

REVELSTOKE FABRICATION LABORATORY PROJECT PROPOSAL

Background

What is the Revelstoke Fabrication Laboratory Project?

The RFL is a project initiated by *Start Up Revelstoke*, a collaborative initiative of The City of Revelstoke Economic Development, Revelstoke Community Futures and Mountain Colab Cooperative. The project aims to strengthen local companies and entrepreneurs' incentives and opportunities to develop and commercialize new marketable products through increased adoption of digital manufacturing technologies and tools.

RFL Objectives

- Create opportunities for technological commercialization specifically with focus on two major fields (1) *Recreation, Sport and Tourism*; and (2) *Construction and Wood Products*;
- Create opportunities for local companies and entrepreneurs to utilize digital technologies and tools to develop and commercialize new marketable products;
- Create increased opportunities for local companies and entrepreneurs to receive training and coaching related to digital technologies and commercialization, increasing their ability to innovate and create new products;
- Provide space for entrepreneurs and companies to collaborate and engage in peer to peer sharing, increasing their ability to innovate and adopt digital technologies; and
- Provide opportunities for youth to engage and interact with companies and entrepreneurs involved in digital innovation and commercialization; and
- Create partnerships with regional organizations and private sector involved in technology commercialization to better serve Revelstoke companies and entrepreneurs interested in digital adoption and technological innovation (MIDAS Fab Lab, KAST, Selkirk College, Rural Development Institute, Okanagan College, Columbia Basin Trust).

Catalyst for RFL

The Revelstoke Technology Strategy

Over the last 2 years The City of Revelstoke has actively engaged in delivering on the Revelstoke Technology Strategy, a strategy created through extensive community consultation that was

completed and endorsed by Revelstoke City Council in early 2016. The technology strategy identified several key objectives:

- (1) Promoting Revelstoke and being an innovative and technology friendly community;
- (2) Identifying challenges inhibiting attraction and retention of knowledge workers and technology companies to Revelstoke;
- (3) Fostering a Technology Positive Environment; and
- (4) Actively working to identify and target specific technology opportunities.

In the process of implementing the Technology Strategy the Technology Committee has identified several pertinent realities:

- (1) In 2015 Telus upgraded all fibre optic connections in the community allowing the majority of households and business in the community to access fibre optic services. There was an opportunity to develop and promote the technology sector as a major opportunity for future economic development;
- (2) Revelstoke has increasingly become a destination for remote workers, digital nomads and tech workers. The availability of high-speed internet, access to amenities, tourism opportunities and community culture to mention just a few, make it increasingly likely that if positioned right, Revelstoke could significantly enhance its technology sector;
- (3) Revelstoke has a vibrant entrepreneurial culture, home to numerous small businesses, entrepreneurs and home grown non-profit organizations. A significant number of small businesses, entrepreneurs and non-profit organizations have relatively low levels of digital/tech adoption;
- (4) Many of the companies and entrepreneurs in Revelstoke have very little access to digital technologies and tools and very little access to training related to digital technologies and tools;
- (5) Many of the entrepreneurs, digital nomads and remote workers currently in Revelstoke would prefer to work in shared space or co-working facilities. There is limited access to co-working space and co-working facilities in Revelstoke;
- (6) A growing number of companies and entrepreneurs in Revelstoke are increasingly involved in Tourism related businesses, construction and manufacturing¹; and

¹ Based on the 2016 Census, 18% of jobs in Revelstoke are in Construction or Manufacturing (primarily wood products) and 27% of jobs were in Accommodations, Food Services or Other Services (primarily tourism).

- (7) Many of the companies and entrepreneurs doing business in Revelstoke came here for Lifestyle².

Start Up Revelstoke Strategy

More recently, one avenue of development of the Technology Strategy has been concentrated focus on creation of *Start-Up Ecosystem*. City of Revelstoke Economic Development in partnership with Community Futures and Revelstoke Mountain Colab have developed a joint initiative called Start Up Revelstoke. The premise of Start Up Revelstoke is to make Revelstoke the ideal place to start and grow business. As such, key goals of the initiative are to:

- (1) Create a Start-Up Ecosystem that inspires business innovation supports job creation and business formation;
- (2) Establish Revelstoke as a leader in business innovation;
- (3) Clearly identify the role of Business Development Organizations, the private sector; and entrepreneurs in supporting business innovation and growth;
- (4) Build entrepreneurial capacity through the creation of networks and programs;
- (5) Encourage start-ups and entrepreneurs to innovate and scale up faster and more resiliently;
- (6) Identify and strengthen high-value sectors that are the best fit for economic investment;
- (7) Identify key community economic development gaps in the Start-Up Ecosystem;
- (8) Set measurable objectives and actions for entrepreneurial growth and innovation to be achieved over the next five years; and
- (9) Increase the well-being of all citizens living and working in Revelstoke.

In order to meet the above goals, Start Up Revelstoke has identified 5 key strategies:

- (1) Strengthen the infrastructure that supports a sustainable start up ecosystem;
- (2) Foster regional partnerships
- (3) Support innovation through entrepreneurial capacity building
- (4) Inspire youth entrepreneurship
- (5) Understand the Start-up Ecosystem.

Development of the Revelstoke Fabrication Lab Concept

The Revelstoke Fabrication Laboratory (RFL) Project was developed in an attempt to address many of the realities and goals identified through the work of the Technology Committee and the Start Up Revelstoke Strategy. Both the Technology Committee and Start Up Revelstoke

² Based on 132 respondents surveyed for the Business Retention and Attraction Survey completed in 2016, 27% of businesses surveyed are here for lifestyle.

Committee view a fabrication lab with a dual focus of (1) Tourism and Recreation and (2) Construction and Wood Product Manufacturing as the next step in reaching its mutual and overlapping goals.

RFL CONCEPT

The goal of the project is to create a digital fabrication laboratory focused on rapid prototyping and digital fabrication, incentivizing and providing opportunities for local companies to create and commercialize new marketable products. Specifically, the RFL will focus on providing support for Ideation, Concept, Validation and Prototyping. The RFL will not attempt to provide opportunities for companies to run high volume production runs or enter full scale production. Although companies and entrepreneurs of all types will have opportunities to utilize and engage in the RFL, the dual areas of focus for the RFL will be Recreation, Sport and Tourism and Construction and Wood Products. These two areas of focus will significantly lead choices on purchase of equipment as well as training and coaching opportunities provided.

RFL Service Areas

Commercial Access to Digital Fabrication Technologies

At the heart of this project is the goal of providing local companies and entrepreneurs with access to digital technologies and tools. The Revelstoke Fabrication Laboratory will offer companies, entrepreneurs and individuals access to digital fabrication equipment (3D printers, 3D Scanners, CNC milling equipment, laser cutters, etc.) with the goal of providing increased opportunities for rapid prototyping and concept design.

Training and Coaching Opportunities

In addition to providing digital fabrication equipment the RFL will aim to provide training and coaching opportunities. Specific areas of focus will be aimed at supporting two key areas of sector development (1) Recreation, Sport and Tourism, and Construction and Wood Products. The RFL aims to hire staff to support the training and coaching available to users of the facility.

Training will include:

- Workshops and training to certify people to use lab equipment
- Community education programming available for both the general public and students
- Digital Fabrication Training specific to focus areas of (1) Tourism Recreation and Sport and (2) Construction and Wood Products
- Mentorship/ Training programs for High School Age Youth

Co-working Facilities

At the base of many innovations is collaboration. RFL recognizes that simply providing equipment and a little bit of training may not be enough to inspire the product innovation we are attempting to inspire. The RFL aims to have available collaborative space in the form of Co-working facilities. This will allow entrepreneurs and companies to sit side by side with other innovative companies, interested in pushing the boundaries in how they create products.

Learning Opportunities for Youth

Youth access to digital technologies and opportunities to engage with innovative entrepreneurs is a key focus of the RFL. This opportunity will not only create more opportunities for community members to create new marketable products but will also ensure that Revelstoke's youth have the ability to compete in a new global digital landscape.

Public Membership

The RFL concept recognizes that many entrepreneurial ideas and products come from individuals with an idea. It is the RFL's goal to have several opportunities a week open for public member utilization. This will not only provide an opportunity to develop our community member's aptitude and ability to enter the entrepreneurial field but also provide opportunities for additional revenue generation.

RFL Stakeholders

- Entrepreneurs and Local Companies
- Revelstoke Youth
- City of Revelstoke
- Revelstoke Community Futures
- Revelstoke Mountain Colab Cooperative
- Revelstoke Senior Secondary School
- Okanagan College
- Kootenay Association of Science and Technology

RFL: PHASE ONE

The project aims to develop a Revelstoke Fabrication Laboratory in a phased approach. Through consultation it has been identified that there is a significant interest from community stakeholders, local businesses and entrepreneurs in the concept of a fabrication laboratory; however, the need and utilization of such a facility is yet untested. As such, this proposal is to develop phase one of a fabrication lab. Key areas of investment for phase one of the project include:

- (1) Digital Lab Equipment; and
- (2) Training and Coaching Support
- (3) Co-working Facilities

Success Elements

In discussion with key stakeholders, several key elements were identified as being integral to the success of this project as base features of a FAB lab that must be met for the project to be successful. These include:

- Location must be in or close to downtown. The facility needs to be a space that is easily accessible for both local entrepreneurs, students and community members to access
- The Location must have appropriate zoning to be able to accommodate digital fabrication
- The facility must be able to accommodate co-working facilities of some form in order to ensure a vibrant and authentic community of practice is engaged within the facility
- Entrepreneurs and start-ups must be able to access technologies at an acceptable price point. The wording of “acceptable price point” has been used as more market research needs to be done to determine what this price point will be. Current pricing model is being created using MIDAS as the basis for comparison.
- The facility must be able to host workshops and training opportunities so that experts in digital technologies can be contracted to provide ongoing training opportunities to individuals interested in ongoing prototyping activities.
- This facility must be part of a regional approach to fabrication and part of the MIDAS ecosystem.

Fabrication Facilities

It is proposed that phase one of the RFL will be located at a leased facility. Although many fabrication laboratory projects begin with the purchase of a building, no major expenditures on renovating or purchasing of a building are planned for phase one of the RFL project. The goal of phase one is to assess the need and uptake of a fabrication laboratory by providing start-ups, entrepreneurs, students and community members with access to digital technologies and tools and focused training. In putting together this proposal several possible locations for the RFL are being reviewed.

Space requirements for phase one of the project are estimated to be 1000 to 1500 square feet of usable space. Location options range from \$12 to \$20 per square foot. It is estimated that monthly leasing costs for the project will be between \$2500 and \$3000 a month.

RFL Digital Lab Equipment

The following is the proposed list of digital lab equipment for the RFL project. The selected list of digital tools and software was compiled through consultation with both the local tech entrepreneurs, as well as, KAST and MIDAS. The lab equipment identified would be purchased in phase one of the project. The list of tools identified are not exhaustive. The idea is to have many of the higher end machines be purchased as part of phase two of the project.

Digital Lab Technologies	Cost Per Unit	Quantity	Total Cost
Markforged Mark 2 3d printer	\$ 10,000.00	1	\$10,000.00
Delta 3d printer	\$ 1,500.00	2	\$3,000.00
Ultimaker	\$ 3,000.00	1	\$3,000.00
High-end 3d Scanner	\$ 10,000.00	1	\$10,000.00
Comodity 3d scanners	\$ 15,000.00	1	\$15,000.00
Electronics components & storage	\$ 600.00	1	\$600.00
Soldering station	\$ 300.00	3	\$900.00
iPads	\$ 500.00	2	\$1,000.00
Modeling Workstations	\$ 2,259.00	5	\$11,295.00
VR Workstation	\$ 4,000.00	1	\$4,000.00
VR Headset	\$ 1,000.00	1	\$1,000.00
AR Headset	\$ 2,000.00	1	\$2,000.00
Networking gear	\$ 2,000.00	1	\$2,000.00
Projector	\$ 1,500.00	1	\$1,500.00
Oscilliscope	\$ 500.00	2	\$1,000.00
High-end oscilliscope	\$ 1,800.00	1	\$1,800.00
Multimeters	\$ 100.00	3	\$300.00
Lab power supply	\$ 200.00	3	\$600.00
heat gun	\$ 20.00	3	\$60.00
hot melt gun	\$ 20.00	3	\$60.00
Frequency generator	\$ 200.00	1	\$200.00
Charcoal filter system	\$ 500.00	3	\$1,500.00
High-end laser cutter	\$ 20,000.00	1	\$20,000.00
Laser cutter	\$ 1,500.00	1	\$1,500.00
Pile of things	\$ 1,000.00	1	\$700.00
Adobe software	\$ 8,000.00	1	\$8,000.00
Hand tools	\$ 5,000.00	1	\$5,000.00
Solidworks	\$ 23,000.00	1	\$22,000.00
Lamination station	\$ 2,000.00	1	\$2,000.00
Total Equipment Cost			\$130,015.00

Next Steps

City of Revelstoke has received confirmation that we were successful at securing a Rural Dividend Grant for the Revelstoke Fabrication Laboratory Project in the amount of \$108,000. The City will continue to seek funds to be able to support phase one of the project. Ongoing consultation with the community to solidify the business plan and facility options for the Fabrication Laboratory Project will continue over the next couple of months.