-hour classes each week, for a total of 24 teaching hours. The cost to students was $350.

Continuing Studies at Emily Carr University of Art + Design uses a formula to calculate tuition fees and a minimum number of students required to run a course based on the following metrics:

<table>
<thead>
<tr>
<th>Teaching Hours</th>
<th>Number of sessions x Hours per session</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 sessions x 3 hours/session</td>
</tr>
</tbody>
</table>

24 hours

<table>
<thead>
<tr>
<th>Faculty Pay</th>
<th>Faculty hourly pay rates generally fall within the range of $45 - $75/hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total teaching hours x Faculty hourly pay rate + 12% (Faculty Benefits)</td>
</tr>
<tr>
<td></td>
<td>24 hours x $50/hour + 12%</td>
</tr>
</tbody>
</table>

$1344.00

<table>
<thead>
<tr>
<th>Course Support</th>
<th>Tech support + Instructor materials (based on requests by instructor)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N/A + $100 (Roll of trace paper + print card)</td>
</tr>
</tbody>
</table>

$100.00

<table>
<thead>
<tr>
<th>Overhead</th>
<th>40% added to contribute to facility costs, administrative costs, and staffing</th>
</tr>
</thead>
</table>

$577.60

Total Costs $2021.60
Tuition and a minimum number of students can be balanced in different ways to make up a course’s total costs. For example:

- 6 Students x $350 = $2100
- 7 Students x $300 = $2100
- 8 Students x $250 = $2020
- 10 Students x $200 = $2000

In the case of the sample course, tuition was set at $300, with a minimum of seven students required to register for the course to run. A way of checking that the correct balance between the tuition fee and minimum number of students has been achieved, and that the course is comparable in cost to other courses of different length, is to calculate the cost of the course to students on an hourly basis. Most Continuing Studies courses at Emily Carr fall within the range of $11 - $18/hour; this course comes out at $12.50/hour to students. Courses with a higher hourly cost tend to be those that use highly specialized facilities, like darkrooms or computer labs, or those that require technical support beyond the work of the instructor.

Course maximums are also set, based on faculty recommendations, safety considerations and the size of the classroom; in this case, a maximum number of students was set at 16. This means the profit margin for the course falls within the range of $0 - $2700. (In other words, the minimum number of students – seven – cover the total costs of the course; additional students provide revenue which, in this case, would be 9 students x $300/student, or $2700 in total.)
Appendix D – Sample Course Outline

URBAN CARTOGRAPHY

Course Number: CEID 350 SU01
Instructor: Laura Kozak - kozak@ecuad.ca
Number of Sessions: 8
Day and Time: Monday and Wednesday / 6:30 PM - 9:30 PM
Date(s): June 13 - July 6, 2011
Room: 291 + Field Studies

Learn to critically read and record the underlying geometry, overlapping histories and multiple agendas of the city through practices of mapping, measuring and sketching. Using architectural and cartographic tools and techniques, students in this course will work at multiple and nested scales to understand the metrics behind what makes neighbourhoods different, how we move through the city, and how the built environment has taken shape. The final outcome of the course will be a critical and technically drafted cartographic drawing. This is a beginner course aimed to introduce urban inhabitants to ways of reading the city and understanding it through processes of measuring and mapping. Students may include those with an interest in Vancouver history or urban change, or students looking to build an architecture or design portfolio.

LEARNING OUTCOMES + OBJECTIVES
Students in this course will develop skills in observation, representation and criticism of the urban landscape. Participants will gain technical drafting skills, an understanding of cartographic conventions, and an appreciation for the relationship between mapping and the built environment. The final outcome of the course will be a critical and technically drafted cartographic drawing.

TEACHING METHODS
A variety of short lectures and visual presentations will introduce students to topics including cartographic conventions, mapping tools and strategies, political and unconventional applications of mapping and maps as art. Field work, research and technical exercises will provide an introduction to map-making that will inform the production of a technically-crafted cartographic work.

IF YOU NEED TO MISS A CLASS
If you will be unable to attend one or more classes, please notify me by email. I will do my best to provide information so that you do not get behind in the next class, however, I will not be able to cover content from the missed class.

EXPECTATIONS
To successfully complete the course, students are expected to complete all assignments to the instructor’s stated requirements, attend at least 85% of the classes and participate actively in discussions and critiques.
ASSESSMENT METHODS
Students will receive ongoing feedback, both oral and written, throughout the course. Class discussion and critique will augment feedback from the Instructor. Students’ assessment will be weighted as follows:

| Participation (Curiosity, Inquisitiveness, Attendance) | 30% |
| Development of the ability to critically read the city | 10% |
| Taking Measure (Assignment No. 1) | 10% |
| Street Section (Assignment No. 2) | 10% |
| Cartographic Projection (Assignment No. 3) | 40% |

SCHEDULE OF INSTRUCTIONAL DELIVERY*

Session 1  The Practice of Cartography
On Exactitude in Science | The Powers of Ten | On Observing Cities | Cartographers as Editors
Assign: Taking Measure

Session 2  Maps + Tools
Intro to Scale Drawing | VanMap + Open Data | Five Minutes of Ching
Assign: Street Section

Session 3  Movement Through Space
Analyzing Transit | Time and Distance | Five Minutes of Ching

Session 4  Unconventional Mapping
The Situationist City | Radical Cartography | Mappiness | Invisible Cities
Assign: Cartographic Projection

Session 5  Maps and Politics
Zoning | Regarding Place | View Cones | The Center for Urban Pedagogy
Field Trip: View Cone Walk

Session 6  Delamination | Map Production
Work day for Cartographic Projection

Session 7  Map Production
Work day for Cartographic Projection

Session 8  Final Review
Critique of class work

*Schedule may be adjusted during course depending on students’ pace and interests.
### READINGS + RESOURCES

<table>
<thead>
<tr>
<th>Author/Source</th>
<th>Title/Website</th>
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<tbody>
<tr>
<td>Lance Berelowitz</td>
<td>Dream City</td>
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<td>Italo Calvino</td>
<td>Invisible Cities</td>
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<tr>
<td>Jane Jacobs</td>
<td>The Death and Life of Great American Cities</td>
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<tr>
<td>Francis Ching</td>
<td>Architecture: Form, Space and Order</td>
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<td><a href="http://data.vancouver.ca/">Open Data Catalogue</a></td>
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<td><a href="http://vancouver.ca/vanmap/">VanMap</a></td>
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<td><a href="http://streetsections.com/">Street Sections</a></td>
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<td>Harcourt + Cameron</td>
<td>City Making in Paradise</td>
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<tr>
<td>John Punter</td>
<td>The Vancouver Achievement</td>
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<td>Chuck Davis</td>
<td>A History of Metro Vancouver</td>
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<td>Simon Sadler</td>
<td>The Situationist City</td>
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<td>Lisa Robertson</td>
<td>Occasional Work and Seven Walks from the Office for Soft Architecture</td>
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<td>Keith Higgins</td>
<td>Vancouver Special</td>
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<td>Bill Rankin</td>
<td>Radical Cartography</td>
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<td>CUP</td>
<td><a href="http://welcometocup.org">The Center for Urban Pedagogy</a></td>
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<td>Regarding Place</td>
<td><a href="http://regardingplace.com/">http://regardingplace.com/</a></td>
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