



May 6, 2021

## Food Development Center Study

### The Prospera Business Network and Montana Department of Agriculture



*Funding for this project was provided in part by a grant from the Montana Department of Commerce, Big Sky Economic Development Trust Fund Program.*

Prepared By:

### Montana Manufacturing Extension Center (MMEC)

Part of Montana State University, whose mission is *"to grow Montana's economy by helping Manufacturing companies succeed."*



## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	3
SCOPE OF WORK / PLAN OF WORK .....	4
Section 1: Market assessment .....	5
Section 2: Site requirements .....	16
Section 3: Facility Requirements and Recommendations .....	18
Section 4: Regulatory and Good Manufacturing Practice Requirements .....	24
Section 5: Food Processing Equipment Recommendations and Preliminary Cost Estimates.....	27
section 6: economic analysis.....	29
Section 7: End of report .....	35
Appendix 1 .....	2
Appendix 2.....	7

## EXECUTIVE SUMMARY

This study was undertaken to evaluate the need and likely steps required to build a dedicated Food Development Center (FDC) in the Gallatin Valley. Centered around a commercial kitchen facility, the FDC would also house food and ingredient storage, administrative and teaching space. Similar facilities exist in Montana, two of which were interviewed while preparing this report.

Simply stated, commercial kitchens are facilities designed and operated for the safe and efficient preparation of human food. Commercial kitchen clients are typically entrepreneurial startups through small established food producers that are not yet ready to build their own production facilities. Design and operation of commercial kitchen facilities must be in accordance with established Good Manufacturing Practices (GMPs). Typically, areas or sections of the facility are rented out by the hour or day. Additionally, storage of ingredients, finished goods and food processing equipment are services offered, and an important source of revenue for a working commercial kitchen.

A common “life cycle” for commercial kitchen patrons begins with an entrepreneur that has an idea; for example, a unique recipe. After developing a business plan and evaluating viability, the entrepreneur needs access to appropriate facilities to start making their product in quantities sufficient to refine their processes, packaging and begin testing in the marketplace. With perseverance and a bit of luck, the entrepreneur transforms into a food producer, staying at the commercial kitchen, further refining production and marketing until they outgrow the facility or can justify building or renting a more dedicated production facility.

Commercial kitchens are not typically known as strong revenue and profit generators. The three operating commercial kitchen facilities toured and interviewed while preparing this report were all consistent in their perspective relative to a number of challenges; primary among those were the financial challenges of covering operating costs with client fees alone. All three facilities had outside income streams that allowed them to stay in operation. The difficulty of making a commercial kitchen facility economically viable should not be overlooked. This report addresses some potential ways a commercial kitchen can supplement revenue, but even given that, it should be noted long term financial survival can be a challenge.

Justification for building a commercial kitchen or FDC should be clearly defined. Is the facility meant to assist local food production for non-profits; be an active incubator for food entrepreneurs; partner with educational entities in their community or region? These are but a few possible justifications for building and operating an FDC. Prospera could also play a pivotal role by helping fledgling food producers succeed by facilitating connections to funding, marketing opportunities and exposure to potential buyers.

Over 20 regional food growers and producers were interviewed during preparation of this report. All were enthusiastic about the possibility of an FDC in the Bozeman area, consistently echoing the need and their likely use of such a facility. Other common concerns expressed by the majority were price sensitivity, adequate cooler/freezer storage space, efficient scheduling as well as assistance with procuring supplies and order fulfillment.

## **Report Outline - Prospera Food Development Center**

### **Scope of Work**

**1. Market assessment:**

Assess the need and potential users for this kind of facility and outline a comparison summary of similar existing facilities in Montana. Include an analysis of the market potential and/or pros and cons of operating such a facility – and any recommendations from this assessment.

Conduct a sample survey of farmers/ ranchers and value-added producers in our region that are potential users of a facility.

**2. Site Requirements:** including but not limited to:

Utilities: water, gas, electric and sewer

Logistics: access requirements, parking, load/unload docks, exterior storage, expansion viability

Discussion of facility location options (I.D sites if possible)

**3. Facility Requirements and Recommendations, including but not limited to:**

Itemized list of primary building allocation of non-food processing space: e.g. admin, shipping/receiving, non-perishable storage, operator breakroom, gowning rooms, maintenance equipment storage etc.

Discussion of food processing layout options: suites vs. general processing space.

Cold and refrigerated storage specifics, recommended area requirements, optimal location, storage racking etc.

Dry storage requirements: size, segregation options, shelving etc.

**4. Regulatory and Good Manufacturing Practice Requirements:**

Materials of construction and sanitary design considerations for food storage and processing

Floor drain locations and specifics

Sanitary utilities and facilities

Employee restrooms, break and gowning areas

Access control

Facility layout

Allergen management plan

**5. Food Processing Equipment Recommendations and Preliminary Cost Estimates:**

Sinks and washbasins

Measurement and mixing

Cooking: ranges, ovens, steam kettles etc.

Food prep areas

Food Zone 1 compliant areas  
Packaging/sealing requirements  
Specialized processing requirements: freeze drying, flash freezing, etc.  
Analytical equipment: temperature measurement, timers, water activity meters, pH meters etc.

**Deliverables:**

1. A written summary, submitted in electronic format with details to determine:
  - a. Background and insights learned from like operations in Montana.
  - b. Sample survey and feedback to determine the needs of producers and value-added businesses that are potential users of the facility.
  - c. A site plan layout (as proposed) and cost estimates for constructing and operating a facility.

## SECTION 1: MARKET ASSESSMENT

**Section Summary:**

As mentioned in some the interviews below, there was a consistent recognition of need for a community-focused commercial kitchen / food development center (FDC). Support for the concept was universal and effusive.

Making a commercial kitchen totally self-supporting is a challenge. All three of the existing commercial kitchen operators that we spoke to commented on the difficulty of meeting expenses from kitchen rental and storage space revenue alone. Some form of “anchor” client or supplemental funding would likely be required to make an FDC economically self-supporting in the Bozeman area, especially given the current cost of labor and real estate.

It is important to keep the facility and equipment simple. Patrons should provide their own specialized equipment. Once again, all the commercial kitchen entities interviewed were consistent in their view on this topic.

Comments about adequate freezer and cooler space were consistent: there is a continual need for more. Cooler and freezer space dedicated to food storage is in short supply in the Gallatin Valley. Interview teams found that many food manufacturers and distributors were forced to rent space in numerous locations, and almost all were seeking more. Dermer Refrigeration operates at least two large cooler/freezer facilities that are perpetually at full capacity.

A common growth trajectory for small food manufacturers is as follows:

- Develop products and packaging, begin selling at Farmers’ Markets or other small venues and/or develop direct sales through ecommerce.
- Move into retail grocery once production and processing can provide a reliable continuity of supply.
- If experience and profit margins are sufficient, seek to expand sales through direct marketing or through engagement of a food distributor.

Randy Lindberg of Quality Food Distributors offered the following synopsis of small food producer pricing determination:

- Establish a reasonable retail cost for the product in local grocery stores.
- Subtract about 33% of that price as the retail markup.
- Subtract another 25% for the distributor fee
- Remainder is essentially the “wholesale price” producer can expect to be paid for their product.

### **Other Potential Revenue Opportunities:**

#### **Order Fulfillment:**

A few existing commercial kitchen operators pointed out the need for order fulfillment and the potential opportunity that could provide for revenue generation. There is some simple logic to having a central fulfillment center service offered as part of facility services. A number of small food producers interviewed mentioned final packaging and order fulfillment as taking up a lot of time and space that could otherwise be used to make more product quantities and varieties.

Additionally, the economy of scale for procurement of packaging supplies should allow the commercial entity to buy in bulk, realizing some overall cost savings in addition to whatever pricing/fee structure is used for the service.

#### **Retail Store and Ecommerce Fulfillment:**

A possible additional revenue opportunity for a commercial kitchen operator involves the operation of a retail counter and/or ecommerce fulfillment service for client products. Local products are sought after and generally command a premium price. As with order fulfillment, a mutually beneficial fee structure between the facility and producers would need to be developed.

#### **Ghost Kitchen Opportunity:**

Another potential commercial kitchen client mentioned during the interview process was a “Ghost Kitchen” operator. Increasing demand for at-home food delivery has spurred interest in expanding the supply and delivery of prepared foods to residential consumers. Delivery companies like Uber and Door Dash are investing in infrastructure to meet this expanding demand. It seems reasonable to assume that new and existing restaurateurs are similarly positioning themselves to exploit this opportunity. The Ghost Kitchen model potentially meshes well with the traditional commercial kitchen model in that peak production would likely be late afternoon and into the evening, after traditional food producers have finished. This could increase the utilization factor of a commercial kitchen, subsequently increasing revenue and profit potential. Additional equipment requirements may need to be considered to meet some specific needs for foodservice production.



### **Summary of Shared Use Facility Interviews:**

#### **Mission Mountain Food Enterprise Center (MMFEC), Ronan, MT**

MMFEC's focus is on incubating start-up food product enterprises, strengthening Montana's food supply chain and bolstering local food economies. The facility is 13,000 square feet, FDA registered, USDA Meat Inspected, Certified Organic and licensed for retail and wholesale food production and storage.

MMFEC also partners with a number of government agencies and organizations to support programs that provide:

- Food product market testing and development
- Food safety trainings and certifications
- Food labeling, packaging development and sourcing
- Processing for farm-to-institution markets
- Food business technical assistance
- Guidance on organic certification
- Food Science technical assistance

**"Don't move into an existing building. Start from scratch and build what you need."**

**"Design to wheel in and wheel out. Keep as much as you can moveable."**

**- Jan Tusick, Director MMFEC**

#### Current Space Approximation:

- Processing: 13,000 ft<sup>2</sup> (six separate designated areas)
- Cooler: 800 ft<sup>2</sup> (one large cooler has been sufficient)
- Freezers: 2,300 ft<sup>2</sup>, (3 separate freezers with pallet storage capability)
- Dry storage: 1,000 ft<sup>2</sup> (palletized) Some clients have asked for storage of large shipments of packaging, but the center has had to decline this request.
- Equipment storage: recommend that clients be a part of the investment pool if they are asking for specific pieces of specialty equipment (or just have them invest in it themselves).

#### Concerns and Recommendations:

- MMFEC has clients coming in statewide which would cause some level of cannibalization with another center being built in the Bozeman area.
- It is a challenge to keep skilled labor that is educated with food safety and food production knowledge. MMFEC is a co-packer for some companies where they (MMFEC) provide their own crew. The facility has a liability if something goes wrong with either what they co-pack or what a client packs. They are SQF certified and it is difficult for clients to keep up with the requirements. They have four processing staff members and two technical staff members which includes a microbiologist that handles additional duties such as scheduling, documentation, programs and systems. They provide an umbrella food safety program for their clients.
- Assure there are solid uses to cover operational costs and be wary as anchor businesses can go away. MMFEC has recently picked up farm to school and a food box business.
- ***MMFEC is mainly funded by grants.***
- There is a Canadian model that is more “suite” oriented, affiliated with a university and focused mainly on product commercialization and linked to a food science lab. It is in Lethbridge, Alberta and designed to handle more mature companies as anchor clients doing wholesale trade. It also provides space for retail and catering. MMFEC has had requests for suites on a micro scale; however, it is a different business model which would require major pivots for MMFEC.

“The food business is the most volatile business you can get into. It comes in with a bang and goes out with a bang.”

-Jan Tusick, Director MMFEC



#### Equipment Inventory and Observed Demand by Users:

- Two 40-gallon and two 100-gallon steam kettles. Most clients use the 40-gallon kettles. Stand-alone electric steam equipment is a better system in their opinion, as a centralized steam is expensive and can require additional outside services. Make sure kettles are designed to tilt. Chefs and caterers tend to not use the kettles as they are more familiar with braisers for soups, chili, etc.
- Commercial convection ovens get used a lot.
- Commercial range is not being used much in Ronan for manufacturing purposes. A small retail kitchen may use a range more.
- Double chamber vacuum sealer. This piece of equipment is in high demand.
- Packaging for the meat room (trays with heat seal) was very specialized and expensive; MMFEC does not recommend procuring specialized packaging equipment.
- Ribbon blender is needed if clients want to blend 300 pounds or more.
- Auger filler in the dry fill room for spices, flour, etc. It is a manual weigh and seal system.
- VMAG extruder used for dough, sausage, cookies, and bars.
- Hobart mixers
- Food Processors
- Floor stand vegetable chopper for raw vegetables. The chopper comes with a dunk tank chlorinated rinse and post rinse system. If clients have a need for fresh chopped vegetables, this equipment is essential.
- Meat smoker; can also be used as a dehydrator.
- Donut and vat fryers. There is no need for this equipment except for caterer clients. There is also a fire concern and hoods are required.
- Proofing cabinet; has not been much of demand for it.
- Bakery equipment: there is one cookie client but overall, baking has been minimal. Early on in development, some clients said they wanted to bake, and the investment was made for the baking equipment. In hindsight, those clients should have been part of the investment pool.
- Piston fillers are used for chunky sauces and liquid packaging; these are easy to operate and clean.
- Bottling line: costly and not used very often.





### **Livingston Food Resource Center (LFRC), Livingston, MT**

LFRC's mission is to eliminate hunger in Livingston and Park County by:

- Acquiring and distributing healthful food to individuals and families in need
- Playing a leadership role in developing a strong, sustainable, local food system
- Addressing the root causes of hunger in Livingston and Park County
- Supporting food related economic development that drives the creation of jobs

LFRC currently has 8 full time kitchen and bakery staff.

Mike McCormick, director of LFRC, laid out his customer acquisition process during his interview. LFRC screens potential users of their commercial kitchen facilities prior taking them on as clients. The assessment questions are:

- Does the company have a business plan?
- Has the company done market research to establish rudimentary pricing sensitivity and market demand for their product?
- Who are their competitors?
- Analysis of costs to bring their products to market.

All of these things are generally found in a comprehensive business plan, but Mike recommended reviewing at least these criteria before accommodating new clients.

**“About half of the commercial kitchen users that come through LFRC actually succeed in getting their product to market. Of that half, about a third are still in business a year later.”**

**- Mike McCormick, Director LFRC**

Current area of the LFRC facility is approximately 1500 square feet.

Concerns and Recommendations:

- Having enough space is critical. Start with as much freezer, cooler and dry storage space as possible. A root cellar for produce could also be beneficial.
- Recommend a large open space that equipment can easily be moved in and out as needed with dedicated processing areas. For example, there should be an area for packaging only, frying only, baking only, etc.
- Price shelving storage areas by the linear foot
- Price larger storage space by the pallet
- Include a loading dock in the planning stages.
- Lifts can be difficult and are a safety hazard; recommend a forklift to reach 3-tiered racking.
- Software for scheduling is recommended.
- Consider charging for inadequate cleanup and sanitation by clients.

Equipment Discussion

- Dish washing can be a bottleneck. Make sure a large industrial dishwasher is included.
- Industrial stove is okay, but more convection ovens are in demand.
- If value-added farmer's commodities are in scope for market demand, an Individually Quick Freezing (IQF) processing line would be needed.

**"LFRC was able to raise nearly all of the capital required to pay for this facility. If we had debt to service, we would have difficulty surviving."**

**- Mike McCormick, Director LFRC**

---

**University of Idaho Food Technology Center, Caldwell, ID**

The University of Idaho Food Technology Center (UIFTC) is a 7,000 sq ft food processing facility located in Caldwell, Idaho, adjacent to the University of Idaho Agribusiness Incubator.

Originally designed as a specialty foods co-packing operation, the center has been converted into a multi-purpose food production facility to serve the needs for a large variety of food processing

scenarios. A portion of the facility is available for rent to individuals or companies that wish to produce their own specialty foods in a certified commercial kitchen. However, the remaining space had been converted into a pilot plant to assist established companies with contract research and development, Good Laboratory Practices, food processing studies as well as food quality and safety analysis. The center is administered by the University of Idaho School of Food Science and production specialists. Faculty as well as state and local agency professionals are available for project assistance, collaboration and supervision. Student interns from the Moscow campus may also be available to assist with some projects at the Food Technology Center.

#### Current Space Approximation:

- Processing: 7,000 ft<sup>2</sup>, separated into shared use kitchen (1/3) and pilot plant (2/3)
- Cooler: 200 ft<sup>2</sup> walk-in
- Freezer: 200 ft<sup>2</sup> walk-in
- Dry storage (equipment, packaging, ingredients, finished product): 15,000 ft<sup>2</sup> 3-bay warehouse.

#### Concerns, Fees and Recommendations:

- Make sure food safety, sanitation training and expectations are clearly stated and understood by for clients.
- UIFTC charges approximately \$25 - \$35 per hour for use of processing space, \$100 per hour for a prerequisite food safety and startup class, \$20/pallet-month dry storage fee, and about \$25 for lab tests such as water activity, pH, % moisture etc.
- Revenue sourcing is difficult: kitchen space rental at ~\$25-\$35 per hour only adds up to \$50,000 – \$70,000 at maximum utilization five days per week, 52 weeks per year. Operational costs are roughly \$350,000 per year for both the pilot plant and kitchen space.

#### Equipment Inventory

##### **Steam processing**

- 150 gallon steam kettle
- 75 gallon agitating steam kettle
- 10 gallon electric kettle
- Dixie canning retort

##### **Food processors**

- 40 quart food processor
- Table top food processor

##### **Bottling/packaging**

- Simplex filler (fluid product)
- Per-fil auger filler (dry product)
- Shrink tunnel
- Universal labeler (round containers)

**Mixers/blenders**

- Butcher boy ribbon blender
- Univex 20 quart mixer
- Hobart 60 quart mixer
- Handheld immersion blenders

**Ovens**

- Gas stove
- Zephair convection oven
- Tri-star convection oven
- Commercial microwave oven

**Miscellaneous**

- Food pump
- High pressure dishwashing machine
- Legion braising pan
- Proofing cabinet
- Baking rack and commercial baking sheets
- Stainless steel tables and basic kitchen utensils

UIFTC also recommended keeping specialized processes such as USDA, bottling, retort, bakery and vegetable washing and chopping in separate, shared use food processing areas unless there is a clear demand for additional capacity in those areas.

---

**Summary of Food Processor Interviews:****Food Company 1**

Company 1 is interested in having an additional processing facility option for overflow volume from their current location in Kalispell which would include approximately 2 days every other week during harvest season. They produce fermented refrigerated vegetables and currently need space and equipment to wash, chop, mix, ferment and pack in jars. Raw vegetable storage is needed on occasion if the produce arrives before production runs. Refrigerated storage is needed for finished product. Ingredient storage could be a challenge and they prefer dedicated shelf space.

Sanitation and scheduling also pose a challenge. Additionally, relying on clients to adequately clean the space before the next client comes in is a concern. Consider establishing dedicated areas for certain types of processing such as steam, bake, dry, prep only, etc. with different pricing based on energy input costs. Food allergens are a concern and need to be considered during processing.

**Food Company 2**

Company 2 needs a food grade space that will pass inspection and is easily cleanable. They are interested in being an anchor tenant, with a dedicated 500-1000 sq ft processing space and 200 sq ft of

warehousing. Office space would be a plus. The company would bring in their own equipment but need a cleanable, food-grade area that will pass GMP inspections. 3-phase, 440v power is required for their small scale (50g-1kg lab scale, 5kg – 50kg scale up) spray drying, freeze drying and encapsulation. Their products are mainly shipped out of state.

The food allergens they need to consider are egg, milk, soy and tree nuts. Walk-in coolers and freezers would be a benefit, as the company is currently using chest freezers and coolers. They have been producing in Bozeman for about one year.

### **Food Company 3**

Company 3 produces hydration dry mixes and is currently using Mission Mountain Food Enterprise for their half-pound bags and a co-packer in California for their single serve packets. Volume would vary as they mainly need space for overflow capacity. Their use would be about two days per week.

Equipment and processing setup would be in a dry room with a mixer (ribbon blender), auger filler for 0.5 lb. bags, scale and heat sealer. Dry storage space of 1-2 pallets is needed for ingredient and packaging storage. They are interested in utilizing technicians that might work at the facility and hiring them as needed. Their food allergen concern is tree nuts (specifically coconut).

### **Snack Company 1**

The snack company is interested in the possibility of being a potential anchor tenant. They currently produce no-bake cookies and protein bites out of a commercial kitchen space in Belgrade. Their goal is to have a space to bridge the gap between current volume and meeting a larger co-packer's minimum order quantities.

They would need a kettle (12 gallon - 40-gallon swept surface kettle), and a blast freezer for cooling bars. Packaging is done by hand and frozen storage is needed for the finished product. The shelf life is one year if frozen or refrigerated and two weeks if stored at ambient temperatures. There are many food allergens to consider including peanuts, tree nuts (almonds, cashews), and milk.

### **Additional Food Company Interviews and Inputs:**

Fifteen interviews and several facility tours were also conducted, including six interviews with produce growers and farm commodity processors.

All interviewees consistently commented that a new facility was needed and would be well utilized. Competition amongst current commercial kitchen facilities was concerning but the pervasive attitude was that it would contribute to growth in the area and there is plenty of business to go around. Some mentioned that there are most certainly risks with the short regional growing season and acknowledged the difficulty of making a commercial kitchen financially viable.

Price sensitivity regarding use and rental fees for the shared space was mentioned a number of times. Many of these manufacturers run on limited budgets, have slim margins and own some of their own equipment.

They are willing to drive to Belgrade or Livingston but would be very interested in a new facility if it was “affordable.” \$15-\$20/hour was a common range for rental fees identified as affordable by those interviewed.

There are several perspectives on how to best set up a new facility with respect to scheduling time and equipment, involving software packages, square footage recommendations, and tiered approaches to pricing. Almost everyone had some input regarding adequate storage space and refrigerator / freezer space. Where relevant, that input was integrated into the later stages of this report.

Ecommerce has become an increasingly important part of each business and almost everyone is using digital media to grow market share. Some interviewees had recently set up Instagram accounts, some have a “friend” doing their social media posts and some handle it themselves. All are interested in growing their business and there was a consistently genuine sense of optimism even with the current issues caused by the Covid pandemic.

With the price sensitivity from food manufacturers comes a need to generate revenues that drive success. Several ideas were mentioned during interviews, including caterer kitchen space and the Ghost Kitchen concept, as these are seen to be models that can potentially pay higher usage rates. These businesses also encourage the use of local products that each caterer and chef would likely keep stored in space leased from the FDC.

Other ideas to generate revenue mentioned tiered offerings based on user needs with commensurate pricing levels. Renting the facility for training sessions, classes, food safety compliance seminars, networking events and other community engagement opportunities can also bring in additional revenue.

Three caterers were interviewed: two owning their own kitchen and one utilizing the Livingston Food Resource Center. All three were very optimistic about the food processing and manufacturing industry in Gallatin and Park counties, as all three have seen growth through the pandemic with local food production being a cornerstone of their success.

Additional interviews conducted included a working kitchen, a food distributor and a grocer. Again, each interviewee emphasized the demand for local products, and all had a strong focus growing their businesses through an emphasis on local products.

"The market is increasingly asking and even demanding that food products are locally sourced and manufactured."

- Patrick Burr, Roots Kitchen and Cannery

Three individuals were interviewed with experience in local and regional food system development and the impacts of equitable distribution and regional access to healthy, locally grown foods. In meeting with these

collaborators, a common thread expressed was the need to engage all stakeholders. Stakeholders include restaurants, commercial food producers, food retailers, box programs and large employers in the tourism and hospitality industry. Another desirable element for viable, integrated food systems is incorporating any possible current working programs and partners, such as Farm 2 School, local food banks, composting efforts, tribal partners, community partners, the Alternative Energy Resources Organization (AERO), Montana State University (MSU), etc. The proposed FDC has an opportunity to be a leader or hub in the efforts to grow these types of community-inspired activities.

A tour of the Bozeman Food Bank was informative on many levels and provided a glimpse of the new facility they hope to build in the next few years. Potential collaboration between the food bank and a new food development center was discussed and should be an area of exploration for both partners should these programs move forward.

There were also several ad hoc discussions on ways MSU may benefit and/or be a partner with a food development center. Collaborative opportunities between the two entities in areas such as the MSU garden facilities, Culinary Services, Hospitality Management and Culinary Arts program should be examined and developed.

## SECTION 2: SITE REQUIREMENTS

Below are some general considerations on facility siting for a shared space, food technology center:

### **Utilities; water, sewer, gas, and electric services**

#### **Water:**

Municipal water supply is preferred. The use of a dedicated well is possible, but would require initial qualification and periodic, third-party testing.

#### **Sewer:**

Municipal sewer preferred. Connection to a publicly owned treatment works (POTW) is most common for these facilities. Septic systems for commercial kitchens are a possibility if connection to the POTW is not an option. However, the septic system would need to be specifically designed for the intended use and may require pretreatment steps as well as augmented drain field considerations. A dedicated grease trap would likely need to be installed and maintained regardless of the discharge methodology.

#### **Gas:**

Natural gas is preferred and commonly available in the Gallatin Valley. Propane is viable, but more expensive than pipeline gas. All gas consuming equipment needs to be configured with the appropriate burners based on the feed gas.

#### **Electrical Service:**

The facility will require 3-phase electrical power. 460/480 VAC is preferred, although 230/240 VAC should be sufficient. Actual amperage of the required service should be determined by a qualified electrical contractor



or engineering design firm. Major electrical equipment requiring 3-phase power would include but is not limited to:

- Refrigeration compressors for food storage freezers and coolers
- Building HVAC
- Electric ovens
- Large mixing equipment
- Charging station for electric forklift or pallet jack

**Logistics: access requirements, load and unload docks, truck access, parking, exterior storage, expansion viability**

**Facility Access and Load and Unload Areas:**

The facility site should be readily accessible for articulated, multiple axle truck traffic. Trucks delivering ingredients and picking up finished goods will need uninhibited access to the loading area. Careful consideration should be given to access routes for truck traffic when evaluating potential facility locations. Additionally, Montana climate conditions, specifically snow accumulation and removal, should be given adequate consideration. Southern exposure for loading docks is generally preferred to mitigate ice build-up during winter months.

An elevated loading dock is often the most preferred configuration and can alleviate the need for an all-weather forklift. In addition to truck traffic, patrons will also need to drop off supplies and equipment by personal and smaller delivery vehicles, which need to be accommodated as well. Covered areas for short-term sheltering of incoming and outgoing goods are desirable. Storage areas for both incoming material and outgoing finished good should be located adjacent to loading areas.

**Parking:**

Adequate parking for employees, clients and customers needs to be provided. In many cases, size and/or quantity of parking areas may be dictated by local ordinances. Once again, accommodation of snow accumulation should be accounted for.

**Exterior Storage:**

While rarely a first choice, growth and budget constraints may require the use of exterior structures for storage or refrigeration. If local ordinances allow, these options should be given consideration during facility siting studies.

**Expansion:**

Facilities such as commercial kitchens are often built with constrained financial budgets. If possible, anticipation for expansion should be accounted for in selecting a facility site.

**Discussion of facility location options**

Due to the rapidly evolving real estate market in the Gallatin Valley, no specific siting studies were done in the execution of this report.

“QFD carries products from over 80 Montana-based suppliers, across all categories. Food development incubators for someone that has a good recipe or great product is very helpful”

- Randy Lindberg, Quality Food Distributors

## SECTION 3: FACILITY REQUIREMENTS AND RECOMMENDATIONS

### Facility Requirements and Recommendations

#### Non-food processing Areas

- Office Space for staff and visitors
- Break Room
- Rest Rooms
- Maintenance and janitorial supply room
- Classroom
- Personal storage for bags, phones, files, laptops etc.

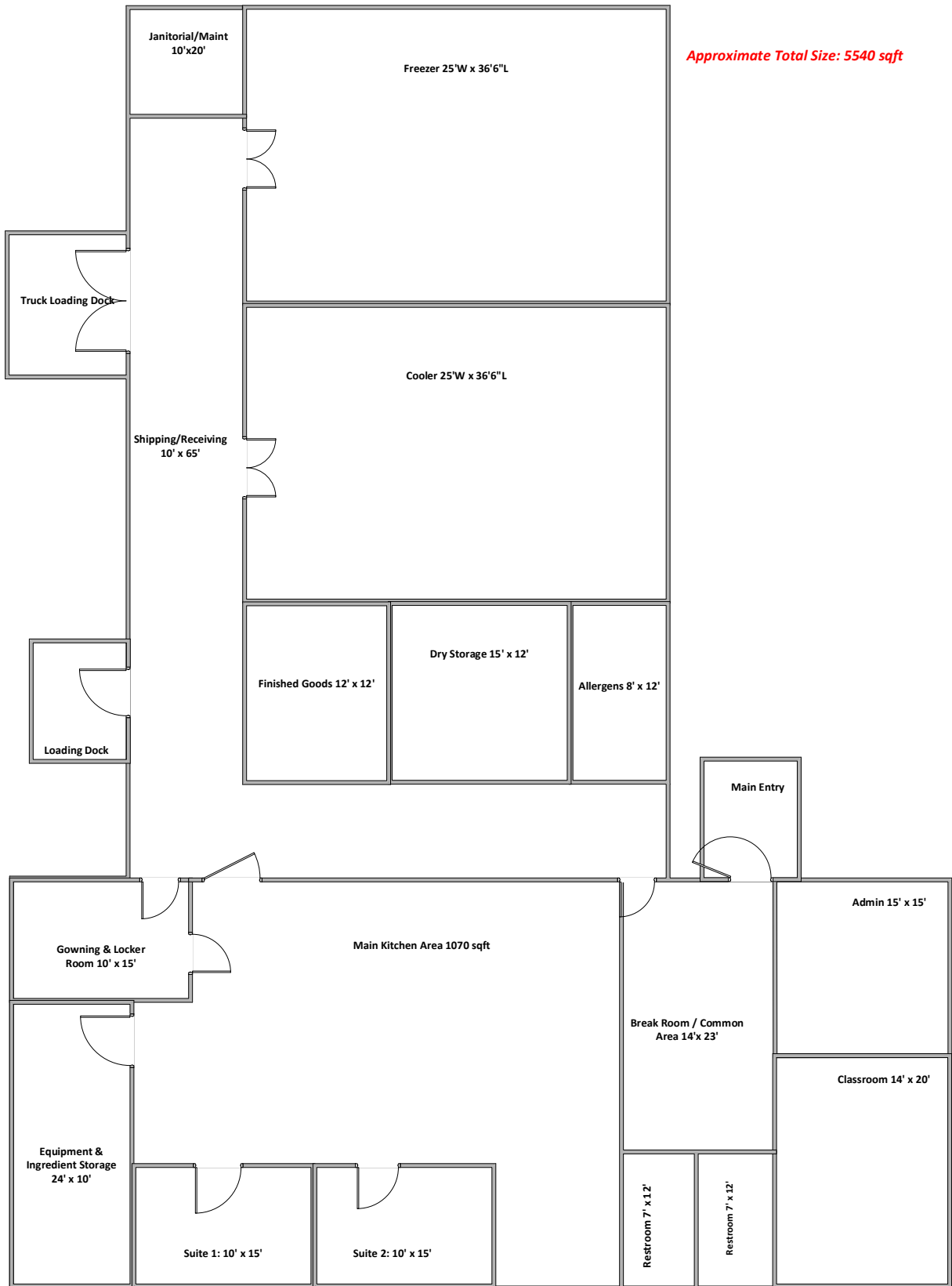
#### Food Handling and Processing

- Shipping & Receiving (somewhat segregated, if possible, from production floor(s))
- Gowning Area (aprons, smocks, hair restraints, disposable gloves, masks, towels)
- Ingredient Storage ***with dedicated allergen segregation areas***
  - Ambient: shelving for boxes and pallets
  - Cooler: walk-in with shelving to accommodate boxes and pallets
  - Freezer: walk-in with shelving to accommodate boxes and pallets
  - *Root/Vegetable cellar?*
- Dry Packaging Storage
  - Primary (bags, glass, film, tray), secondary (carton), tertiary (case)
  - Pallet space in warehouse area
- Finished product Storage
  - Ambient: pallet and box storage
  - Cooler: stacked box shelving and 3-tier pallet racking
  - Freezer: stacked box shelving and 3-tier pallet racking

#### Storage Areas:

- Equipment Storage
  - Pallet space available
- Laboratory and Testing
  - Cleanable work bench and area for product testing

## PROSPERA FOOD DEVELOPMENT CENTER CONCEPTUAL LAYOUT



Below is a working spreadsheet for facility size and preliminary costing estimation:

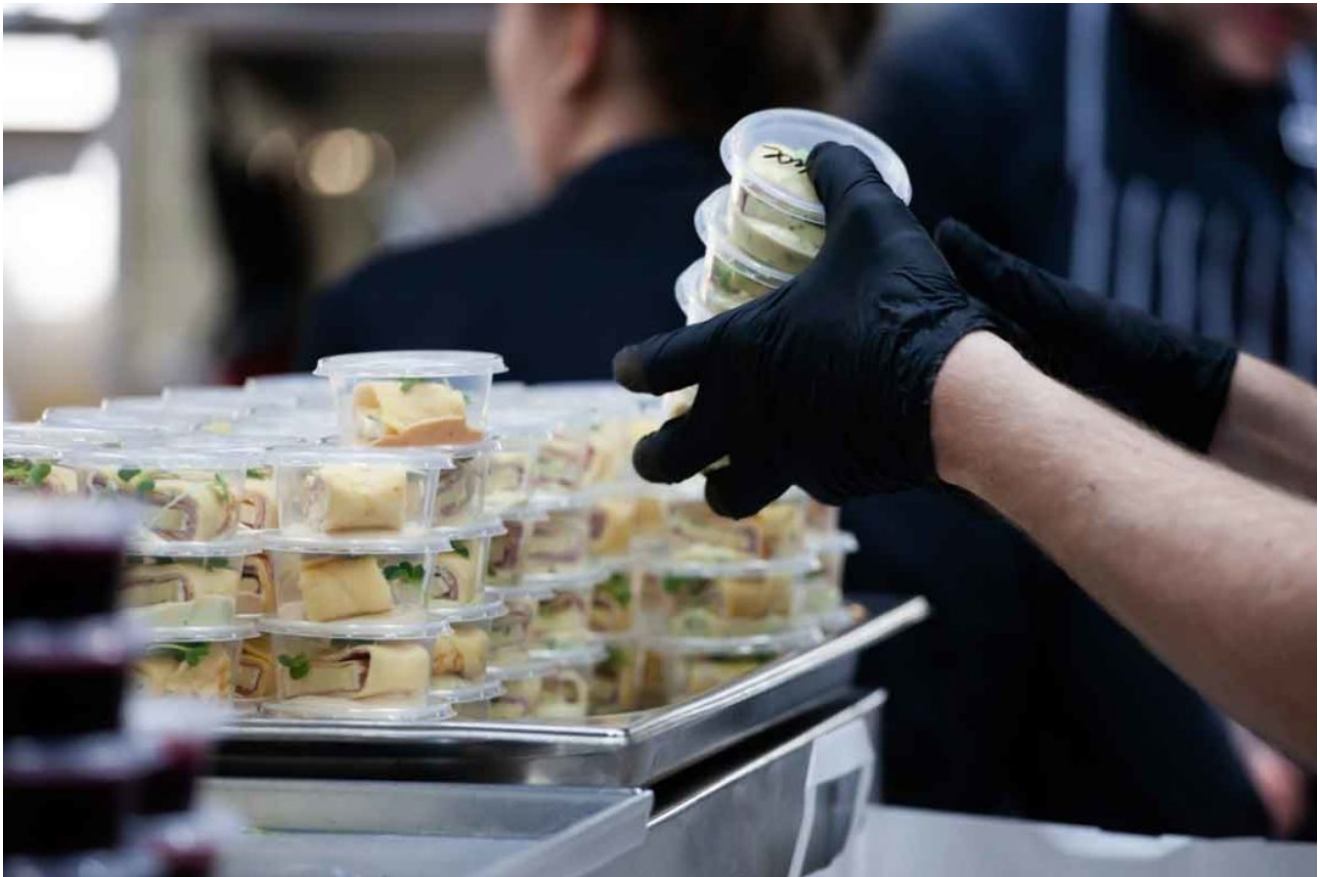
<b>Building Area &amp; Use</b>	<b>Size (sqft)</b>	<b>Cost \$/sqft</b>	<b>Cost</b>
Admin/Breakroom/Restrooms	420	\$ 175	\$ 73,500
Classroom	280	\$ 150	\$ 42,000
Custodial / Maintenance	200	\$ 160	\$ 32,000
Main Kitchen	1070	\$ 200	\$ 214,000
Suite 1	150	\$ 180	\$ 27,000
Suite 2	150	\$ 180	\$ 27,000
Shipping/Receiving	650	\$ 150	\$ 97,500
Dry Storage	180	\$ 170	\$ 30,600
Finished Goods Storage	150	\$ 170	\$ 25,500
Equipment & Ingredient Storage	240	\$ 150	\$ 36,000
Allergen Storage	100	\$ 170	\$ 17,000
Gowning & locker room	150	\$ 170	\$ 25,500
Cold Storage 1	900	\$ 200	\$ 180,000
Cold Storage Enclosure/equip*	0		\$ 89,000
Freezer 1	900	\$ 200	\$ 180,000
Freezer Enclosure/equipment*	0		\$ 89,000
Retail Space	??		
Order Fulfillment Space	??		
<b>SUB TOTAL BUILDING:</b>	<b>5540</b>		<b>\$ 1,185,600</b>

**Notes:**

**Cost (\$/sqft)** estimates are from interviews and anecdotal experience with similar projects. Construction costs in the Gallatin Valley are extremely volatile in 2021. Actual costs could vary significantly depending upon site location, required site preparation, materials of construction etc.

\*Cooler and Freezer Enclosure/equipment costs are from a bid provided by J&V Restaurant Supply of Bozeman.

A copy of the working Excel spreadsheets will be submitted with the final report.



#### **Comments on Site Layout Drawing:**

The site layout drawing included in the report is for discussion purposes only. Sizing and configuration are initial best guesses. Project would likely be budget constrained, requiring thorough evaluation of facility sizing options.

#### **NOTES:**

- Not all doors are shown for the sake of simplicity
- The drawing is not to scale, but dimensions are relative
- Emergency exits have not been considered
- Parking and truck access are not shown
- The facility is not site-specific
- Utilities are not shown

#### **Among the key considerations used when developing the layout were:**

##### **Food Manufacturing GMPs**

Food production and non-food production areas are separated to eliminate or at least minimize the potential of casual traffic from entering hygiene-sensitive areas of the facility.

Ingredients and finished goods enter or leave the facility and are stored on the upper left side.

### Lean workflow principles

Because this is a general facility, and not designed to produce any specific product(s) it is impossible to incorporate a high degree of Lean Manufacturing Principles into the layout. Rather, the focus was on making general flow of personnel and materials simple.

Raw materials and finished goods enter the shown facility on the upper left. Personnel enter at the lower center, right side.

### Construction Considerations:

Areas requiring plumbing and major utility services are grouped in the upper part of the building to reduce construction costs.

Freezer and Cooler areas are adjacent to minimize required insulation needs as well as share compressor and condenser machinery.

### Adequate Cooler and Freezer Space:

The most consistent comment encountered when interviewing existing commercial kitchen operators was the need for adequate cooler and freezer space. The cooler and freezer spaces shown reflect that input. Additionally, the freezer/cooler facilities quoted in the pricing matrix have 16' of interior clearance, which would accommodate racks for three tiers of stacking capacity. This would allow each area to access and store approximately 75 pallets.

### Facility Staffing Considerations:

Staffing numbers for this project are shown, but as estimates only. Factors such as facility size, provided services, hours of operation etc. would need to be more fully defined before an accurate staffing matrix could be generated.

*General staffing considerations and assumptions were made and are depicted in the economic analysis section. These figures were based on proposed facility sizing, hours of operation and discussions with existing commercial kitchen operators.*

Following are some of the duties that a commercial kitchen staff should be prepared to undertake and manage:

### Scheduling & Billing

- Scheduling of commercial kitchen internal personnel
- Client time in the kitchen
- Scheduling of process equipment
- Recording time and equipment usage fees for accurate billing

### Management of outside services (some of these tasks may be done internally)

- Janitorial services
- Maintenance services
- Yards, grounds and parking lot care
- Accounting and billing
- Payroll

#### New client screening and training

- Assuring new clients have the minimum required food processing safety and sanitation training.
- Providing and tracking training for clients and employees as needed.

#### Access control

- Access control to the facility must be kept up to date and be supported by verifiable records.
- Access codes need to be continuously monitored.

#### Master Sanitation Program

- Pre and post-use sanitation checks should be routinely conducted.
- Basic record keeping of key sanitation parameters need to be logged and filed.

#### Preventive Maintenance

- Food processing equipment needs to be kept in good working order. Personnel safety and food safety needs require a robust preventive maintenance plan.

#### Ordering Supplies & Inventory Control

- Consumables such as Personal Protective Equipment (PPE) and food processing sanitation supplies need to be consistently available to kitchen employees and clients.
- Ownership of supplies and ingredients needs to be tracked.
- Clients need to be charged for supplies they consume.
- Storage fees need to be tracked for accurate billing.

### **Generating Revenue:**

The primary sources of revenue generated by a commercial kitchen are from the following areas:

- Fees for use of kitchen and processing space
- Fees for use of processing equipment
- Fees for storage of ingredients, WIP and finished goods
- Cooler and freezer storage fees for boxed and palletized goods
- Fees for conducting and hosting classes

A wide range of fee rates and structures were encountered during the interview phase of this report. Factors such as facility size, location and client base all had significant impact on what fees were charged by commercial kitchen facilities and incurred by commercial kitchen users.

Recommendation of a specific fee schedule is beyond the scope of this report.

*“Delivery logistics can be a problem. Clients often have materials delivered when they are not present, so someone at the facility needs to deal with unloading and receiving these things. Consider charging for that service.”*

- Josh Bevan, Director UIFTC

## SECTION 4: REGULATORY AND GOOD MANUFACTURING PRACTICE REQUIREMENTS

Food processing facilities must be constructed using sanitary design principles which allow for timely and effective cleaning of manufacturing areas. Typical designations within the food industry are Ready to Eat (RTE) and Not Ready to Eat (NRTE) which have different requirements for food safety.

### **Site layout**

Driveways, parking lots and walkways should be paved to avoid dirt from entering the facility and self-draining to avoid collection of water and other potential contaminants. A 30" border of asphalt, gravel, concrete or other acceptable material should border all exterior sides of the facility. Landscaping should be limited to materials that do not spread or create sources of contaminants. Practices should be in place to avoid having an attractive breeding place or harborage for rodents and other pests near the plant. This necessitates maintenance of weeds and grass. Adequate trash receptacles must be maintained. A corrugated packaging material compression system may be necessary.

### **Materials of construction and sanitary design considerations for food storage and processing**

The building should be constructed of materials that are solid, impervious, free of cracks and voids and compatible with cleaning methods. The roof should be sloped to provide positive drainage and not a source of contamination. Doors must be fully weather stripped, have solid cores with door jams and windows sills mounted flush with walls to eliminate edges. All concrete wall panels must be caulked from roof to footing.

Equipment and utensils should be designed and constructed to avoid adulteration of food with lubricants, fuel, metal fragments, contaminated water or other contaminants. All surfaces must be easily cleaned and sanitized. Equipment is to be installed to facilitate the cleaning and maintenance of the equipment and adjacent spaces. Food-contact surfaces need to be corrosion-resistant, made of nontoxic materials and designed to withstand the environment of their intended use with food, cleaning compounds, sanitizing agents and cleaning procedures. Food-contact surfaces must be maintained to protect food from allergen cross-contact and from being contaminated by any source. Seams on food-contact surfaces need to be smoothly bonded and maintained to minimize accumulation of food particles, dirt and organic matter and to minimize the opportunity for microbial growth. Holding and conveying systems need to be designed and constructed to enable them to be maintained in an appropriate clean and sanitary condition. Compressed air or other gases introduced into food or used to clean food-contact surfaces need to be treated in a way to prevent contamination of food products.

### **Floor drain locations and specifics**

Floor design and drainage systems prevent standing water and avoid drain backups. Wall and curb surfaces must drain freely without pockets or ledges that collect water. Areas above the ceiling should not accumulate water from incidental contact or condensation. Equipment wastewater should be discharged directly to drains with sloped drain pans, allowing continuous flow. Drains should be accessible for cleaning and sanitation.



### **Sanitary utilities and facilities**

Room temperature should be adequate for processing requirements and measures should be taken to prevent condensation. Air should be adequately filtered, including outdoor makeup air. Stationary equipment should be sufficiently placed to allow cleaning and sanitation underneath and above the equipment, 18" for non-food contact equipment and 30" for food contact surfaces. Suspended ceilings should be avoided when possible.

Walls and ceilings must be smooth and cleanable with minimal joints. Concrete surfaces must be solid, smooth and free of pits and erosions. Federal, state and local building code requirements should be considered for wall facings. Floors, doors and windows are to be constructed to prevent insect and rodent access and harborage. Adequate interventions such as foot baths, doorway foamers and boot washers should be considered as a method to maintain sanitary conditions, especially for RTE and high-risk items.

### **Employee restrooms, break and gowning areas**

Restrooms cannot open directly onto or into any processing area and need to be designed to maintain negative air pressure. Adequate space should be available for employees to wear the proper hair covering, beard covering, disposable gloves and/or clean aprons and smocks. Functioning and stocked hand washing stations in restrooms and upon entering food processing areas are required.

### **Access control**

Entrance to food preparation and storage areas should be controlled. Facilities should be designed to restrict access to food preparation areas, ingredient and finished good storage from incidental foot traffic. Ideally, some form of access control should be integrated into the entry system to eliminate the possibility of unauthorized personnel from entering sensitive areas where food is being prepared or stored.

### **Facility layout**

Food preparation areas should be separated from non-food preparation areas. Access to food prep areas should be through a double entry system or isolated to minimize incidental foot traffic. There should be space between food and non-food areas for some form of enhanced hygiene protocol to be implemented and enforced.

HVAC and refrigeration system components should be located to avoid risks of product contamination. Process and sanitary sewers are separated within the building.

### **Allergen management plan**

Food processing facilities need to have an allergen management program to prevent cross contact between foods that contain one or more of the eight recognized U.S. allergens. The requires appropriate labeling, and systems to assure they do not contaminate foods that do not contain allergens. This is managed from procurement of ingredients, during use and through to shipping of finished products. All food products that contain food allergens need to be stored separately from those that do not. This is done by physical separation, i.e. dedicated, clearly labeled storage areas for those allergens.

Traffic between storage areas should also be a consideration so that foot traffic, forklifts, carts, etc. do not travel through dedicated allergen storage areas to get to non-allergen areas. Since this will likely be a shared-use processing facility, it might require dedicated pallets per client. The sanitation program must include

allergen-specific standard operating procedures (SOPs) so that a full allergen cleanup can be performed after allergens are introduced to the processing area.

Allergen swabs, either generic protein or for specific allergens, are also a common method of verification to confirm that the sanitation was adequate and that the client using the facility next does not risk cross-contact with an allergen hazard introduced by a previous clients. Care will need to be taken by the facility staff regarding scheduling, sanitation protocols and chemicals, and assuring clients are trained and well versed on the hazards of food allergens.

**The Eight Recognized Food Allergens in the U.S. are:**

- ***Egg***
- ***Soy***
- ***Milk***
- ***Peanuts***
- ***Tree nuts***
- ***Fish***
- ***Shellfish***
- ***Wheat***

For more information, visit [Components of an Effective Allergen Control Plan](#) or [Allergen Management: Best Practices for Food Manufacturers](#)

**Regulatory and Good Manufacturing Practice Requirements:**

The guiding document for Good Manufacturing Practices (GMPs) in the food production industry is the FDA hand book found at the following link: [21 CFR 117 Subpart B Current Good Manufacturing Practices](#)

Detailed information on the following topics as well as many other can be found in the 21 CFR Handbook:

- Materials of construction and sanitary design considerations for food storage and processing including hygienic washdown walls, floors and ceilings.
- Outside, contracted pest control management
- Dedicated hand washing stations
- Floor drain locations and specifics
- Sanitary utilities and facilities
- Employee restrooms, break and gowning areas
- Access control
- Facility layout
- Allergen management plan
- Laundering service
- Stocked GMP materials (hair nets, beard nets, disposable gloves, sanitizer, cleaners, towels)
- State of the art facility would include UV air filtration to keep spoilage microorganisms to a minimum for Ready to Eat (RTE) product processing

Listing all of the GMPs that need to be considered in the design, construction and operation of a commercial food development center and kitchen facility is well beyond the scope of this document. MMEC advises any

entity undertaking such a project hire a qualified, knowledgeable consultant and/or contractor to advise them. All decisions related to GMPs should be based on FDA 21 CFR 117 Guidelines.

## SECTION 5: FOOD PROCESSING EQUIPMENT RECOMMENDATIONS AND PRELIMINARY COST ESTIMATES

Commercial Kitchen facilities should resist the urge to be “all things to all producers.” Buying expensive, esoteric food processing equipment that rarely gets used was another area where existing commercial kitchen operators emphasized restraint.

Equipment should be kept basic. If a client needs specialized equipment, let them buy it, and charge them a storage fee if they wish to keep it on-site.

Below is a list of basic equipment that commercial kitchens should consider purchasing. Lists with examples of this equipment as well as more specific commercial-grade food processing equipment with pricing can be found in Appendix 1.

### **Sinks and washbasins**

A three basin sink for pre-washing, washing, rinsing and sanitizing tools and equipment is recommended along with a commercial, rapid cycle dishwasher with stainless steel table/counter space for staging and drying racks. A dedicated hand washing station is also required for food manufacturing facilities. Best practice for hand washing is a hands-free automated (foot or motion) water, soap and disposable towel dispensers. Additional utensil sinks may be useful for use in dedicated suites.

### **Measurement and mixing**

Multiple scales for measuring will be required. This includes a small gram scale for micro ingredients as well as larger floor and portable countertop scales for measuring bulk ingredients. Utensils needed for measuring include food grade buckets, bins, bowls, scoops, whisks, paddles, ladles, spatulas, scrapers, timers, etc. along with racks for storing them. Mixing for large scale dry items may include ribbon blenders, rotating drums, tabletop mixers and 20-60 quart Hobart-type variable speed mixers. Mixing may also include food chopping and processing such as tabletop food processors and industrial scale 30-60 quart Robot Coupes®.

### **Cooking: ranges, ovens, steam kettles, etc.**

Smaller Steam jacketed kettles (~12 gallons) with tilt and swept surface options and larger steam jacketed kettle (~75 gallon) with a food pump transfer system are recommended. A water straining system should be included for draining blanched items such as vegetables, legumes and grains. Commercial grade convection ovens for baking and roasting will most likely be needed as well as dehydrators for fruit, vegetables, herbs, etc. Industrial sized sifters/shakers and or sieve sets for separation based on particle size will be useful. Deep frying capabilities are not recommended at this time, but hood ventilation systems should be installed in the event that clients need oil frying capabilities.

### **Food preparation areas**

An assembly of rolling tables and carts to adapt to multiple production setups will be needed. It is recommended that processing areas (wet processing, dry blending, assembly and packaging, etc.) are separated. An ice maker should also be included. Ice makers need to be connected to a verified potable water source and cleaned regularly.

### **Food Zone 1 compliant areas**

Any area where food is post critical control point (CCP) and exposed to the atmosphere prior to packaging is referred to as Zone 1 or Zone A. These areas must be designed and operated to eliminate or significantly reduce the likelihood of contaminant introduction. Careful consideration of overhead materials of construction, HVAC air flows, condensation etc. must be given when designing Food Zone 1/A areas.

### **Packaging and sealing requirements**

Vacuum sealers, tabletop hand sealers, and foot pedal operated heat sealers are commonly used packing equipment. An auger filler (dry products), volumetric pneumatic filler (wet/fluid products), shrink wrap tunnel and label printing machines will also be needed. Pressure canning and retort operations are not recommended for initial scope.

### **Specialized processing requirements**

Specialized processing includes freeze drying and flash freezing, etc. Specialized equipment is not recommended due to high investments costs and volatility of the market. Any specialized equipment should be purchased or rented by the food manufacturing owner but could potentially be stored on site at the shared use facility.

### **Analytical Equipment**

Basic food processing instruments includes multiple portable temperature monitoring probes, RTDs for equipment temperature monitoring and other temperature monitoring devices for coolers and freezers. Moisture analyzers, water activity, refractometers and pH meters are also common for basic analytical measurements. Cleanliness swabs such as ATP and allergens swabs (protein specific or generic protein) should also be given consideration for sanitation validation procedures. Onsite microbial testing is not recommended at this time.

**NOTE:** *Consideration should be given to potential liability issues for the food development center if they provide critical control checkpoint (CCP) equipment.*

### Prospera Commercial Kitchen Operating Budget Narrative

#### Revenue Assumptions

During the evaluation of operating expenses (OPEX) four primary sources of revenue were considered:

- Rental rate for kitchen processing (main revenue driver)
- Revenue from food safety classes
- Dry storage rental space revenue
- Cold and freezer storage rental space revenue

Servicing of debt accumulated or owed due to construction of the FDC facility is not included in the OPEX analysis.

The assumptions to determine the realized revenue from each stream is demonstrated below.

- **Processing Revenue**
  - Operating hours per day: 8
  - Operating days per week: 7
  - Operating weeks per year: 52
  - Suites available for rent: 3
  - Utilization rate: 80%
  - Hourly “Break Even” rate charged to clients: \$30/hour

Processing revenue was chosen as the main revenue driver for the kitchen. Operation use was estimated based on assumptions of actual usage at any given point. Of course, the hours of use can vary dramatically and will be determined by overall interest in the facility and the number of anchor customers the kitchen is able to obtain. The hourly rate was determined throughout the market research on typical rental rates for commercial kitchens. A further discussion of the hourly rate can be found in the “Commercial Kitchen Income Statement Analysis” section.

Michael McCormick, President of the LFRC provided input when developing this ambitious operational hours schedule. His methodology at LFRC maximizes utilization and subsequent revenue of the facilities.

The spreadsheet developed to analyze this OPEX study will be provided to Prospera with the Final Report. Input parameters such as operating hours, utilization, rental fee structure etc. can all be manipulated within the spreadsheet to provide overall OPEX data for nearly any operating scenario.

- **Food Safety Class Revenue**
  - Class per year: 24 (2 per month)
  - Number of students per class: 5
  - Cost per student per class: \$300

Additional revenue can be generated by requiring food safety classes to use the facility. The actual number of classes provided will be driven by the actual use of the facility. The cost per class was chosen based on consultation with the Livingston Food Resource Center (LFRC).

- **Dry Storage Rental Revenue**
  - Number of pallets stored per month: 25
  - Pallet rental rate per month: \$25

The number of pallets chosen for this analysis was based on the cooler and freezer spaces depicted in the facility layout. More research will need to be done to understand the local demand for dry storage.

- **Cold Storage Rental Revenue**
  - Number of rental units per month: 140
  - Rental rate per month: \$50

The number of pallets chosen for this analysis was based on the cooler and freezer spaces depicted in the facility layout. With three-tier racks in the cooler and freezer spaces, each space would be able to accommodate 75-80 pallets, for a total of 150 – 160 pallets. The OPEX analysis shown here used an average monthly revenue stream for storage of 140 pallets.

Demand for cold storage is high. Dermer Refrigeration operates at least two cold storage rental facilities in the Gallatin Valley, which are “perpetually full” and charge approximately \$55/pallet-month.

Below is a summary of the annual revenue for all the active revenue streams.

Revenue Stream	Annual Revenue
Processing Rentals	\$209,664
Food Safety Classes	\$36,000
Dry Storage	\$7,500
Cold Storage	\$84,000
<b><u>Total Active Revenue</u></b>	<b><u>\$337,164</u></b>

Below are summary tables for all assumed costs associated with the facility. All assumptions were based on interviews completed with other commercial kitchens in the state as well as results from past feasibility studies completed by MMEC. It is assumed the facility is owned outright by stakeholders.

## Labor Assumptions

Employees	QTY FTE	\$/HR Wage	Working Hours per Day	Working Days per Week	Working Weeks per Year	Annual Wages (\$)
Kitchen Manager	1.0	30.00	8	5	52	62,400
Scheduler/Purchasing	1.5	25.00	8	5	52	78,000
Sanitation	0.0	18.00	8	5	52	-
Shipping / Receiving	1.5	18.00	8	5	52	56,160
Admin	0.0	18.00	8	5	52	-
General Kitchen Help	2.5	18.00	8	5	52	93,600
<b>Total</b>						<b><u>\$290,160</u></b>

## Outside Service Cost Assumptions

Outside Services	\$/Month	\$/Year
Garbage	400.00	4,800.00
Pest Control	150.00	1,800.00
Snow Removal/ Grounds Maintenance	125.00	1,500.00
Outside Maintenance Services	2,000.00	24,000.00
Deep Kitchen Cleaning	250.00	3,000.00
Sanitation Services	500.00	6,000.00
Marketing & Community Outreach	1,250.00	15,000.00
Outside Laundry Services	300.00	3,600.00
<b>Total Outside Service Cost</b>	<b><u>\$4,975.00</u></b>	<b><u>\$59,700.00</u></b>

### Consumable Cost Assumptions

Consumables	\$/Month	\$/Year
PPE	500.00	6,000.00
Basic equipment replacement	1,250.00	15,000.00
<b><u>Total Consumable Cost</u></b>	<b><u>\$1,750.00</u></b>	<b><u>\$21,000.00</u></b>

### Utility Cost Assumptions

Utilities	\$/Month	\$/Year
Water / Sewer	250.00	3,000.00
Gas	1,750.00	21,000.00
Electricity	1,750.00	21,000.00
<b><u>Total Utility Cost</u></b>	<b><u>\$3,750.00</u></b>	<b><u>\$45,000.00</u></b>

### Other Cost Assumptions

Other Cost	Rate	Rate Basis	\$/Year
Property Tax	0.68%	\$700,000	4,760.00
Payroll Tax	9%	290,160	26,115
Benefits	34%	290,160	98,654
Lease Payment	\$0.00	\$/month	0.00
General Overhead	\$1,000	\$/month	12,000
<b><u>Total Other Cost</u></b>			<b><u>\$141,529</u></b>



## Income Tax, Depreciation, and Interest Assumptions

Income Tax	Marginal Rate
Federal	12.00%
State	6.80%
<b>Total</b>	<b>18.80%</b>

Depreciation Rate	Depreciation Basis (Revenue)	Depreciation
1.50%	\$337,164	\$5,057

Interest \$/month	Interest \$/year
\$0.00	0

## Commercial Kitchen Income Statement Analysis

Based on the revenue and cost assumptions described above, the facility can expect unleveraged operating costs of \$557,389 per year. This sum does not include depreciation, which is a non-cash item. At the typical processing rate for a commercial kitchen, \$30/hour, and an annual revenue of \$127,500 for the remaining revenue streams, the facility will need \$220,225 in make-up donations per year.

***The actual processing OPEX break-even rate was \$61.51 per hour.*** Based on interviews with potential users and existing facilities, many users voiced concerns about rental rates exceeding \$20-\$30 per hour to be financially unviable from their (the user's) perspective.

If the hourly rate for users is set at \$30 per hour, then the make-up hourly rate needed is \$31.51. This equates to the annual make-up funding to cover the projected revenue shortfall of \$220,225.

These calculations result in a net-cash zero operation. If the facility operates as a for-profit entity, the overall business will not have a net income due to depreciation deductions.

A make-up funds analysis was done based on operating hours per day and per week and based on operating hours per day and utilization rate. These calculations were done to understand how the different operating scenarios affected the make-up funds needed to keep the facility viable if the facility can only charge \$30/hour to draw clients in. Tables of the results are found below.

The far-left column of this table are varying hours per day of operation. The top row is the number of days per week the kitchen is open. All scenarios include an 80% utilization rate.

Hours & Days of Operation	5 days/week	6 days/week	7 days/week
8 hr/day	\$280,129	\$250,177	\$220,225
12 hr/day	\$205,249	\$160,321	\$115,393
20 hr/day	\$55,489	\$19,391 Surplus	\$94,271 Surplus

In this table, the far-left column are the varying operating hours per day. The top row is the utilization rate of the facility. All scenarios are based on seven days per week of operation.

Utilization Rates:	50%	80%	100%
8 hr/day	\$298,849	\$220,225	\$167,809
12 hr/day	\$233,329	\$115,393	\$36,769
20 hr/day	\$102,289	\$94,271 Surplus	\$225,311 Surplus

Clearly, make-up funds will be needed in almost every scenario if the facility charges \$30/hour for the processing rental space. In order to be completely self-funding, the facility will need to be in use 20 hours a day, six days per week, with a minimum utilization rate of 66%.

Ultimately, it was found that \$30/hour may be the typical rate seen around Gallatin County, but it may not be a realistic rate for commercial kitchens found elsewhere. Other commercial kitchens throughout the country have been able to charge \$50/hour and still maintain a healthy flow of clients. If the facility can charge \$50/hour and still draw in clients, the operating conditions change significantly. Tables regarding the different operating scenarios for a \$50/hour processing rate are found below.

The far-left column of this table are varying hours per day of operation. The top row is the number of days per week the kitchen is open. All scenarios include an 80% utilization rate.

Hours & Days of Operation	5 days/week	6 days/week	7 days/week
8 hr/day	\$180,289	\$130,369	\$80,449
12 hr/day	\$55,489	\$19,391 Surplus	\$94,271 Surplus
20 hr/day	\$194,111 Surplus	\$318,911 Surplus	\$443,711 Surplus

In this table, the far-left column of this table are varying hours per day of operation. The top row is the utilization rate. All scenarios have a 7 days per week of operation.

Utilization Rates:	50%	80%	100%
8 hr/day	\$211,489	\$80,449	\$6,911 Surplus
12 hr/day	\$102,289	\$94,271 Surplus	\$225,311 Surplus
20 hr/day	\$116,111 Surplus	\$443,711 Surplus	\$662,111 Surplus

Clearly, charging \$50/hour for processing use allows the facility significant flexibility in the operating conditions needed if that rate can sustain the necessary client volume. From this analysis, the facility could still be financially feasible running twelve hours a day, seven days a week, and with less than an 80% utilization rate. More market research and client outreach will need to be done to determine the volume of clients that will be available charging \$30/hour versus \$50/hour and if the volume at \$50/hour is stable enough to maintain financial feasibility.

## SECTION 7: END OF REPORT

This report was prepared by the Montana Manufacturing Extension Center (MMEC). The report team consisted of the following personnel:

**David Allard – Project Manager**  
Food and Process Engineering Specialist  
MMEC, Bozeman

**Meg O’Leary**  
President  
M2O Group

**Jolene Cram**  
Food Program Coordinator  
Tri-State Food Manufacturing Collaboration  
MMEC

**Elle Gahl**  
Owner  
Shadow Ridge Analytics





The Report Team would also like to thank Michael McCormick, Director of the Livingston Food Resource Center for his generous assistance and insight.

**End of Report. Appendices 1 & 2 are attached.**



---

## APPENDIX 1

### Food Processing Equipment Common to Commercial Food Manufacturing

<u>Description</u>	<u>Photo</u>	<u>Cost Estimate</u>
<a href="#">Hand washing station</a>		\$3000
Portable Stainless Tables (6)		\$4000
Stainless Carts (6)		\$2000
Multiple weighing scales: kg floor (3), gram tabletop (6), kg table top (3)		\$5000
Multiuse Utensils and storage racks: bowls, whisks, spatulas, scrapers	Photo not available	\$500

### **Wet Processing Equipment**

<a href="#">12 gallon electric table top kettle manual tilt</a>		\$8500
<a href="#">75 gallon floor steam kettle</a>		\$28,000

<a href="#">Commercial Convection Oven</a>		\$21,000
<a href="#">Dehydrator</a>		\$1000
Sheet Pans with racks		\$500
<a href="#">40 quart food processor</a>		\$18,000
<a href="#">Table top food processor</a>		\$600
<a href="#">20 quart mixer</a>		\$2,600
<a href="#">Hobart 60 quart mixer</a>		\$20,000

## Dry Processing Equipment



<a href="#">Ribbon Blender</a>		\$14,500
<a href="#">Auger filler (dry product)</a>		\$4,000
<a href="#">20 quart mixer</a>		\$2,600
<a href="#">Hobart 60 quart mixer</a>		\$20,000
Air Vacuum or hood ventilation system.	No photo available	See J&V

## Pack and Assemble Equipment

<a href="#">Piston filler (fluid)</a>		\$4,000
<a href="#">Shrink tunnel</a>		\$5,600
<a href="#">Label Printer</a>		
<a href="#">Table Top 16" Heat Sealer</a>		\$300
Pedal Heat Sealer		\$400

## Wash Room / Wash Area

Commercial Dishwasher		\$8000
-----------------------	---	--------

Dishwashing Racks		\$1000
Chemical Storage Cabinets		
Chemical Foamer (compressed air req)		\$1100
Sanitizing sprayers		
Cleaning Supplies (hand sanitizer stations, mops, squeegees, brooms, brushes)		

Electric Pallet Stacker: <https://www.mscdirect.com/product/details/38392775> \$7,800

Additional Food Production Equipment information is provided in a quote specifically supplied to MMEC by J&V Restaurant Supply of Bozeman for this project as a separate attachment.



## APPENDIX 2

### **Mission Mountain Food Enterprise Center Pricelist:**

<b>FEE ITEM</b>	<b>FEE RATE</b>
<b>MMFEC Staff</b>	
Process Control Authority Oversight (per hr in 15 min. increments) per test	\$8.00
Production/Packaging Assistant (per hr, per person)	\$25.00
Kitchen Cleaning Fee (per hour)	\$25.00
<b>SERVICES</b>	
Kitchen/Facility Orientation for First-Time Users (Includes: instruction in proper equipment use, safety/cleaning procedures, establishing credit/billing, 2-hours of staff assistance in processing and a full day of room rental (PREPAID)	\$200.00
Key Deposit , Electronic	\$30.00
Nutritional Analysis (generic in stock data)	\$30.00
Research/Add additional Ingredients	\$10.00
Develop HACCP Plan- DDB Technical Services contract - to be arranged	
Remediation for Non-Compliance Reports (NR's) Issued to Client per USDA	\$30.00
<b>Supplies</b>	
Box of gloves	\$15.00
Other Misc Supplies/price depends on the supply and cost	
Label printing- per sheet	\$0.50
Pallet wrap- per pallet	\$2.50
<b>Storage</b>	
Dry, Freezer or Cooler, per shelf	\$10.00
Dry/warehouse, per pallet	\$25.00
Freezer or Cooler, per pallet	\$48.00
<b>Market Association/Coop</b>	
Market Association/Coop Membership Basic Fee – Per Year new member prorated fee	\$50.00
Barcode Set-up Fee/ (Market Assoc. Members Only)	\$30.00