

UBC Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

**Office Furniture Reuse at UBC**

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# Office Furniture Reuse at UBC

How UBC can become an institution that sends no office furniture to the landfill.

## 1. Executive Summary

The University of British Columbia (UBC) has been known as a leader in sustainability for many years, and this effort was recently recognized on a global scale by the Times Higher Education. UBC was ranked number one in the world for taking urgent action to combat climate change and ranked first in the country for making cities inclusive, safe, resilient and *sustainable* (Ramsey, M. 2019). While this is an impressive feat, UBC still has substantial ground to cover given the institution-wide sustainability plans, targets and goals, including the Zero Waste Action Plan. One of the overarching goals embedded within this document is an 80% diversion rate by 2020, meaning that UBC aims to keep 80% of waste out of the landfill (UBC, 2014). With 2019 coming to a close, it is safe to say that this goal has not been achieved, and a number of changes will have to be made on campus in order to become an institution that is truly striving for zero waste.

It has been estimated by Building Operations that roughly 400 tonnes of furniture were sent to the landfill in 2018 (see Appendix III), making furniture a clear and valuable category to target when it comes to UBC's zero waste aims. Furniture is also something that can be reused and repaired more easily than many other materials UBC sends to landfill. While numerous projects from the past have been centered on the topic of furniture reuse on campus, as of now nothing official has come to fruition, which was one of the core reasons for executing this project. It is important to note that the scope of this research involves *only office furniture* on campus that has been purchased using UBC funds. Therefore, classroom furniture, housing furniture, office supplies, lab equipment and other similar categories are not included within the research or overall conclusions.

This project involved a number of interviews with various departments and faculties in order to learn more about the processes for purchase and disposal of office furniture. Additionally, relevant reports were reviewed (see Appendix I), the available data was analyzed and site visits were executed to provide greater insight into UBC's current systems. Overall, this project allowed for improved understanding of the quantities of office furniture disposed of annually at UBC, and the processes taking place on campus for both purchasing and disposal. As well, I uncovered many of the obstacles that UBC is facing with regards to keeping furniture out of the landfill and came to realize how immense the value of the implementation of this project would be.

As mentioned above, it was estimated that hundreds of tonnes of furniture were sent to the landfill in 2018. Although it is unclear exactly what percentage is office furniture, throughout the

unofficial Facilities Planning Pilot it was estimated that the furniture saved prevented UBC from needing to purchase over \$300,000 worth of new furniture. As it was estimated that roughly 10% of office furniture was involved in this pilot, it can be concluded that if office furniture reuse is implemented, there could be a savings of up to \$3 million annually, through the prevention of unnecessary purchases. Both the quantity of furniture that could be saved and the monetary value it provides seem so considerable for UBC, however, a number of challenges were identified throughout the interviews that took place, which act as barriers to these benefits. Some of the challenges include lack of storage on campus, minimal time to find a new home for an item before it must be disposed of, and minimal roles having time allocated to facilitating reuse.

To combat the identified challenges, a proposal for an approach that UBC can take was established. Key recommendations that can be drawn from this study are as follows:

1. Utilize Warp It as UBC's new online reuse platform.
2. Update Policy UP3 & FM2 and ensure substantial awareness of both on campus.
3. Incorporate a Furniture Coordination role into Facilities Planning (FP) team as soon as possible.
4. Identify more storage for surplus items to prevent disposal.
5. Improve the tracking of surplus items through an improved Surplus Asset Form.
6. Implement a phased approach that allows for greater capacity and resources to be allocated to furniture reuse on campus.

The recommendations summarized above will provide UBC the path necessary to become an institution that no longer sends office furniture to the landfill. While the benefits of waste reduction, and substantial savings have been highlighted, the conclusive benefits are actually five-fold. Preventing furniture from going to the landfill will also reduce our climate impact, align UBC's practices with its reputation of sustainability leadership and will encourage UBC to innovate in the realm of circular economy, in a way that is scalable in the future. This is to say that initiating this project will kickstart the development of knowledge necessary for UBC to expand this program in the future and begin saving other key items such as housing and classroom furniture and lab equipment. Based on the business case developed, reusing office furniture will provide savings upwards of \$1,000,000 annually, and this number would only grow if UBC decided to extend the program beyond the outlined scope.

This report includes summaries for all information collected, depictions of the overall processes that contribute to furniture reuse on campus, and a proposal for an approach to expanding furniture reuse on campus. For elaboration on the above recommendations, see sections four and five.

## **2. Purpose of the Study**

This project was driven by two main goals: *to determine how UBC can work toward becoming an institution that does not buy 'new' office furniture, and to assess how Warp It, the new online reuse platform, can be utilized to support a circular economy for furniture.* While avoiding the

purchase of new furniture is the ultimate goal, this requires a significant timeline. To only acquire already used furniture or rely on repairs of existing furniture demands a significant network of partners, and a constant reserve of materials. As Facilities Planning only gained access to Warp It in July, this seemed beyond the scope of this summer. Therefore, I restructured the primary goal as such: *developing the long term vision for UBC in order to become an institution that sends no office furniture (or related materials) to the landfill and invariably prioritizes reuse above recycling*. This is the goal that will be considered throughout all of the identified problems in UBC's current systems, the recommendations made and developed conclusions.

The high level purpose of this study mirrors that of the related SEEDS Research Projects executed in 2016, *reducing the amount of landfill waste by reusing surplus furniture*. This study goes beyond the previous study as it incorporates an extensive set of interviews from numerous individuals involved in this process across campus (see Appendix I) since execution of the policy is key to its success. The recommended process is presented using a phased approach in order to lay the groundwork for immediate implementation and also highlights what materials can be considered beyond office furniture, as this project continues to expand. Most substantially, this project looks not only to reduce the amount of landfill waste, but eliminate the possibility of the landfill seeing any of UBC's furniture.

As was highlighted in the "Reuse of Surplus Furniture at UBC" report in 2016, there have been previous projects and initiatives that have attempted to address the challenges of reducing the amount of surplus furniture that goes to the landfill. However, all of these have been unsuccessful or did not see continuation. Therefore, this project has built off of these previous initiatives and reports, in order to make recommendations that will allow these goals to come to light.

### **3. Background**

At UBC, the "official" process for reuse is based on Policy UP3 (Previously Policy 108), "Disposal of Surplus Materials," which is explained in detail in the following section. This policy was created in 1977 and was last revised in 1993. At the time of revision, UBC's Surplus Equipment Recycling Facility (SERF) was fully functioning, and therefore was a central piece in this policy. It has since been closed, largely due to space constraints, leaving UBC without a consistent or universal process for reuse.

In 2010, Reuse-it! was initiated at UBC. This online platform allows UBC Staff and Faculty to register with their UBC email, post items they have available and facilitate exchanges. While there are 3,043 Reuse-it! users registered to date, it appears that many are inactive. Throughout 2018 an average of 27 items were posted on the site per month and of these items, only a fraction are furniture (Re-Use It!, 2019). This demonstrates that Reuse-it! is not reliably utilized for disposing of furniture, given that Building Operations estimates that on average 400 tonnes

of furniture is disposed of per year. Outside this platform, there are two key ways in which items are rehomed:

- a) Through the initiative of an individual, or
- b) Through the Facilities Planning (FP) informal Reuse Pilot, that has been taking place over the past year.

While the first alternative to Reuse-it! is unsystematic, there is a clearer process involved in the FP Pilot. This pilot is currently an informal experiment that has its origins in the Koerner 6th floor renovations for the VP Finance & Operations. It began in early 2018, as a simple exercise to find new homes for the lightly-used workstations being replaced as part of the renovation project. It was clear from the first communications around the opportunity to reuse the workstations, that the quantity and nature of the furniture making its way to the landfill was of concern to many people on campus with a line of sight to this issue. Once word of the possibility of saving reusable furniture leaked out to a wider audience, requests came rolling in to FP, both from groups looking for 'free' furniture, and from groups wanting to find new homes for their unwanted furniture.

FP has assigned one planner to assist the campus community with furniture reuse activities. The experiment has grown to the point where these activities account for approximately 15-20 hours per week and it is estimated that at most 10% of reusable furniture at UBC is being addressed (see Appendix II for further savings estimates). Since April 2018 when the pilot began, roughly 600 items have been reused and this has saved UBC roughly \$300,000 in money not spent (Appendix VII-e).

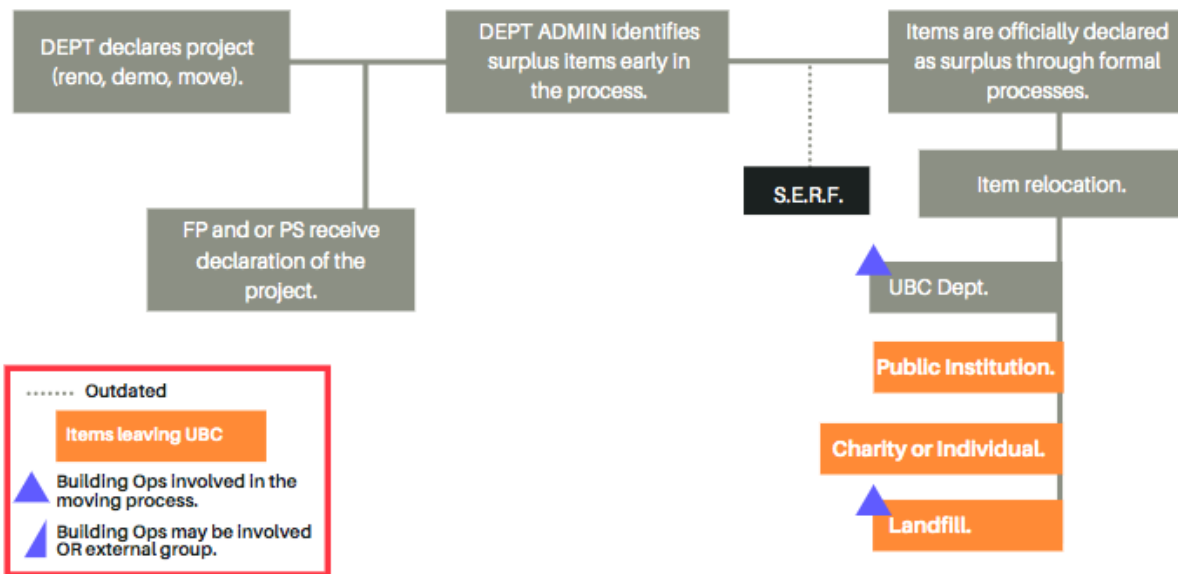
This pilot laid the groundwork for the process proposed for UBC to utilize, in order to prevent office furniture from seeing the landfill and ensure we are taking serious action to achieve UBC's zero waste targets.

## **4. UBC Processes**

### **“Official” Process**

As explained above, Policy UP3 outlines the “official” process to be followed at UBC to prevent surplus items from being disposed of incorrectly. However, Policy UP3 is outdated and therefore, a significant portion of the “process” that is outlined, cannot be followed in the manner identified. That being said, there is a high level procedure that can be adapted from the policy, and this is outlined below.

# Policy UP3



It is important to note that this Policy is very much focused on the disposal that takes place as a result of renovations, demolitions and moves. There is little emphasis on the disposal of everyday or one-off items, which fall under the same restrictions, but are handled quite differently in practice. In the following section, what is truly taking place on campus will be outlined in detail, with regards to various situations or circumstances, including one off items. See Appendix IV for greater explanation on the process outlined by Policy UP3.

## What is Truly Happening

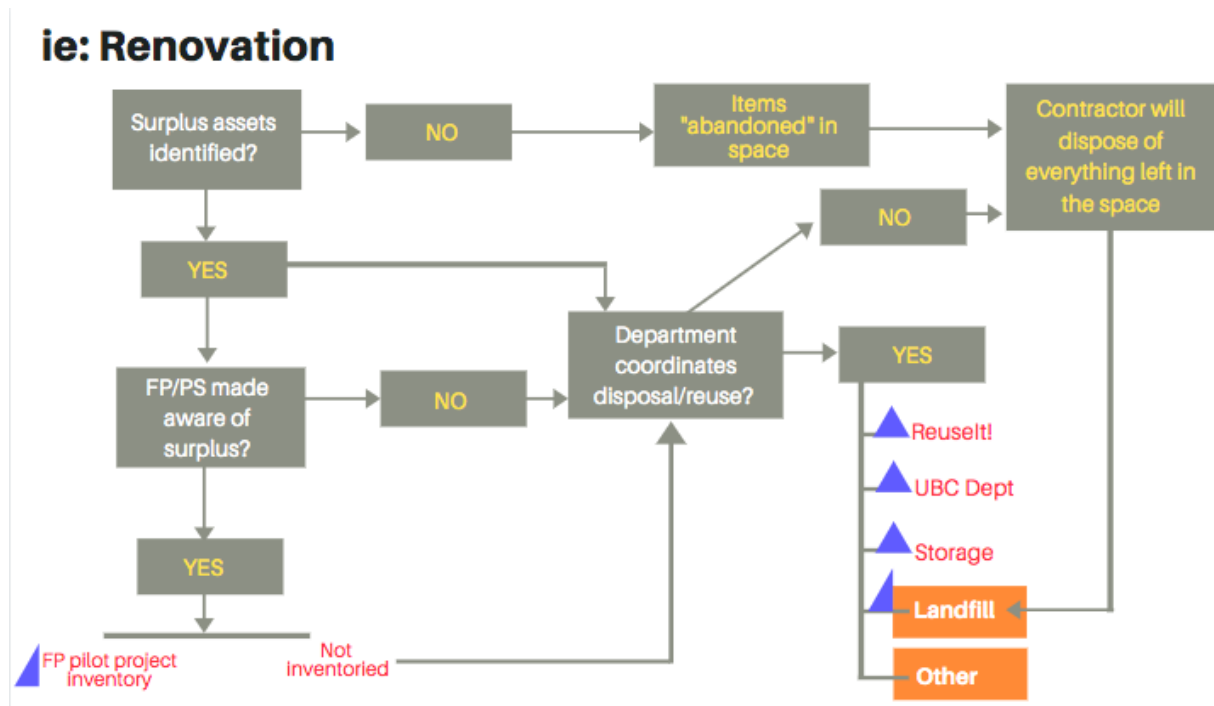
As of now, there is no official process that is followed universally across campus. What is more standardized, however, are the reasons for which items may no longer be wanted. Therefore, two overall processes have been outlined below, which demonstrate the majority of the ways in which office furniture disposal is handled at UBC. Large Projects and Small Scale Surplus vary substantially in execution, depending on the department and individual responsible. Due to this, the processes below exemplify what we can see happen in *most* cases, but not what takes place consistently. These are not official processes outlined by UBC that employees know to follow, they are simply the most common results of the system that currently exists, outlined by Policy UP3.

The FP Process and Building Ops outlines are much more systematic. This is because these processes are the responsibility of single departments, and do not rely heavily on external parties. The result is that these diagrams are much more reliable demonstrations of these

systems at hand. It should be noted, that the FP Pilot is not an official process, but simply what resulted as Facilities Planning began testing this service at UBC.

### Large Projects- Demolitions, Renovations or Moves:

This diagram represents the “current procedure” that most often takes place when a project is initiated at UBC.



See Appendix V-a for greater explanation with regards to large projects.

### Key Takeaways:

- There is no coherent process for dealing with unwanted furniture
- In many situations, items end up in the landfill

### Overall Variances from “Official Process”:

- Surplus items may or may not be identified at the beginning of the process. Based on my meetings, FP (planners) and Project Services (managers and coordinators) are made aware of the surplus assets in varying degrees, at various stages within the project. As highlighted above, many items may not be explicitly identified and will simply be left, without proper handling.
- Groups disposing of furniture will rarely look to other public institutions to sell or hand off items. This is most often the result of time constraints.

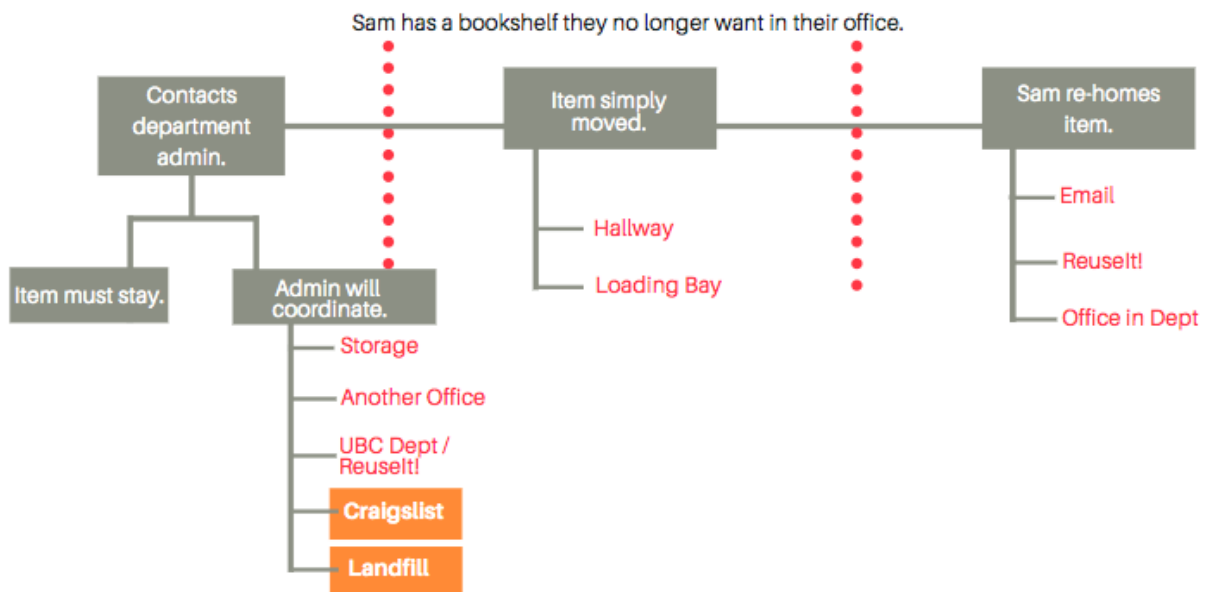


- Various understandings of how to officially “write off” an item, and when it is necessary. The result is few people are appropriately tracking items being disposed of or reused by another group.
- Very diverse understanding of the policy and where to look to dispose of items:
  - Some use Reuselt!
  - Some contact other department administrators directly
  - Some people completely unaware of Reuselt!
  - Some look straight to Craigslist if they know the item is unlikely to be wanted on campus.
- Policy suggests that all disposal should be taken care of through SERF, but this facility does not exist and there is no longer a unit dedicated to this task alone. The closest comparison is the use of the Material Recovery Facility (MRF), see the Building Operations process map below for further details.

### Small Scale Surplus:

This categorization refers to one off items that individuals want removed or changed within their offices or departments. This is the procedure that is highly sporadic at UBC. Individuals (even within the Administrator roles) have varying understandings of Policy UP3 and the expectations surrounding the disposal of surplus assets. The result is that people handle the disposal of items in many ways. The outline provided below, utilizes an example in order to depict the most common ways individuals handle items.

### What is really happening? ie: Single bookshelf

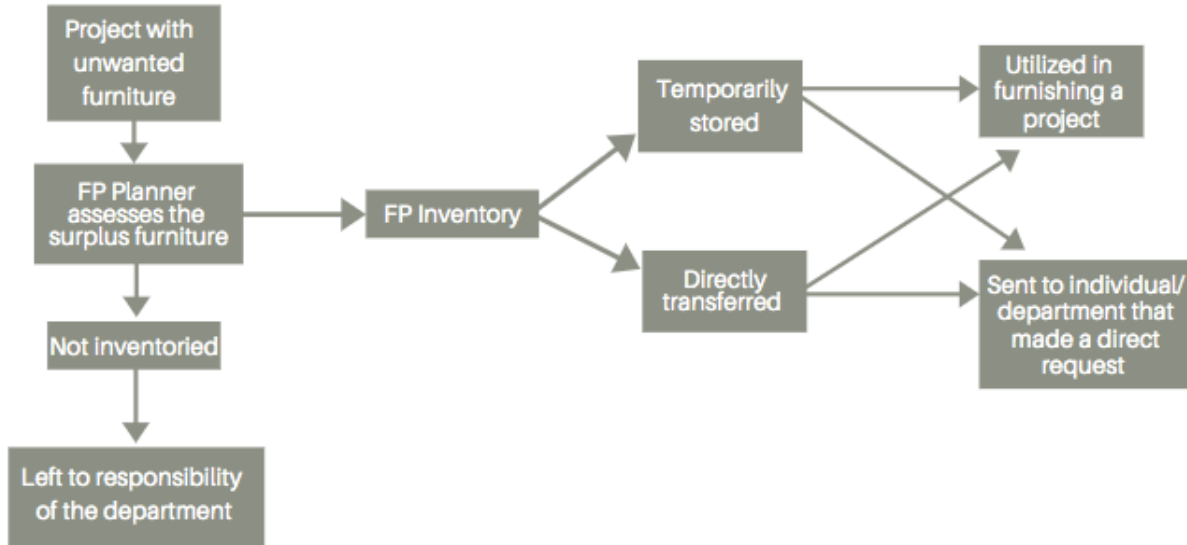


For further details on this process diagram, see Appendix V-b.

### Facilities Planning Unofficial Pilot:

This procedure is rather “standardized” but is not widespread, as there is only planner from FP directly involved in the furniture rehoming process. Therefore, the projects they work with follow this process, as well as other projects or departments that contacted them directly. However, there are numerous projects and furniture pieces that are never seen by the FP Coordinator, and cannot be captured in the following process.

### Facilities Planning Pilot

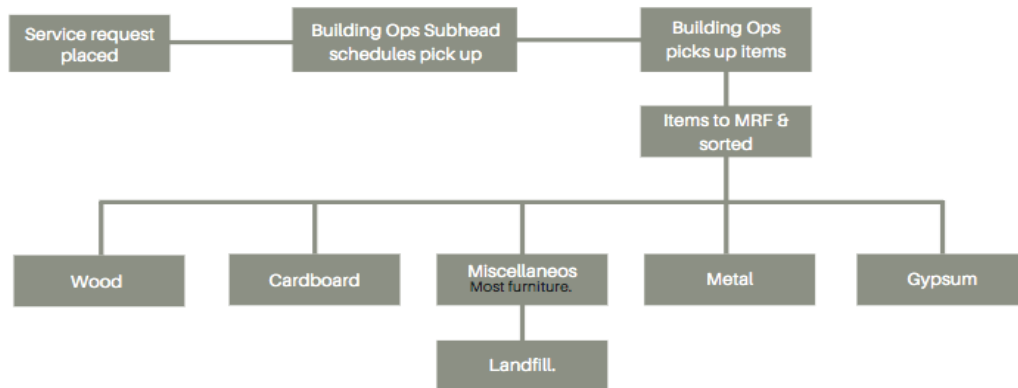


See Appendix V-c for further details.

### Building Operations

This section highlights the process in place for those items that are picked up for disposal by Building Operations.

### Building Operations



See Appendix V-d for further details.

## Key Challenges on Campus

Throughout the research process, it became clear that there were specific factors that challenge the overall goal of preventing furniture from going to the landfill. These influences are outlined in the table below.

Influence	Impact or Result
Lack of storage on campus	It becomes more convenient to send items to the landfill, harming UBC's diversion rate.
Variances in procurement across departments	Decreases the "standardization" of furniture, or ease of sharing between departments. This limits the ability to reuse across departments, and it also increases the variance in furniture quality we see on campus.
Limited tracking of items or awareness of inventory	Can lead to unnecessary purchases, and limits a departments knowledge about what assets they have to utilize.
Lack of disposal tracking	Prevents UBC from knowing exact amount of furniture disposed of, the value of these items and overall cost to the university.
Fiscal year-end spending	Motivates departments to make unnecessary purchases in order to maintain equivalent funding amounts in future years, and increases the furniture sent to the landfill.
Policy UP3	This policy is vague, outdated, not known to everyone and is not mandated. Due to these reasons, there are minimal actions taken to prevent items from going to the landfill.
The cost of time	It takes time to upload items onto Reuselt! and of an individual to claim the item. Therefore, people often prefer disposal, especially because timeline for projects are often quite short.
Cost of high quality furniture	Many of UBC's preferred vendors sell high-quality items at corresponding price points, which encourages departments to purchase the lower quality options. This decreases product lifetimes, and increases disposal rates.
Culture	The belief that new spaces or new staff require brand new furniture increases unnecessary purchasing and disposal rates.
Shifting requirements	<ul style="list-style-type: none"> <li>- Less need for filing cabinets and bookshelves</li> <li>- Increase in shared office spaces</li> <li>- More desire for ergonomic desks</li> </ul> <p>These shifts change the purchasing habits of departments, and increase the need to dispose of the old items- many of which are not in high demand amongst campus departments and are often thrown away (ie: filing cabinets).</p>

Lack of centralization	<ul style="list-style-type: none"> <li>- Savings from Reuse-it! And Warp It will not be fully realized by the department that has to pay for the online platform</li> <li>- Smaller economies of scale achieved on the ordering of furniture as each department functions separately</li> <li>- Difficulty mandating and monitoring the procedures that take place</li> <li>- Huge variety in aesthetic requirements by departments: minimizes the flexibility of furniture across spaces</li> </ul> <p>Overall, these issues decrease the motivation in implementing a project such as this one, and limit the ability to mandate the necessary processes.</p>
Variability in delivery timeline	<p>Due to the range of tasks that the Labor Group (Building Operations) is responsible for, moving cannot always be prioritized. This then delays deliveries, increases the time it takes for individuals to get rid of items, and increases the desirability of sending items to the landfill. Movers may also show up prior to the scheduled time, which can create other issues within a projects timeline.</p>
Lack of paid work to facilitate Reuse	<p>In numerous interviews, it was mentioned that sustainability was “a part of a role” or disposal was “one of many tasks.” Therefore, the people who try to ensure that items are reused, simply have to be self-motivated out of the goodness of their hearts, because their hours are taken up with other things, often seen as “more important.” Mismatch between funding, and expectations on what needs to be achieved. If people want to correctly dispose, then they also want money, and therefore, UBC has to allocate more budget and roles toward this.</p>

**5. Optimal Process - Overview**

Based on the goals outlined, and the challenges at hand, a three phased process has been developed that will allow UBC to become an institution that keeps furniture sent to the landfill to an absolute minimum. Embedded within these processes, are a number of crucial changes that must take place if UBC is to meet its existing waste diversion targets. In this section these changes have been outlined and their significance in preventing unnecessary furniture disposal.

Initiate the Use of Warp It

As represented in the UBC Process Diagrams above, we currently have an online platform for furniture reuse, called Reuse-it! While this platform has been successful in the rehoming of some furniture, it is not reliably used, and collects minimal data. Therefore, a new platform is necessary to allow UBC to achieve higher levels of reuse, and based on the small trial with a

new platform, Warp It, this should be what UBC utilizes moving forward. The strengths of Warp It are as follows:

- More sophisticated inventory capabilities than Reuse-it!:
- Built in system for connecting with other organizations, schools and charities.
- Items have built in estimates attached for the sake of data generation.
- Automatic data collection and reporting.
- Proven successful across many universities.
- Wishlist function, so people are alerted when something they want is posted, increasing effectiveness of platform.
- A payment gateway is included in the platform.
- Capability to track greenhouse gas emissions, which would strengthen UBC's ability to deliver on its commitments to Climate Action.

It will be crucial that Warp It is central to furniture reuse at UBC, and that its use is mandated for facilities managers, and other key campus participants. Reuse-it! should no longer be used for furniture items, and this must be made clear to all users, or the program must be eliminated altogether. For more information on the platform, please see Appendix X.

### Policy Updates & Increased Awareness

Both the Surplus Equipment Policy (UP3) and the Purchasing Policy (FM2) are in need of substantial alterations, in order to reflect strongly UBC's Sustainability goals. For example, the first section of the Surplus Equipment Policy reads: "Emphasis is given to recycling equipment through either internal rental or sales. Secondary consideration is given to disposal or sales to other educational institutions, and third to external private sales."

The underlined section reads as if the secondary consideration is disposal- above both sales to educational institutions and external parties. In order to ensure UBC prioritizes reuse of items, above disposal, it must be clear that disposal is only an acceptable option if all others have been attempted and exhausted. Additionally, substantial pieces of both of the mentioned policies are outdated and vague. Therefore, both policies need to be reworked to ensure that reuse, purchase quality, and flexibility are clearly mandated. See Appendix XII for more detailed recommendations regarding both policies.

### Addition of a Furniture Coordinator Role

If the recommended phases found in the following section are not fully implemented at UBC, it will be necessary for there to be at least one designated role specific to the coordination of furniture reuse on campus. While there have been exceptional results with the unofficial FP Pilot, more time will need to be allocated to this task, to increase working capacity and the percentage of items saved overall. This role is also necessary for the implementation of Warp It at UBC.

### Identify Increased Storage Options

In order for furniture to be kept out of the landfill, storage will be necessary for the FP inventory, and also for other surplus furniture. Many items are thrown away simply because there is nowhere for the furniture to be kept in the time needed to find a new owner, making this a

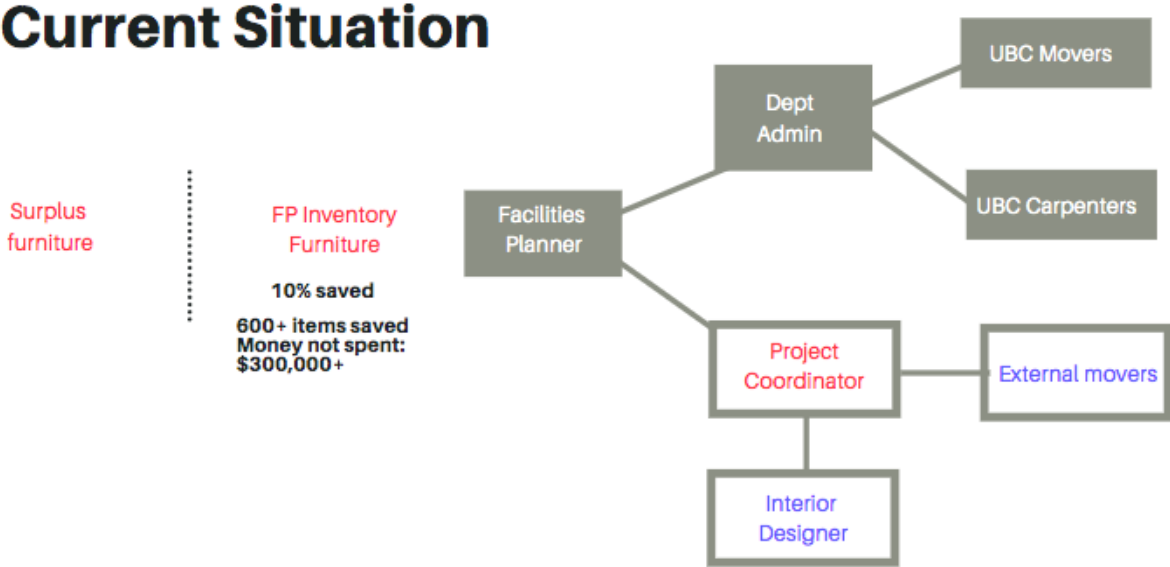
necessity moving forward. See the next section to better understand what I would recommend regarding storage within the phases.

### Improve Tracking of Surplus Assets

Based on interviews conducted, there once was a form utilized to track the disposal of all assets, including furniture. However, no system is consistently upheld on campus that motivates any formal tracking across all departments. Therefore, UBC has a very limited sense of what it is disposing of, and the value of disposed materials. In other words, UBC’s data is lacking, and departments have limited barriers to disposal of items. I would recommend an online system for ease of execution, that is required for any items to be picked up by UBC Building Operations for disposal. Otherwise, UBC will continue to have limited knowledge regarding the value and quantity of items disposed of, and there will be little motivation to keep departments from throwing items away.

## 6. Optimal Process- Phases

### Current Process



The above diagram represents what has been taking place in the unofficial FP Pilot. As of August, roughly 600 items were reused, which accounts for roughly 10% of unwanted furniture items resulting from Large Scale Projects. When values were assigned to these reused items, as if they had been purchased new, it became clear that UBC could “save” a substantial amount of money through avoided purchases. Overall, these items being reused in projects and departments across campus save UBC roughly \$300,000 in money not spent. For more information on the percentages and values assigned, see Appendix II.

As seen above, there is a separation between surplus furniture and the FP Inventory. This is because, as of now, there are a number of items that FP reviews that are not projected to be of use to future UBC projects. Although these items may be in great condition, due to the functionality, flexibility or general aesthetic (see Appendix VI), they are not added to the FP Inventory. This leaves a number of items that UBC should not be sending to the landfill that cannot be reused through the FP Projects and are outside the capacity of the current process. Considering UBC’s serious zero waste goals, these items will also have to be prioritized in the future, given that they are contributing to unnecessary landfill waste. As the phases progress, the quantity of surplus furniture being saved will increase, as a result of increased capacity. In other words, more of the furniture that FP has been unable to reuse through their projects, will be re-homed via other avenues through this proposed process for expansion.

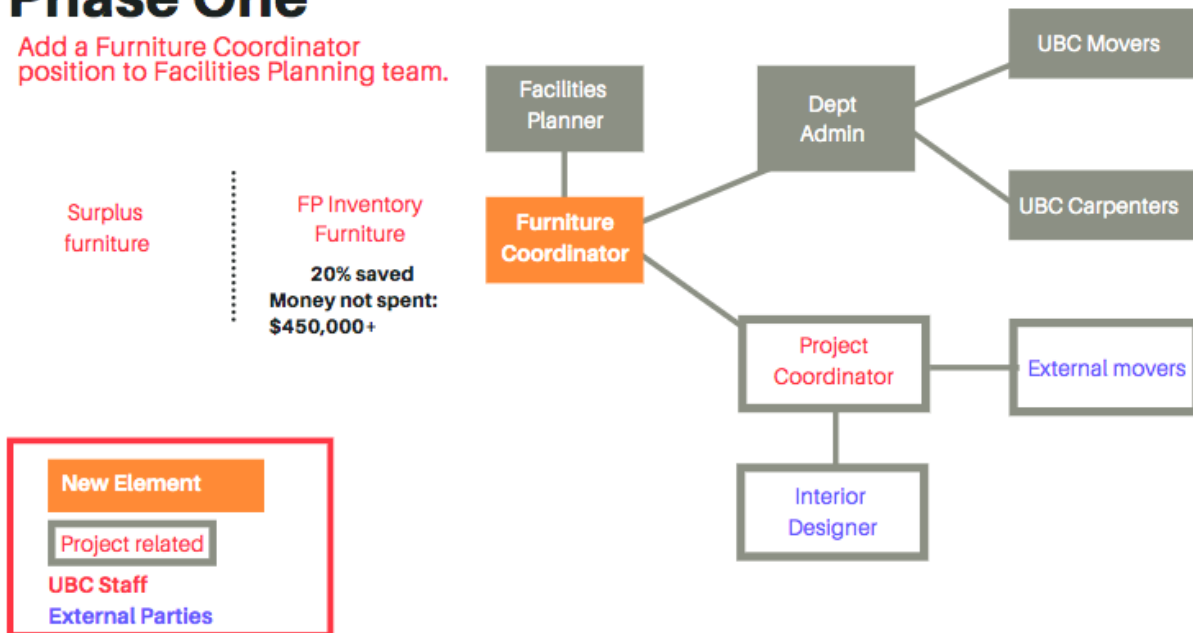
### Phase One

Phase one involves the immediate next steps that will be taking place as we move forward with this project.

Goal: Increase the capacity for reuse and begin to set up the use of Warp It, through a new Furniture Coordinator position.

## Phase One

Add a Furniture Coordinator position to Facilities Planning team.



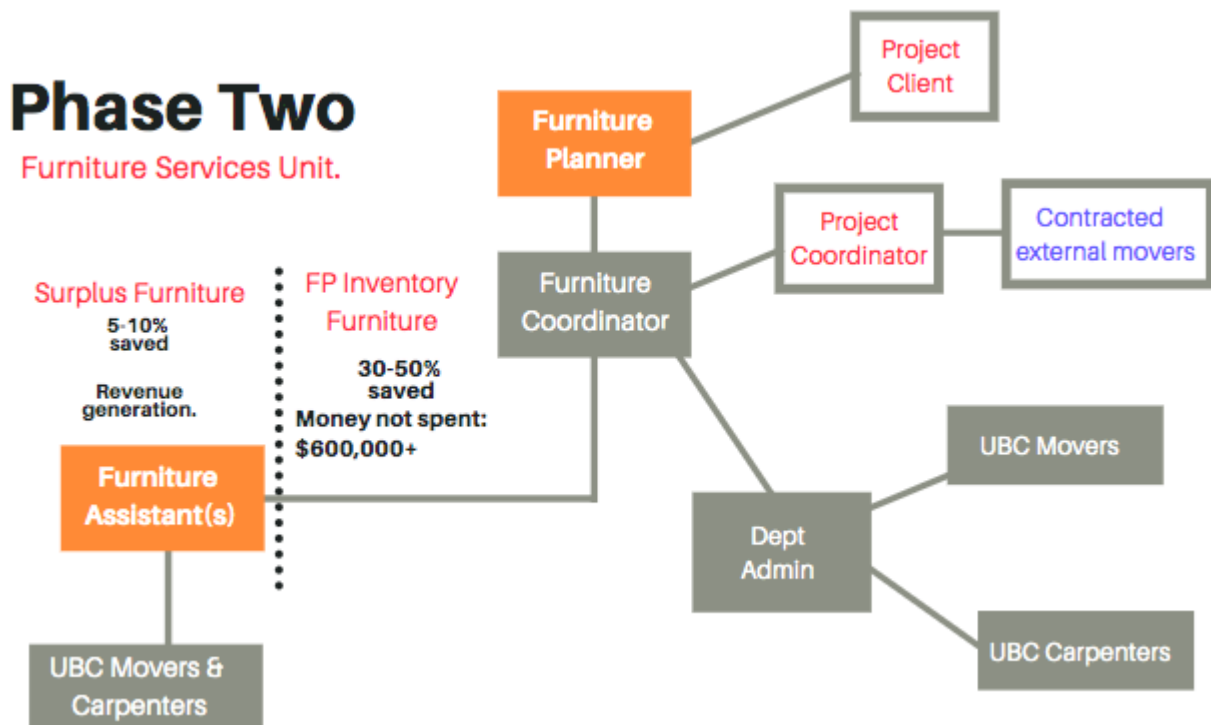
In the above diagram, the structure with the addition of a Furniture Coordinator is demonstrated. As seen in Appendix VII-b, the person in this role would become responsible for a number of the roles that have been executed by the FP Planner to this point. Ultimately, they would take over these tasks, and focus solely on reuse, to allow for a higher percentage of items to be recovered

from UBC projects. They would also be responsible for taking the next steps regarding Warp It at UBC, to ensure that the platform is widely used across campus, by the necessary individuals. The use of the grey and white boxes is simply to demonstrate the two avenues in which the Furniture Coordinator may be made aware of surplus furniture, as it can take place through the project process, or through direct discussion with a department. Project-related, demonstrated by the grey boxes, means that Project Services is involved in that portion of the process.

Overall, money not spent could be as high as \$600,000 in this phase, assuming the type and quality of items are similar to what have been saved in the pilot thus far. The value increase from the current process would be a result of more hours dedicated to reuse, assuming this individual works 30-40 hours a week, as opposed to the 15-20 hours per week that have been allocated thus far. \$450,000 on the diagram is a conservative estimate, given that the hired individual may not have double the hours, the inventory may not be double in amount, or the value of the items saved may not be as high.

### Phase Two

Goal: Begin laying the foundations for a Furniture Services Unit at UBC and greater centralization of furniture decisions at UBC.



In this phase, two new roles will be added; Furniture Assistant and Furniture Planner. The ultimate purpose of the Furniture Planner is to replace the need for an external interior designer (see previous diagram) that was relied on for projects in the past and ensure that there is more



consistency in design consideration. Greater consistency will allow for increased economies of scale for purchases, and flexibility of items for numerous spaces and uses. In order for UBC to achieve high levels of reuse, items need to be suitable to numerous spaces making this role, or something similar, a necessary component moving forward.

The Furniture Assistant(s) would work under the Furniture Coordinator and would be responsible for the surplus furniture, those items that are still useful, but are not acceptable for UBC departments and projects. Ideally, this would be a paid student role that could have one or two students working 20-40hours in total, per week. The Furniture Assistant(s) would be responsible for organizing the inventory, and seeing that items are sold or donated to external parties or organizations. This could take place via a partner network built on Warp It, sales on facebook marketplace, craigslist or through donations to other organizations. One key component, to ensure that these items are not sent to the landfill, is additional storage. While the FP Pilot has relied on decommissioned spaces on campus to store its inventory, this wouldn't be as suitable for the surplus items and a student-run initiative. Additional storage will also be necessary because the time constraints are often too considerable, limiting the ability to find a new owner for surplus furniture. Therefore, a small off-campus storage space would be ideal, especially if it was accessible to the public for sales. As sales to external groups are a possibility through this branch of the outlined structure, there is the possibility for revenue to be generated to help cover the cost of storage, and this position. If UBC is serious about not sending furniture to the landfill, this role, or something similar, will certainly be necessary to ensure that all functional furniture is reused.

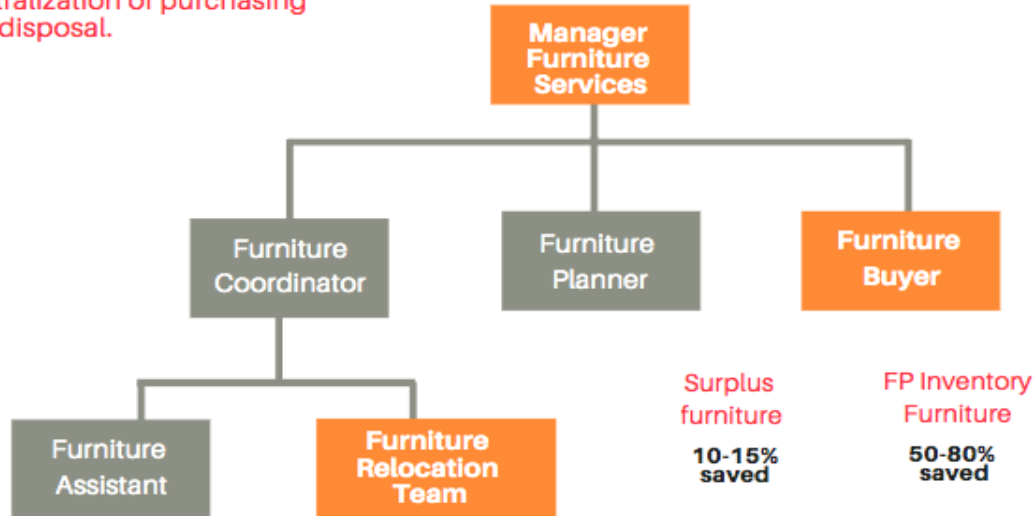
See Appendix VII-c for more specification of the tasks of each role.

## Phase Three

Goal: Centralization of purchasing and disposal.

# Phase Three

Centralization of purchasing and disposal.



In this diagram, there are three new elements although only two of them are core to the overall goal. The Manager is a key element, if UBC is going to ensure furniture reuse is prioritized and have all the positions necessary filled to achieve the ultimate goal of no furniture going to the landfill. The Furniture Buyer is also important, in order to eliminate purchase of poor quality items. As of now, few departments have procurement plans that are so well structured that they prevent the purchase of any low quality items. This means that many department heads, or those responsible for purchasing, will buy from places like Staples or Ikea, to get the job done quickly or affordably. However, these purchases simply add to UBC's overall waste, because they are low quality, and do not last nearly as long- despite using similar amounts of materials. With both a Furniture Planner and Buyer working within one department, this will ensure that the furniture that is most useful to UBC in the long term is acquired, and that no more junky furniture is purchased using UBC funds. While a Furniture Relocation Team may be necessary, depending on the capacity of the UBC Building Operations, or the success of using an external mover, this element may not be necessary. This is something that will need to be determined once this phase is reached, depending on how successful the moving of furniture has been in the previous two phases. If there is an off campus storage location for surplus furniture to be managed by the Furniture Assistants(s), this team or an external group would be necessary as Building Operations does not handle off campus moves.

See Appendix VII-d for more specification of the tasks of each role.

## 7. Business Case

The table below demonstrates costs and savings for UBC as a whole.

### Phase One- Costs per year

	Cost	Savings
Warp It Program	(\$8,300)	
Furniture Coordinator Salary	(\$52,000-80,000)	
Estimated money not spent/savings		\$450,000
Savings from decreased landfill fees		+
<b>TOTAL</b>		<b>\$361,700</b>

It is key to note a few assumptions included here:

- The value for the salary of a furniture coordinator is full time
- Assuming the furniture coordinator can increase the intake and redistribution of furniture by roughly 50%
- Assume highest values of all ranges presented

### Phase Two- Costs per year

	Cost	Savings
Warp It Program	(\$8,300)	
Warp It Upgrade Costs	(\$400-2,000)	
Furniture Coordinator Salary	(\$52,000-80,000)	
Furniture Planner Salary	(\$52,000-80,000)	
Furniture Assistant(s) Salary	(\$15,300)	
Rented Storage Facility	(\$216,000)	
Increased moving fees	+	
Money not spent/savings		\$600,000+
Savings from decreased landfill fees		+
Money from Furniture Assistant(s) sales		+
<b>TOTAL</b>		<b>\$198,400</b>

Assumptions:

- Assume 20 hours per week, and \$17 per hour- Furniture Assistant Salary
- Storage: \$18,000 per month (216,000 per year)- 600 square feet @ \$30/sq ft
- Assume that increase in department capacity increases intake and redistribution of furniture by a minimum of 33%
- Assume highest values of all ranges presented

### Phase Three- Costs per year

	Cost	Savings
Warp It Program	(\$8,300)	
Furniture Coordinator Salary	(\$52,000-80,000)	
Furniture Planner Salary	(\$52,000-80,000)	
Furniture Assistant(s) Salary	(\$15,300)	
Departmental Manager Salary	(\$100,000-120,000)	
Furniture Buyer Salary	(52,000-80,000)	
Rented Storage Facility	(\$216,000)	
Increased moving fees	+	
Money not spent/savings		\$1,200,000+
Savings from decreased landfill fees		\$20,000+
Money from Furniture Assistant(s) sales		+
Savings from increased bulk purchases		+
<b>TOTAL</b>		<b>\$620,400</b>

#### Assumptions:

- All costs are per year
- Assume 20 hours per week, and \$17 per hour- Furniture Assistant Salary
- Storage: \$18,000 per month (216,000 per year)- 600 square feet @ \$30/sq ft
- Assume highest values of all ranges presented

#### Business Case Conclusions

Overall, it is clear that there would be substantial monetary value to implementing a system that allows UBC to reuse furniture, rather than buying new and disposing of items that have the potential for reuse. In the tables shown above there are a number of values left blank, and this is because it is too difficult to provide a solid estimate for these line items given the available data. Despite undefined values, the possibility of fluctuation in salaries and uncertainty regarding the exact amount of items that will be saved, we are confident that this program would be able to offset its costs with its overall value of savings for UBC. The FP Unofficial Pilot is estimated to have saved roughly 10% of office furniture on campus, and given that the value of these items would have been over \$300,000 if purchased new, there is the potential for UBC to save up to \$3,000,000 by preventing unnecessary purchasing of new items. Therefore, the overall “money not spent savings” values in the tables above are extremely conservative, and there is potential for much greater total savings. Additionally, the costs for the storage facility and the furniture assistants would fall quite substantially overtime. This is because as UBC begins centralizing more purchase, and prioritizing the purchase of high quality and flexible items, there will be fewer items that the Furniture Coordinator would not be able to utilize in future projects. Therefore, we can expect that costs would fall, while there is a potential for

much greater savings, confirming that this project would easily be value adding for UBC. As the project progresses, Warp It would allow an accurate tracking of overall savings and would help to support this business case overall.

The challenge with the overall “savings” is that Facilities Planning would not itself be seeing the savings within its budget, despite the fact that it is paying the salaries and allocating the necessary resources for this program to run. It would be departments all across campus that would be saving, by utilizing reused furniture rather than purchasing new. Additionally, Building Operations would see savings from the decreased amount of items sent to the landfill. However, these units would not be contributing to the resources that operate the program. This means that facilities planning would have to front the overall cost, knowing that the savings would not be seen within their budget, which minimizes the motivation for initiating such a project. In order to make this a more feasible endeavor for Facilities Planning, there are a few options to consider:

- New furniture surcharge: An extra fee on purchases departments make for new furniture, that could be allocated to Furniture Reuse.
- Sales of non-inventory items: Items that would not be kept in the Facilities Planning Inventory could easily be sold to external groups or individuals to generate funds to cover costs.
- Increase fees of furniture disposal: Have an additional fee implemented on furniture items sent to the landfill, that could help in funding furniture reuse.
- Annual Department Fee: All departments pay a small annual fee to have access to the furniture reuse program.
- Selling reused items to departments: Charge small fees to items that are reusing items, rather than purchasing new.

Each of the above suggestions have benefits and downfalls, but these options are important to consider so that UBC can achieve the goal of not sending office furniture to the landfill in an equitable manner.

### 8. Overcoming the Challenges of Furniture Reuse at UBC

The chart below outlines how the phases shown above mitigate the influences on campus that have challenged the ultimate goal of preventing furniture from being sent to the landfill. For those that are not directly mitigated within the outlined process, suggestions are included, to ensure that the influencing factors do not prevent UBC from achieving this valuable goal.

Influence	Mitigation
Lack of storage on campus	Continued use of decommissioned spaces for FP Inventory, and renting an additional space off campus to prevent surplus furniture from being sent to the landfill.

Variations in procurement across departments	Centralization of purchasing, seen in Phase 3.
Lack of item inventory	Increased purchase tracking through the Furniture Buyer role and records.
Lack of disposal tracking	Improved Surplus Asset Form/system for declaring the surplus furniture each department is disposing of and ensuring that it is mandated through Policy UP3 and the services provided by the Furniture Services Department. Tracking of reused items through Warp It.
Fiscal year-end spending	Clause could be incorporated into Policy FM2 (UBC's Purchasing Policy) to prevent departments from making unnecessary purchases, simply to maintain their budget.
Policy UP3	Both Policy UP3 & FM2 must be updated to make sure all pieces are relevant, and that there are clear processes in place so that furniture reuse is prioritized. Reuse must be a lense that is applied to both policies when being reworked.
Time cost	Use of Warp It and storage for surplus furniture.
Cost of high quality furniture	Economies of scale that can be achieved with centralized purchasing via the Furniture Buyer.
Culture	Policy alterations, and increased communications regarding Warp It and the ultimate goal of no office furniture to the landfill.
Shifting trends	Large focus on flexibility of items when designing spaces and making purchases moving forward. Find other uses for the items that are becoming less relevant.
Lack of centralization	Furniture Services Department- Furniture Planner & Buyer.
Variability in delivery timeline	Furniture Relocation team or the use of external contracted movers, to overcome the capacity issues that are faced by the Building Operations labor team.
Lack of paid work to facilitate Reuse	The Furniture Services Unit would help greatly in the reuse of furniture on campus, however many more individuals would be needed if UBC plans to ensure items such as housing furniture and lab equipment can be reused.

## 9. Conclusion

After months of data collection, interviews and reviewing the Warp It platform, our overall recommendations focused on the use of an online platform to its full potential, updating UBC policies, hiring a person to be responsible for the Reuse program, identifying more storage, and

improving the tracking of surplus items. These recommendations almost exactly parallel the recommendations that were made within the 2016 SEEDS report, written by Ina Tessnow (Tessnow, 2016). This demonstrates that UBC has had majority of the necessary solutions for around three full years now, and has made no true progress on implementation. UBC can not continue to spend time, resources and energy without any progress toward a long term solution, that allows the institution to save thousands of pieces of furniture from being sent to the landfill annually.

In 2018 alone, it is estimated that 400 tonnes of furniture were sent to the landfill, costing over \$40,000 in landfill fees. However, in the unofficial FP Pilot project, it became clear that with someone responsible for the task of furniture reuse, we could see hundreds of pieces of furniture saved, which could prevent UBC from spending hundreds of thousands of dollars on new equipment. This now needs to be implemented in an official capacity on a wider scale so that UBC is able to save more than the estimated 16% of furniture items, that is currently saving (Appendix II). If UBC does not allocate substantial human resources to the goal of reuse, we will continue to see only a few hundred items saved each year, where thousands of items become unwanted, and end up in the landfill.

While I believe the phased approach outlined would be an ideal system for moving forward, it is not necessary that this exact plan be executed. That being said, it will be paramount that core changes outlined in section four do take place, so that the challenges identified on campus, can be overcome. These next steps include strong initiation of Warp It, Policy UP3 & FM2 updates, hiring a Furniture Coordinator, increased storage options and improved tracking of surplus items. Because UBC has the goal of an 80% diversion rate, the institution has the responsibility to initiate these steps, given that we know limited office furniture is being salvaged on campus.

The research undertaken for this report confirms the conclusions on the 2016 report. It has provided estimates on how much furniture is being wasted, and the overall value to UBC of reusing such pieces. With one person responsible for an unofficial pilot, we know that UBC prevented substantial landfill waste, that saved UBC \$300,000 in money not spent. Based on the developed business case, expanding this program would allow UBC to increase monetary savings and benefits would continue to outweigh the costs throughout all three phases. Now, all that is left is for UBC to decide if it is serious about its sustainability goals, such as the Zero Waste Action Plan.

## Appendices

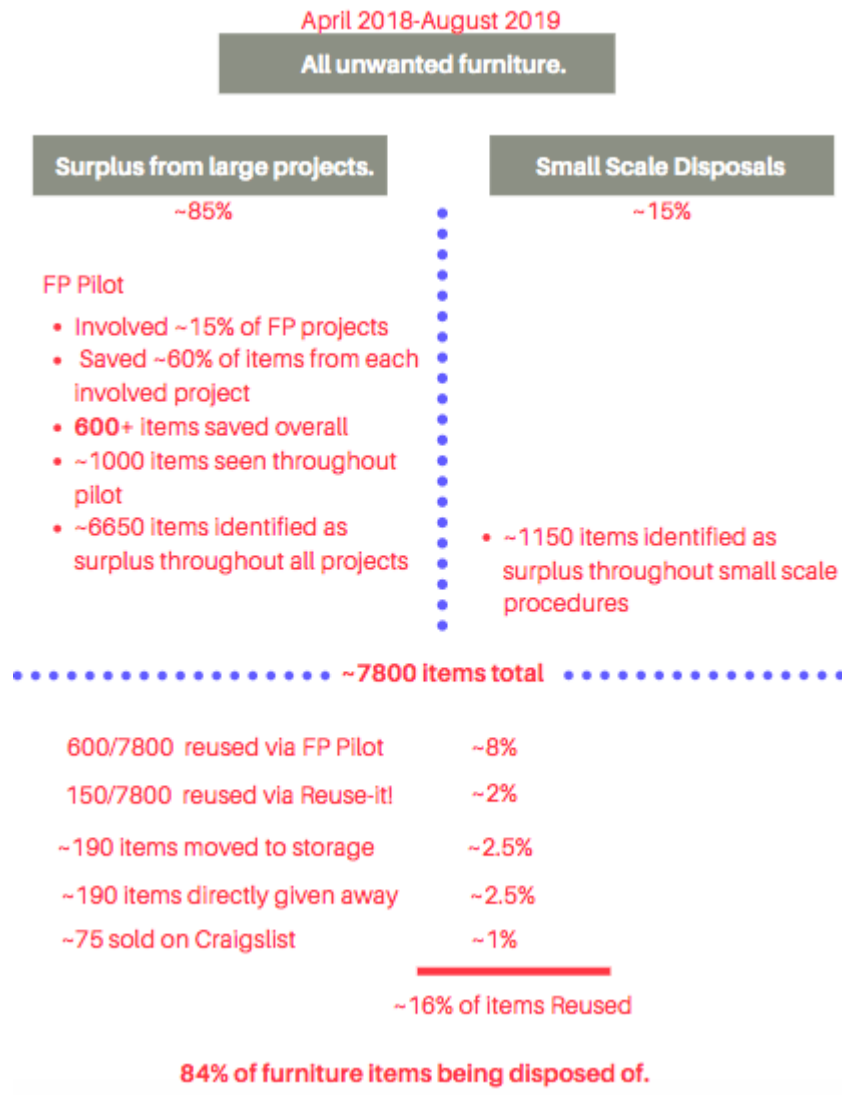
### Appendix I: Summary of Related Projects and Reports

Report	Year Published	Purpose	Summary
Office Furniture Reuse at UBC (SEEDS)	2019	Determine how UBC can work toward becoming an institution that does not buy 'new' office furniture, and to assess how Warp It can help achieve this goal.	See the table of contents.
Melt Collective: Proposing Furniture Leasing as a Sustainable Business Model (SEEDS)	2018	Comm 468M Project; Melt Collective product recommendation that is sustainable and economically viable.	Complete business proposal for Melt Collective, in order to begin leasing furniture. Including marketing tactics, implementation etc.
Reuse of Surplus Furniture at UBC (SEEDS)	2016	The project aims at reducing the amount of landfill waste by reusing surplus furniture.	UBC Processes for asset disposal, ideas from past experiences, best practices based on other universities, recommendations, potential partners and optimal scenario.
GSAB Garage Sale	2014	Summarize the actions taken to execute the GSAB Garage Sale.	Process, learnings and outcomes.
Furniture Reuse Enterprise (SEEDS)	2009	Outlined an entire business model for "Furniture Reuse Enterprise."	Current UBC Operations, market research, marketing plan, operations, etc.
SERF Shop	2006	Recommended business model	Summary of SERF at the time, suggestions on what business model to utilize moving forward, financial model outlines and recommendations.



## Appendix II: Estimate of Items Saved April 2019-August 2019

As there is limited data officially collected by any UBC departments regarding the disposal of specific item categories, it is challenging to know the exact quantity of items that become unwanted at UBC annually, and of that what exactly is reused and what is disposed of. This gives an estimate of these values, based on the reuse data collected from April 2018-August 2019.



From the above, the only values that are certain are the 600 items that the FP Pilot was successfully able to reuse, as well as the 150 furniture items that were claimed via Reuse-it! The other values are estimated based on qualitative information gathered via interviews, and what Building Ops has estimated was disposed of in 2018 (see below).

### **Appendix III: Building Operations Estimations**

As there is a lack of data regarding exactly how much furniture is disposed of on campus, Building Operations came up with estimates for 2018 to provide background on what quantify of furniture goes to the landfill. To summarize:

MRF site attendants track all waste that go into the facility.

Original data is based on est. cubic yards, and then he estimate the weight. In 2018 there were 10,600 cubic yards of waste- construction wood scrap waste and garbage sent to the landfill. Then converted into pounds using various estimates: 3,000,400 pounds of waste overall.

Based on the surveying of MRF site attendants, it was believed that  $\frac{1}{4}$  of the quantity disposed of was furniture.

Therefore, approximately 400 tonnes, or 750,100 pounds of furniture was disposed of in 2018.

Costs \$16.07/cubic yard to dispose at the landfill.

Since 10,600 cubic yards of waste overall, and estimated that  $\frac{1}{4}$  is furniture, this means approximately \$42,585 was spent on the disposal of furniture in 2018. This is a cost that could be avoided by ensuring items are reused, and is also a cost that is not incorporated in the fees charged to departments for the disposal services.

### **Appendix IV: Policy UP3 Detailed Summary**

#### Policy UP3:

1. Renovations and Demolitions plans are declared to Facilities Planning and Project Services- project is organized by these departments. Items to be disposed of are identified early in the process.
  - a. This means, if an office is moving or a department is changing, that Facilities Planning and Project Services is made aware of the move, *as well as* the items that are surplus.
2. Administrative head of a department can declare the assets as surplus
3. These materials determined to be surplus, are first made available to the Administrative head, and then to the Dean.
4. Surplus materials purchased with any source of funds can only be removed from campus under the authority of the Director of Supply Management.
5. If Administrative head or the Dean cannot find a new home for the materials, and cannot find another department to make use of them, they may then be disposed of.
6. When SERF existed: All surplus assets were to be temporarily stored at the SERF facility- this is where disposal decisions were made, based on the recommendation of the responsible administrative head of unit. At this time, items were resold from the SERF facility.
7. When items are “released” from one department, this priority must be followed:
  - a. Within UBC: other department, office, faculty etc.
  - b. Disposal or external Public Institution

- c. If these options are exhausted, item may go to: an individual, or charity.

### **Appendix V-a: Large Projects Summary**

1. Renovations, demolitions and moves are declared to Facilities Planning and Project Services by the department which is hosting the project.
2. Surplus items *may* be identified by the Department Administrator, or individual in a parallel position, at various points throughout the process. However, there are numerous cases when these items are merely left for the next group, in hopes that they will be used.
3. Surplus items may be:
  - i. Stored somewhere if item is valuable enough and likely to be used in the future, if space allows, OR
  - ii. Posted on Reuselt, OR
  - iii. Offered within department via email, OR
  - iv. Offered to other departments via email
  - v. Taken by individual within the department OR
  - vi. Sold externally, OR
  - vii. Disposed of through building ops services (most common).

### **Appendix V-b: Small Projects Summary**

For smaller scale or one off items that are no longer needed or wanted, there are many ways in which the disposal can be handled, depending on the person responsible. Overall, the common ways we may see an individual handle a smaller-scale disposal are as follows:

1. Contact Department Admin
  - a. They require that the item remains where it is.
  - b. Administrator will coordinate the disposal:
    - i. Storage
    - ii. Another office
    - iii. Another UBC Department/ Reuse-it!
    - iv. Craigslist
    - v. Landfill
2. Individual moves the item on their own, and commonly ends up:
  - a. In a hallway
  - b. In a loading bay or other miscellaneous location
3. Individual rehomes the item on their own:
  - a. Sends email out to contact list
  - b. Posts on Reuse-it!
  - c. Finds a new office within the department to use an item

This process is simply meant to demonstrate that individuals may have various understandings of what can be done with items in their working space that are no longer in use or wanted. Given the variety of understanding that exists, this process rarely follows anything similar to what is outlined in Policy UP3, and the result is a number of items being disposed of.

### **Appendix V-c: Facilities Planning Unofficial Pilot Summary**

1. FP Planner is contacted regarding the surplus items
  - a. Items may be identified through a project (renovation, demolition or move)
  - b. Items may also be identified by a department on a smaller scale (less common)
2. FP Planner assesses the furniture and determines if it is:
  - a. Fit for the FP Inventory OR
  - b. Not suitable for the inventory
3. FP Inventory is:
  - a. Stored short term OR
  - b. Utilized immediately:
    - i. In a project taking place (ie: renovation of a space needing new furniture) or,
    - ii. By a department that reached out looking for something specific (ie: 5 chairs for temporary graduate students).
4. Items not suitable for the inventory are left to the responsibility of the department with current ownership of the items.

### **Appendix V- d: Building Operations Process Summary**

1. Service request is placed
  - a. Expected that request is submitted 2 weeks before pick up date
  - b. Every department's Administrator has the authority to submit a client paid service request. People within the department will have to go to this individual so that the SR can be submitted.
  - c. Facility manager is also somewhat involved in the process as they have to provide approval.
2. Sub Head within the shop will schedule pick up time
3. Items picked up by Building Ops laborers (can vary from the scheduled pick up time)
  - a. Many items are not picked up at the scheduled time, some are picked up late and sometimes pickup is attempted prior to the allotted time.
4. Items go to Material Recovery Facility (MRF)
5. Items sorted into five categories: wood, metal, cardboard, miscellaneous and gypsum
6. Items will be picked up by external group, or taking to appropriate location by Building Ops
  - a. EcoWaste (wood)
  - b. Allied Metals (metal)
  - c. Cascades Recovery (cardboard)
  - d. Transfer Station or Landfill (other)
7. Department charged for the moving service

## Appendix VI: Surplus Furniture vs. FP Inventory

This appendix outlines the common reasons why items are not selected for the FP Inventory and remain surplus furniture.

Reason	Example
Aesthetic	le: Purple filing cabinet: very unlikely to be accepted in a department renovating, given that filing cabinets are already becoming less useful due to digital records, and the color would not match standard cabinets.
Functionality	le: Large wooden desk: given that numerous spaces are being set up as shared work areas, massive desks are in much less demand. le: Big clunky chairs: difficult to move and not easy to fit in all spaces.
Disassembled	le: Item was disassembled when moved out of one space, and unclear how the item could be put back together, or where all pieces are. Given the time this would require to sort out, item is not inventoried.

## Appendix VII-a: Facilities Planning Current Reuse Tasks- Unofficial Pilot

Outlined by Facilities Planner

### CURRENT PROCESS/TASK ASSIGNMENTS

Dept	Assigned to	Task #	Task
varies	Administrator		submit SR to move items within department (no project)
varies	Administrator		coordinate with UBC movers (no project)
varies	Administrator		coordinate with UBC carpenters (no project)
varies	Administrator		advertise surplus furniture on Reuse-it (rare)
varies	Administrator		obtain new furniture from external furniture vendor (no project)
varies	Administrator		coordinate new furniture installation (no project)
Ext	external Relocation Crew		dismantle furniture systems
Ext	external Relocation Crew		reinstall furniture systems
Ext	external Relocation Crew		dispose of surplus furniture (projects>\$50K)
Ext	external Relocation Crew		relocate furniture (projects>\$50K)
FP	Facilities Planner	1	track incoming requests
FP	Facilities Planner	2	identify potential reuse opportunities
FP	Facilities Planner	3	respond to requests for furniture inspections
FP	Facilities Planner	4	inspect and grade unwanted furniture
FP	Facilities Planner	5	input inventory furniture into inventory platform
FP	Facilities Planner	6	match unwanted and inventory furniture to requests
FP	Facilities Planner	7	match inventory furniture to upcoming projects
FP	Facilities Planner	8	determine storage locations for inventory furniture
FP	Facilities Planner	9	tag furniture
FP	Facilities Planner	10	coordinate with external Relocation Crew
FP	Facilities Planner		coordinate with Administrator (requests)
FP	Facilities Planner		coordinate with external Move Coordinators (projects>\$50K)
FP	Facilities Planner		coordinate with Project Coordinators
Ext	Interior Design consultant		specify new furniture (projects)
PS	Project Coordinator		coordinate with external Relocation Crew (projects>\$50K)
BldgOps	Project Coordinator		coordinate UBC movers/move scheduler (projects<\$50K)
BldgOps	UBC Carpenters		dismantle large items (no project, projects<\$50K)
BldgOps	UBC Carpenters		reassemble large items (no project, projects<\$50K)
BldgOps	UBC Movers		relocate small items (no project, projects<\$50K)
BldgOps	UBC Movers		dispose of surplus furniture (no project, projects<\$50K)

**Appendix VII-b: Proposed Phase One Tasks & Positions**  
*Outlined by Facilities Planner*

**PHASE 1 PROCESS/TASK ASSIGNMENTS**

**add Furniture Coordinator position to Facilities Planning**

Dept	Assigned to	Task #	Task
varies	Administrator		submit SR to move items within department (no project)
varies	Administrator		coordinate with UBC movers (no project)
varies	Administrator		coordinate with UBC carpenters (no project)
varies	Administrator		advertise surplus furniture on Warp It (may need assistance)
varies	Administrator		obtain new furniture from external furniture vendor (no project)
varies	Administrator		coordinate new furniture installation (no project)
Ext	external Relocation Crew		dismantle furniture systems
Ext	external Relocation Crew		reinstall furniture systems
Ext	external Relocation Crew		dispose of surplus furniture (projects>\$50K)
Ext	external Relocation Crew		relocate furniture (projects>\$50K)
FP	Facilities Planner	2	identify potential reuse opportunities
FP	Facilities Planner	7	match inventory furniture to upcoming projects
FP	Facilities Planner	8	determine storage locations for inventory furniture
FP	Facilities Planner		coordinate with external Move Coordinators (projects>\$50K)
FP	Furniture Coordinator	1	track incoming requests
FP	Furniture Coordinator	3	respond to requests for furniture inspections
FP	Furniture Coordinator	4	inspect and grade unwanted furniture
FP	Furniture Coordinator	5	input inventory furniture into inventory platform
FP	Furniture Coordinator	6	match unwanted and inventory furniture to requests
FP	Furniture Coordinator	9	tag furniture
FP	Furniture Coordinator	10	coordinate with external Relocation Crew
FP	Furniture Coordinator		coordinate with Administrator (requests)
FP	Furniture Coordinator		coordinate with Project Coordinators
Ext	Interior Design consultant		specify new furniture (projects)
PS	Project Coordinator		coordinate with external Relocation Crew
BldgOps	Project Coordinator		coordinate with UBC movers (projects<\$50K)
BldgOps	UBC Carpenters		dismantle large items (no project, projects<\$50K)
BldgOps	UBC Carpenters		reassemble large items (no project, projects<\$50K)
BldgOps	UBC Movers		relocate small items (no project, projects<\$50K)
BldgOps	UBC Movers		dispose of surplus furniture (no project, projects<\$50K)

## Appendix VII-c: Proposed Phase Two Tasks & Positions

*Outlined by Facilities Planner*

### PHASE 2 PROCESS/TASK ASSIGNMENTS

create Furniture Services Unit w/ additional positions, centralize furniture specifying, begin to sell/rehome surplus furniture

Dept	Assigned to	Task #	Task
varies	Administrator		submit SR to move items within department (no project)
varies	Administrator		coordinate with UBC movers (no project)
varies	Administrator		coordinate with UBC carpenters (no project)
FS	Furniture Assistant		advertise surplus furniture on Warp It and other platforms
FS	Furniture Assistant		organize surplus furniture in surplus storage space
FS	Furniture Assistant		oversee/arrange for pickup of surplus items (public/charity etc.)
FS	Furniture Assistant		take/record payment for surplus items
FS	Furniture Coordinator	1	track incoming requests
FS	Furniture Coordinator	3	respond to requests for furniture inspections
FS	Furniture Coordinator	4	inspect and grade unwanted furniture
FS	Furniture Coordinator	5	input into inventory
FS	Furniture Coordinator	6	match items to requests
FS	Furniture Coordinator	9	tag items
FS	Furniture Coordinator	10	coordinate with contracted relocation crew
FS	Furniture Coordinator		coordinate with Administrator (requests)
FS	Furniture Coordinator		coordinate with Project Coordinators
FS	Furniture Coordinator		schedule/supervise contracted Relocation Crew
FS	Furniture Coordinator		supervise Furniture Assistants
FS	Furniture Coordinator		coordinate with UBC movers
FS	Furniture Planner	2	identify potential reuse opportunities
FS	Furniture Planner	7	match inventory furniture to upcoming projects
FS	Furniture Planner	8	determine storage locations for inventory furniture
FS	Furniture Planner		assist Admin to obtain new furniture from external furniture vendor (no project)
FS	Furniture Planner		coordinate with furniture vendor
FS	Furniture Planner		introduce furniture standards (where able)
FS	Furniture Planner		coordinate with external Move Coordinators (projects >\$50K)
FS	Furniture Planner		specify additional furniture (projects)
PS	Project Coordinator		coordinate with Furniture Coordinator (projects >\$50K)
BldgOps	Project Coordinator		coordinate with Furniture Coordinator (projects <\$50K)
FS/Ext	Relocation Crew (contracted)		dismantle furniture systems
FS/Ext	Relocation Crew (contracted)		reinstall furniture systems
FS/Ext	Relocation Crew (contracted)		relocate furniture
BldgOps	UBC Carpenters		dismantle large surplus furniture (ready for relocation to surplus storage)
BldgOps	UBC Movers		relocate surplus furniture to surplus storage
BldgOps	UBC Movers		dispose of disposal furniture

## Appendix VII-d: Proposed Phase Three Tasks & Positions

*Outlined by Facilities Planner*

### PHASE 3 PROCESS/TASK ASSIGNMENTS

#### centralize furniture purchasing

Dept	Assigned to	Task #	Task
varies	Administrator		submit SR to move items within department (no project)
varies	Administrator		coordinate with UBC movers (no project)
varies	Administrator		coordinate with UBC carpenters (no project)
FS	Furniture Assistant		advertise surplus furniture on Warp It and other platforms
FS	Furniture Assistant		organize surplus furniture in surplus storage space
FS	Furniture Assistant		oversee/arrange for pickup of surplus items (public/charity etc.)
FS	Furniture Assistant		take/record payment for surplus items
FS	Furniture Buyer		facilitate furniture purchases (centralized system)
FS	Furniture Coordinator	1	track incoming requests
FS	Furniture Coordinator	3	respond to requests for furniture inspections
FS	Furniture Coordinator	4	inspect and grade unwanted furniture
FS	Furniture Coordinator	5	input into inventory
FS	Furniture Coordinator	6	match items to requests
FS	Furniture Coordinator	9	tag items
FS	Furniture Coordinator	10	coordinate with contracted relocation crew
FS	Furniture Coordinator		coordinate with Administrator (requests)
FS	Furniture Coordinator		coordinate with Project Coordinators
FS	Furniture Coordinator		schedule/supervise Relocation Crew
FS	Furniture Coordinator		supervise Furniture Assistants
FS	Furniture Coordinator		coordinate with UBC movers
FS	Furniture Planner	2	identify potential reuse opportunities
FS	Furniture Planner	7	match inventory furniture to upcoming projects
FS	Furniture Planner	8	determine storage locations for inventory furniture
FS	Furniture Planner		assist Admin to obtain new furniture from external furniture vendor (no project)
FS	Furniture Planner		coordinate with furniture vendor
FS	Furniture Planner		maintain furniture standards (where able)
FS	Furniture Planner		coordinate with external Move Coordinators (projects>\$50K)
FS	Furniture Planner		specify additional furniture (projects)
PS	Project Coordinator		coordinate with Furniture Coordinator (projects >\$50K)
BldgOps	Project Coordinator		coordinate with Furniture Coordinator (projects<\$50K)
FS	Relocation crew		dismantle furniture and furniture systems
FS	Relocation crew		relocate and reassemble furniture and furniture systems
BldgOps	UBC Movers		dispose of disposal furniture



**Appendix VII-e: Money Not Spent Estimates- FP Informal Pilot Project**  
*Outlined by Facilities Planner*

ITEM DESCRIPTION	SIZE (Info only)	ASSIGNED COST	Column	SIMILAR TO
bookcase - 4 shelf	36"L x 15"D x 60"H	300		G&T Innovations
bookcase - 5 shelf	36"L x 15"D x 74"H	350		G&T Innovations
chair - Acton stackers		100		
chair - club		450		inexpensive version
chair - folding		15		Staples
chair - guest, upholstered w/ castors		350		Global, Sidero w/ arms
chair - guest, upholstered w/ glides		300		Global, Sidero w/ arms
chair - meeting		450		Global, Graphic Posture
chair - task		650		Steelcase, Amia
couch - 2 seater		750		estimate
desk - 1 piece 'L' w/ adj legs		700		IKEA - no ped
desk - 2 piece 'L' w/ ped	30" x 60" w/ 42" return	950		Bush Business Furniture, 400 series
desk - 3 piece 'L' shape	7'-0" x 7'-0" total	1200		Bush Business Furniture, 400 series
desk - no ped	24" x 72"	500		Bush Business Furniture, Cubix
desk - TA	24-30" x 45-48"	450		Global, Genoa
	36" x 36" corner			
desk - w/ angled cnr	2 returns 36"L x 24"D	1000		Bush Business Furniture, Cubix estimate
desk - w/ pedestal	66"L x 30"D	600		estimate
dolly - folding chair		300		Staples
lateral file - 2 dwr	18" x 36"	500		U-Line
lateral file - 3 dwr	18" x 36"	600		U-Line
lateral file - 4 dwr	18" x 36"	800		U-Line
lockers - full height (double)		500		Kleton
lockers - half height (double)		600		Kleton
lockers - half height (single)		275		Kleton
pedestal - 3 dwr		450		estimate
pedestal - mobile		400		estimate
seating - couch, 2 person		750		estimate
seating - couch, 3 person		900		estimate
seating - sectional	30" x 30"	800		estimate
shelving - rack	30" wide	150		estimate
storage - cabinet	33"L x 17"D x 37"H	450		estimate - wood finish
surface - w/ ped	24" x 48"	700		estimate
systems furniture - panel	42" x 60"	800		estimate
table - classroom	24" x 72"	250		estimate
table - coffee	24" x 24"	350		estimate
table - 'H' legs	30" x 60"	375		Global, Ionic
table - meeting	42" x 96"	1000		Bush Business Furniture estimate
table - rectangular	24" x 60"	400		Bush Business Furniture, 400 series
table - rectangular	30" x 72"	400		Global, Ionic
table - rectangular	30" x 60"	375		Global, Ionic
table - rectangular	30" x 48"	250		Bestar, estimate
table - round	30" dia	250		Heartwood
table - round	36" dia	350		Global
table - round	42" dia	400		Heartwood estimate
table - round	54" dia	500		Heartwood estimate
table - square	30"	300		estimate
table - standing height	42"L x 24"D	300		estimate
workstation	72" x 72" w/ ped	1000		Global, Ionic
2019-11-082019-11-082019-11-08	72" x 72"	2800		estimate for Haworth or similar, no upper
workstation - VPFO	72" x 72"	1500		estimate
workstation - VPFO	72" x 96"	1800		estimate

Assigned values are based on the unit costs from a variety of sources and selected lower values to account for the fact that UBC might likely get a discount on things.

## Appendix VIII: Key Takeaways from Faculty Interviews

Faculty	Key Takeaways
<b>Sauder</b>	<ul style="list-style-type: none"> <li>- Generally owns high quality furniture as they have a furniture budget and they have a store of furniture on hand, as a result of having a storage room onsite.</li> <li>- Facility staff (2) will post items on Reuselt!, but generally only when storage space is getting full. (Staff generally don't know about Reuselt, only facility staff utilize).</li> <li>- There have been times in the past where they have gotten permission to give items to staff to take home</li> <li>- Would never consider putting used furniture in a newly renovated or opened space.</li> <li>- Occasionally give items to the charity CleanStart BC- pay to have items taken away</li> <li>- PROCUREMENT: there is a process within the office               <ul style="list-style-type: none"> <li>- Less than \$3500 you can go buy it</li> <li>- Up to \$75,000 you go to officer</li> <li>- Over this you go to someone for the RFPs (look at the must have, evaluation process)</li> <li>- UBC has preferred vendors to ensure that everyone gets the same rate</li> </ul> </li> <li>- Building operations is utilized for disposing of furniture.</li> </ul>
<b>Math</b>	<ul style="list-style-type: none"> <li>- A "poor" faculty, lacking a furniture budget. Therefore, they have always inherited furniture from other departments.</li> <li>- Have a constant need for temporary chairs and spaces for grad students that are only here for short periods of time.</li> <li>- Have a storage area full with old furniture, but the storage room sees numerous rats, making most items stored there unusable.</li> </ul>
<b>Law</b>	<ul style="list-style-type: none"> <li>- Lia is the Head of HR &amp; Operations in charge of orders and is not a Building Operations Facilities Manager</li> <li>- Have small storage area, but there is no inventory as it is mostly just bits and pieces- ie: someone wants the corner of the desk removed, they will keep this in storage</li> <li>- Bookshelves are an item that no one seems to want anymore</li> <li>- Highly systematic process for purchasing new/ replacement furniture. Generally, they connect with the interior designer who orders from the supplier, and it will look the same, they just follow the manual.               <ul style="list-style-type: none"> <li>- When Allard Hall was rebuilt, this system was created and is highly standardized for both buildings (on UBC campus and downtown location)</li> </ul> </li> <li>- As Lia is head of HR and Operations, she does not have time to organize an inventory, upload on Reuse-it! and then coordinate the pickup.</li> <li>- Mention of the unionization of Building Op movers and the delays that this can cause in task that could have otherwise been done by furniture user themselves.</li> </ul>

<p><b>APSC- Office Coordinator</b></p>	<ul style="list-style-type: none"> <li>- Office coordinator position is not solely catered to facilities management or furniture, this is simply one element of many.</li> <li>- Not always buying new, but in their position right now they have been slowly upgrading old archaic furniture and they are flipping over into what will serve for the next 15-20 years.</li> <li>- Looking for the lowest cost option for highest functionality when making a purchase.</li> <li>- UBC's preferred vendor items that are the highest quality are extremely expensive, and therefore lower quality options are often looked to for the sake of a better purchase price</li> <li>- If items could be retrofit this would be an option they considered, but they don't have a staff of carpenters to rebuild things from existing materials.</li> <li>- Movement from single to dual occupancy or triple occupancy in all offices has created a need for new and more functional furniture.</li> <li>- Seismic retrofitting and repairs increases the need and desire for new and more flexible furniture.</li> <li>- They have utilized Reuse-it! but few people want the large old desks and other more archaic items they are trying to get rid of.</li> <li>- Internal processes for moving and disposal is already really complex with building ops and it takes a while to have items taken away, but often they don't have the capacity to keep the item for the duration the pick up may take.</li> <li>- Timeline is always a hurdle</li> <li>- Payment for items is a huge pain, because no one wants to go through UBC's official system for transferring money or payments.</li> </ul>
<p><b>APSC- CEME</b></p>	<ul style="list-style-type: none"> <li>- Have utilized Reuse-it! But people rarely want the items that they have, and they have never been able to find something that would suit their needs.</li> <li>- Online platform is not as effective as SERF because there is nowhere for items to be stored, and to form a larger inventory.</li> <li>- Renovations are normally executed on a one or two month timeframe. Even if you have items you want to keep, there may be nowhere for them to go in the meantime.</li> <li>- Space is their biggest issue as they need to fit more people into the space they have and there is no storage. This has caused their department to dispose of many functioning items.</li> <li>- Removal of large desks to increase space</li> <li>- Many of the university suppliers have long turnaround times- this is another reason departments may look to the lower quality options.</li> <li>- Some purchases made with grant money will come from vendors that have not been approved ie: Ikea. This is a challenging issue to monitor.</li> <li>- Occasionally movers know that someone is looking for something and will rehome.</li> <li>- UBC processes are unclear and make it difficult to rehome items: <ul style="list-style-type: none"> <li>- Writing off items is challenging, making resale difficult</li> <li>- Department is unable to write items off on their own</li> <li>- Protocol unclear</li> </ul> </li> <li>- Challenges with SERF: <ul style="list-style-type: none"> <li>- Utilized a lot of space</li> <li>- Accepted items that were not high value</li> <li>- No great wood recycling options in the Vancouver area</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>- Using Reuse-it! Becomes expensive with the requirement of using Building Ops moving team</li> <li>- Faculty members will rarely upload items themselves</li> <li>-</li> </ul>
<b>CHEM</b>	<ul style="list-style-type: none"> <li>- Various managers in the department have used Reuselt, generally for desks.</li> <li>- Reuse-it! was recently used in the rehomeing of a number of chairs.</li> <li>- Shared instrument facility, and a few other shared facilities exist within the department.</li> <li>- Issue of time for utilizing Reuse-it!</li> <li>- There is a challenge with getting people to buy high quality pieces because of the price.</li> </ul>
<b>PHARMACY</b>	<ul style="list-style-type: none"> <li>- Numerous challenges with filing cabinets and shelves</li> <li>- Sit stand desk is replacing the traditional desk</li> <li>- Challenges of research equipment- when purchased with the CFI or has been donated, it cannot be resold or moved off campus</li> <li>- NOW any equip they don't need, they ask within the faculty which offices want it <ul style="list-style-type: none"> <li>- First it is made available ONLY to the vaculty</li> <li>- Then they send an email to other faculties (they are often wanted) they either sell for cheap or for free OR post on Reuse-it!</li> <li>- If no one wants it, they put it on craigslist</li> <li>- If it is old they prefer to sell because it costs to throw away</li> </ul> </li> <li>- Computers are another item that have to be replaced frequently</li> </ul>
<b>EDUCATION</b>	<ul style="list-style-type: none"> <li>- Lack of storage forces disposal of a significant amount of furniture</li> <li>- Individual preferences motivate a number of purchases ie: ergonomics, not wanting to sit on a used chair</li> <li>- Unaware of Reuse-it! and directly emailed department managers to spread word of the items available</li> <li>- Most decisions are triggered by the preferences of faculty and staff</li> <li>- Have storage spaces in Scarfe, but they are widely spread out throughout the building</li> <li>- Renovations may be planned well in advance, but the furniture is not often thought of until the last minute.</li> </ul>

### Appendix IX: Key Takeaways from Department Interviews

Department	Key Takeaways
Building Operations	<ul style="list-style-type: none"> <li>- Cost of moving items is dependent on the amount of time it takes to move them and the technicality of it</li> <li>- Most submit an official service request, but occasionally Building Ops is contacted directly</li> <li>- A Sub Head coordinates the pick up times for all moving requests</li> <li>- The person that wants the item would pay for the service ie: item moving from Sauder to Math, means Math would pay</li> <li>- There are some limitations to making a moving request: only faculty and</li> </ul>

	<p>staff can put in the SR. Every dept has an administrator, who has the authority to put in a client paid service request. People go to the authority. Dept. Administrator or a delegate and the Facility Manager is involved in the process because they give the approval.</p> <ul style="list-style-type: none"> <li>- Request should be made two weeks in advance</li> <li>- There is not an official moving crew, there are a number of laborers that are responsible for various jobs on campus: snow removal, emergency response, etc. This is why moving cannot always be prioritized.</li> <li>- The miscellaneous category at the MRF is the category most furniture falls in. To be recycled, there must be less than 5% of a mixed material present. Ie: wood desk that has a few screws can be wood recycled (not deemed miscellaneous).</li> <li>- Only track the total # of service requests, but not what is picked up for each of these</li> <li>- Storage space in South Campus: Building Ops operated warehouse-facility manager coordinates what goes in and out. Looking at whole warehouse, quite a large portion is arts and theatre. The space they do manage is shared with a bunch of different groups Steven lee has a bit of space that he oversees Sean Mcgregor is the FM that coordinates who goes where and stores what. Not really used for furniture storing spaced- mostly operational materials.</li> <li>- Moves off campus could not be managed by Building Operations.</li> </ul>
<p>Project Services (PS)</p>	<ul style="list-style-type: none"> <li>- The planners from FP have a better knowledge about what is available, stored, may be thrown out (for general use rooms)</li> <li>- When it comes down to learning space renovation, PS organizes the removal and disposal of the items in there.</li> <li>- FP and PS are involved in all the same projects, FP find the space- they are involved in the initial stages more so than PS, and PS takes care of the design and construction</li> <li>- STAGES: <ul style="list-style-type: none"> <li>1. Planner identify the spaces</li> <li>2. Hire consultants to do the design work</li> <li>3. Tender the drawings, hire contractors</li> <li>4. Manage the process- all the meetings between the various partners and parties</li> </ul> </li> <li>- Who has the liability to empty the space? Furniture isn't supposed to be left behind, but it may be. Unless it is a SWING space, setting it up so it can be a permanent</li> <li>- No one in the office uses Reuse-it!</li> <li>- People in her department don't have the time to upload items to Reuse-it! It has to be done out of the goodness of someone's heart</li> </ul>
<p>Financial Operations</p>	<ul style="list-style-type: none"> <li>- Reuse-it! Falls within the responsibilities of Financial Operations</li> <li>- Elizabeth: used to be a sustainability coordinator and Reuse-it! UBC champion. The website est. in 2011. When Elizabeth came in they gave her the access because it had stopped. There is a mailbox that she had</li> </ul>

	<p>to organize.</p> <ul style="list-style-type: none"> <li>- I-waste-not is the vehicle that makes the exchanges behind Reuse-it!.</li> <li>- Financial Operations are responsible for the Surplus Declaration forms</li> <li>- Large drawback of Reuse-it! Is that there is no storage on campus</li> <li>- Lack of appropriate budget for sustainability projects, because being sustainable does cost money.</li> <li>- Only UBC emails can sign up for Reuse-it!</li> </ul>
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## Appendix X: Additional Warp It Information

### Potential Users

User Group	Ideal Warp It Use
Warp It Administrator(s) (Furniture Coordinator)	Facilities Planner and Furniture Coordinator- the individuals that will be responsible for rehomeing items to projects and uploading a majority of the content.
Department Administrators & Facility Managers	Key group of people identified on campus, that are responsible for the purchase and disposal of furniture. All of these individuals should have accounts and should be well versed in the overall furniture reuse system. They would upload any one-off items to be dealt with for their department to Warp It, and they would contact the Furniture Coordinator regarding projects in which they would like to dispose of furniture or require furniture. Requests for furniture could be done via Warp It.
Other Public Institutions	This is a group is a user due to the phrasing of Policy UP3. There is no list published by UBC that specifies who these groups are, or how many should be contacted regarding surplus assets. In order for these groups to have access to Warp It, they would have to pay for the service. Only charities and elementary schools are not subject to this fee.
Staff, Faculty, and Students	Initially, these users would only use Warp It to “shop,” and not to upload items to Warp It. This group could only claim items that were deemed “surplus furniture,” those items not useful to FP. This helps ensure that UBC is doing its best to reuse furniture purchased with funding, but does not take on any personal belongings. It would be expected that the items they are claiming are being taken to their homes, or off of campus. Would likely have to make a Warp It “community” for these users.
Other Individuals/ Community Members	These individuals would only ever be shoppers, and would never be granted the ability to upload personal items on the site. If CWL login was utilized, this user group likely could not exist. If a Warp It “community” was created for the above group, these individuals would likely be included.
Charities or Other Partners	These groups would only be shoppers, and would not be granted the ability to upload items to the UBC community platform. It may not be

	<p>necessary that they have access to Warp It, if there was instead a webpage with direct contacts. However, granting access would allow them to immediately see items available, and more easily request them. Charities have free access to Warp It, so it would be ideal to have them signed up.</p>
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Warp It Institutions

I was able to get in contact with the Warp It coordinators at the University of Edinburgh, the University of Birmingham and the University College London. Overall, these universities were using the platform in fairly consistent manners; greatly hands-off, with no alterations to the platform itself, and with minimal staff dedicated to the overall process. For the most part, these institutions had incorporated Warp It into the official disposal or procurement processes in some capacity. Another similarity, is that these institutions were not placing any limitations on the items that were allowable for upload. Overall, UBC would likely use the platform a bit differently given that the goal is to prevent office furniture from being disposed of, and this will require more hands on coordination. Based on discussions with the Warp It team, and these institutions, this platform should be sufficient for UBC’s specific needs.

**Appendix XI: Future Considerations**

- Increased data collection is necessary to make solid conclusions on the exact quantity and value of items being disposed of
- Development of an outline or pilot for the expansion to items outside office furniture (classroom furniture, Student Housing furniture, lab equipment, etc.)
- Building the capacity of external partners. See previous SEEDS project for initial suggestions & consider the capacity of Warp It.
- Communications Plan development to ensure Warp It is widely used by all necessary individuals and departments.
- Calculations of time expenditures and savings depending on model selected, especially with regards to time spent moving items.

**Appendix XII: Policy UP3 & FM2 Suggested Alterations**

Surplus Equipment Policy:

- Eliminate use of word recycle from places where it should read reuse. Recycle has implications of disposal attached.
- Reconsider the wording of the second sentence that reads “Secondary consideration is given to disposal or sales to other educational institutions, and third to external private sales.” This reads as though disposal can be prioritized above other types of reuse.
- The policy purposes should be altered so that they better reflect UBC’s sustainability values, as majority of the purposes right now reflect commercial values of market value, receiving credit etc.
- Consider making the Furniture Services Unit responsible for receiving claims of furniture disposal- ensures highest awareness of unwanted office furniture possible.

- Eliminate all mentions of S.E.R.F. considering the facility was decommissioned many years ago.
- Consider giving the furniture unit the responsibility of declaring items as surplus- to prevent this from taking place prematurely.
- Allow private sales to be a more accessible possibility, given that advertising to other public institutions is highly time consuming and often contributes to unnecessary disposal.
- Net proceeds of sales would be directed to the Furniture Services unit for office furniture.

Purchasing Policy

- Have a policy specific to office furniture, or any other areas UBC plans to expand to through the use of the Warp It tool; classroom furniture, lab equipment etc.
- Best value should be redefined to include by how long the item can be used on campus and how flexible the use is for other departments. Longevity needs to be a key consideration.
- More emphasis on the environmental principle into the policy as a whole.
- More clarity on how the Department of Supply Management is able to delegate purchasing responsibility, to ensure those without responsibility do not make purchases that are not the best value to UBC.

**Appendix XIII: Key Contacts**

NAME	DEPARTMENT & POSITION	ROLE	EMAIL
Elizabeth Kukley	Financial Operations	Key contact for financial operations, and provided key insight on the functionings of the Reuselt! Platform. Organizer for the GSAB Garage Sale.	elizabeth.kukely@ubc.ca
Alexey Baybuz	Financial Operations	Key contact for financial operations.	alexey.baybuz@ubc.ca
Kate West	Project Manager Project Services Infrastructure Development	Key contact for project services.	kate.west@ubc.ca
Tamas Weidner	Building Ops Manager, Municipal Services- Waste Management &	Key contact regarding waste management.	tamas.weidner@ubc.ca



	Garbage		
Calvin Cheung	Building Ops Manager, Municipal Services- Labour Division	Key contact regarding moving team.	calvin.k.cheung@ubc.ca
Jen Sheel	Building Ops Superintendent, Municipal and Construction Services	Building Ops lead, present at the project opening meeting.	jen.sheel@ubc.ca
Gareth O'Sullivan	Facilities, Administrative and Finance Coordinator Mathematics	Math Faculty contact.	facilities@math.ubc.ca
Amy Kao	Administrative Manager School of Kinesiology	Contact for the faculty of kinesiology, however no meeting took place.	amy.kao@ubc.ca
Ken Macfarlane	Director of Administration, Finance & Operations Chemistry	Chemistry contact.	kenmac@chem.ubc.ca
Lia Cosco	Administrator Allard School of Law	Key Contact for Law- HR & Operations.	cosco@allard.ubc.ca
Gerald Vanderwoude,	Assistant Dean of HR & Facilities ARTS Faculty	Faculty of Arts Contact, however no meeting took place.	amanda.greville@ubc.ca
Linda Tommasini	Director, Resources & Operations, Administration & Office Support Services Sauder School of Business	Sauder Contact.	linda.tommasini@sauder.ubc.ca
Ailish Statham	Special Projects and Office Coordinator Faculty of Applied Science   Dean's	APSC Contact.	ailish.statham@ubc.ca

	Office		
Vicky Baker	Project Manager, Asian Studies Department	Organizer of the GSAB garage sale, willing to support this project moving forward.	vicky.baker@ubc. ca
David Sequeira	Facilities Manager, Faculty of Education.	Contact for education.	david.sequeira@u bc.ca
Mr. Jamal Kurtu	Director, Operations & Facilities Management Pharmaceutical Sciences	Contact for pharmacy.	jamal.kurtu@ubc. ca
Jennifer Pelletier	Manager, Facilities and Technical Administration Mechanical Engineering	APSC contact for the MECE department..	jennifer@mech.ub c.ca jennifer.pelletier@ ubc.ca
Maija Norman	Asian Studies Administrator (Arts)	Contact for Asian Studies.	maija.norman@ub c.ca

## References:

Thank you to Interviewees:

1. Elizabeth Kukley (Financial Operations)
2. Alexey Baybuz (Financial Operations)
3. Kate West (Project Services)
4. Tamas Weidner (Building Ops Manager, Municipal Services- Waste Management & Garbage)
5. Calvin Cheung (Building Ops Manager, Municipal Services- Labour Division)
6. Gareth O'Sullivan (Facilities, Administrative and Finance Coordinator Mathematics)
7. Ken Macfarlane (Director of Administration, Finance & Operations Chemistry)
8. Lia Cosco (Administrator, Allard School of Law)
9. Linda Tommasini (Director, Resources & Operations, Administration & Office Support Services Sauder School of Business)
10. Ailish Statham (Special Projects and Office Coordinator Faculty of Applied Science | Dean's Office)
11. Vicky Baker (Project Manager, Asian Studies Department)
12. David Sequeira (Facilities Manager, Faculty of Education)
13. Mr. Jamal Kurtu (Director, Operations & Facilities Management Pharmaceutical Sciences)
14. Jennifer Pelletier (Manager, Facilities and Technical Administration Mechanical Engineering)
15. Maija Normal (Asian Studies Administrator- Faculty of Arts)

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