Potential Infrastructure Investments for Alaska-Grown Food

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Table of Contents

Executive Summary

The most critical concern facing the Alaska food system is the security of its food supply. Traditional food gathering skills are in decline due to mechanization. The state's former agricultural economy has withered in the face of imported food.

This means that more than $1.9 billion leaves the state each year as Alaskans purchase food sourced outside. Alaska youth, both rural and urban, typically grow up with few skills in subsistence gathering or farming. Cultures which long supported this activity, building food self-reliance as well as economic and spiritual strength, have waned.

While a solid core of farms has risen to the challenge of raising food inside the state, making Alaska one of the national leaders in community-based food, these farms require supportive infrastructure to sustain themselves over the long-term. If Alaska wishes to feed itself, it will need to make a sustained investment in new farms, supportive services and infrastructure, and a lasting culture that ensures skills and insight are instilled in future generations. This will build upon prior investments in farm-to-school programs and Alaska Grown foods.

This report does not answer the question of which infrastructure investments would be optimal for Alaska to make; that is beyond the scope of this project. It does, however, provide costs estimates for several options, and make recommendations for how to proceed if any of the strategies outlined here were adopted.

We focus on three areas:

1. Workforce Development Through Farming on State Lands
2. Food Storage in Climate-Protected Food Caches Across the State
3. Shared-Use Community Kitchens

Workforce Development Through Farming on State Lands

- Alaska Should Consider Building Four "Food Production Nodes" in locations across the State, tailoring each to local conditions.
- These Nodes including washing / packing / distribution facilities should be combined with Incubator farms that provide leasable land for graduates.
- Leverage existing farm production in Bethel.
- Invest in related infrastructure.
- Part-time training opportunities may bring greater returns to Alaska.
- Build community and culture.

Food Storage in Climate-Protected Food Caches Across the State

- Alaska should create a Community Food Fund that would invest in R&D to create new storage models, build climate-controlled facilities, and foster learning across rural villages. Potential funding sources include: grant programs from private foundations, federal, state, tribal and local government, Alaska Native Corporations, etc.

Shared-Use Community Kitchens

- We have no recommendations regarding shared-use community kitchens, but do provide information existing operations in Alaska and offer cost estimates for construction and operation.

Introduction

The Alaska Food Policy Council (AFPC), having commissioned a detailed analysis of Alaska's food and farm system from Crossroads Resource Center in 2014 (Meter & Goldenberg, 2014), has succeeded in making use of that study to gain the attention of legislative leaders concerning the future of farming and food for the state of Alaska.

This new study is designed to provide more detailed recommendations and assist the AFPC as it works with the new Food Security Subcommittee of the Alaska House Resources Committee, co-chaired by Rep. Geran Tarr. It will focus on specific initiatives that might be advanced by AFPC, offering both an overall description of each project, and detailed financial projections for each.

Findings From Our 2014 Study

The prior food system assessment, "Building Food Security in Alaska," concluded that while Alaska is highly vulnerable as a massive importer of food, the state is also among the nation's leaders in building community-based food systems (Meter & Goldenberg, 2014). AFPC believes that the state must invest in supportive infrastructure to realize the full potential of these community foods accomplishments and ensure food security.

Our interviews with 152 Alaskans in 2013-2014 showed that civic leaders agreed that the most critical concern facing the Alaska food system is the security of its food supply. Food is a $5 billion business in Alaska, yet one that primarily exports Alaskan products through outside-owned entities and imports food from outside sources. Our sources could count only a half dozen Alaska manufacturers that focus their efforts on feeding Alaskans.

At least 95% of the $2 billion of food Alaskans purchase is imported — meaning $1.9 billion or more leaves the state each year as Alaskans eat. Moreover, this food is shipped through long supply chains. Essential items arrive by airplane, barge, and truck from Mexico, Europe, Asia, and the Lower 48, while much of Alaska's maritime bounty is channeled to Asia.

The importation of food means that the state is deeply dependent on oil for its food supply — but also depends on oil for food exports. More than $2 billion of seafood is exported to distant markets, increasingly Japan and China. Processors that add value to the salmon harvest, and wholesale brokers, are often located in Seattle, so Alaska obtains less benefit from its own seafood than it deserves.

Importing Farm Inputs is Costly

Farmers are also strapped by high input costs that make it difficult to compete with farmers from the Lower 48. Although Alaska created a barley industry in the 1980s, the state now confronts the reality that farmers in the Lower 48 and Canada can produce the grain at one-quarter of the cost of Delta Junction farms.

Similarly, Alaska once had thriving cattle and dairy sectors, but these have been weakened by loss of farmland to development and lowering costs of transportation. Furthermore, several generations of farmers who once knew how to produce food have not been able to sustain a culture of food growing. As a result, few Alaskan youth hold a close knowledge of farming or food production.

At the same time, the State has become startlingly dependent on public sources for its food purchasing. Low-income Alaskans received some $185 million of SNAP benefits from the federal government at the time of our study. That is thirteen times the value of all food products produced by Alaska farms.

Wild Harvests are Economically Important

Yet Alaska also has a profound ability to feed itself. The main source of local food in the state of Alaska today is subsistence and personal-use gathering, which account for a total food value of about $400 to 900 million per year. Most Alaskans catch some of the fish they eat or give away; and hunt or barter for wild meats. For some rural villages, our sources said, subsistence accounts for 80% or more of the annual diet; for urban dwellers, the figure is more like 10%.

Many Alaskans, both urban and rural, told us that as long as they can get ample supplies of wild foods, they would prefer not to buy meat and fish at the store — its quality is viewed as inferior. Yet many rural Alaskans have moved away from country foods toward store-purchased products, and studies show this has damaged their health. The Native population that once so effectively fed itself finds itself caught up in new vulnerabilities. External changes (rising fuel costs, changing weather, flooding, bad ice, changing wildlife migration patterns) are making it difficult for families to harvest traditional foods, resulting in a new dependence on imported, processed foods or hunger. Native youth are less likely to gain skills in subsistence harvesting, and this has led to a severe loss of culture.

Small Steps Have Proven Successful

In recent decades, small farms have begun to raise foods to sell directly to nearby consumers. The $2.2 million of food that these farmers sell is significant, rivaling the value of the state's potato crop — the state's third-most important food product. Moreover, these direct sales represent one of every five dollars earned by Alaska farmers who grow food for humans. Direct sales rose 32% from 2007 to 2012, and now stand at 13 times the national average. Nearly one of every three Alaska farms sells direct to household consumers, placing Alaska among the top states in direct sales, along with New Hampshire and Vermont.

Farmers across the state are launching boldly innovative farms. Fishers are selling high-quality fish direct to customers in Alaska cities. Patient efforts to reintroduce traditional foods have flourished. USDA states it has given out $4 million in grants to Alaskans to build high tunnels to grow food for both commercial and home use. Several greenhouses operate using surplus heat from a nearby building, or hot springs. The state has allocated millions of dollars so schools could buy Alaska grown products. Manufacturers are re-focusing on markets in Alaska.

$5 Alaska Grown Challenge

In 2017, the Alaska Division of Agriculture mounted a "$5 Alaska Grown Challenge" in partnership with retailers across the state including Carrs-Safeway, Fred Meyer, Wal-Mart and SaveUMore. These stores placed specialty Alaska Grown displays in their stores that showcased the Alaska Grown products each carries (Bingham, 2017). Recently, the State won an award for this campaign (Keyes interview).

Many Alaska households also grow food for themselves, extending a historical tradition. Several urban and rural communities have expanded gardening programs. Many offer training in growing food and cooking.

The most successful of these efforts have often been small in scale. All would be strengthened if Alaska created lasting infrastructure to support local foods. This is a necessity since food transportation routes have been an afterthought in state planning— at first these routes were dictated by the mining industry, and now by public investment in highways, railroads, and airports.

Economic Returns Could be Strong

The payoffs for doing so could be quite potent. Our study showed that if each Alaska resident spent $5 per week on Alaska Grown food items year-round, it would bring $188 million of sales to Alaska farms. Indeed, the State's $5 Alaska Grown Challenge was based on this recommendation. Yet Alaska does not currently have nearly enough farms to supply such demand. The state will need to make a concerted effort to grow new farmers, if it is to have a secure food supply.

House Resources Food Security Subcommittee

The Food Security Subcommittee was formed on May 2, 2018 (Alaska State Legislature, 2018). "Supply disruptions threaten our food security," the Subcommittee Chair stated in its founding memo, "so even small changes can reap huge rewards."

Recognizing that the State's new Economic Strategy Roadmap calls for attention to food security, the Subcommittee convened farmers and businesses in the Alaska food industry, and set the following goal for itself: "To create priorities for what the State of Alaska can do to build a stronger food system and encourage a vibrant entrepreneurial food economy."

An initial list of potential priorities to be considered included the following:

1. Workforce Development Through Farming on State Lands
2. Food Storage in Climate-Protected Food Caches Across the State
3. Increased Alaska Food Procurement by State Agencies
4. Rebuilding the State's Dairy Industry
5. Devising a Long-Term Strategy for Preparedness
6. Job Creation
7. Food Freedom — for Farmers Selling Direct to Household Consumers
8. Shared Community Kitchens for Creating Value-Added Products

This report will focus on the first two of these priorities, taking up others as practical.

Workforce Development Through Farming on State Lands

The first inhabitants of Alaska relied primarily on subsistence food gathering, but also cultivated crops. Farming was often done on sunny and sandy coastal beaches in the Southeast where a family might plant potatoes in the Spring, and return several weeks later for the harvest. Some families continue these practices today. Inland gardens and farms have also been developed.

The 100,000 prospectors who moved into the territory in the 1890s seeking gold typically brought food supplies with them. Devoted to following mining opportunities, many miners were too rootless to grow their own food. Stores sprang up to supply them. Others might return to the Lower 48 when the weather allowed, bringing food and other essentials on the return journey. A handful stayed even after the gold ran out. Many of these prospectors grew their own food in gardens, and some imparted their gardening skills to Native villagers.

The settlers who moved to the Matanuska Valley in the 1950s often came from rural communities in the Lower 48, so they brought a form of rural culture with them. Yet not all had successfully farmed in their former lives and for many the colony's promise of a cooperative community was not fulfilled. While the soil could support crops, it was not prime farmland, and markets were sparse. Many of the farms that built lasting businesses relied on food purchases from urban centers and Elmendorf Air Force Base. While several supporting industries flourished for a while (such as seed sales, input dealers, tractor mechanics, etc.) very few second-generation families continued in farming. The existence of a rural culture and economy that supported agriculture was therefore brief.

Alaska Must Invest to Re-Create a Farming Heritage

This means that the agricultural heritage of Alaska is a broken one. Agriculture has never taken root in the State in the way it did in the US Heartland. Few youth grow up today with any awareness of agriculture, let alone having the skills to farm or an interest in launching a business that would support farming.

If Alaska wants to have farms in its future, it will need to invest in creating such a culture. This would build upon the wisdom of scores of farmers who started out as young growers and now have decades of experience in growing food for Alaska consumers. They have done so against great odds, and with little supportive infrastructure. Yet if the State does not now build such support, it cannot expect farming to survive in Alaska, especially given the economic pressures that work against profitable farming and favor imports reliant on fragile transportation systems.

Workforce Development is a Priority

Workforce Development is thus a primary priority. Alaska now features two farmer-training programs, one at Calypso Farm & Ecology Center in Ester and another at Alaska Pacific University, though the latter is less active than it once was. Additionally students at University of Alaska are able to take classes that help them learn farming and business skills. A rare handful of young farmers pick up farming skills by growing up on a farm.

An important predecessor to these farmer-training programs is the experience K-12 students gain as part of the State's farm-to-school initiative. These programs instill in Alaska youth an appreciation for food and farms. The most successful programs combine food purchasing by institutional food service programs with gardening training and integrate food and farming into the regular curriculum. After several decades of such programming, one might expect every Alaskan youth to know at least the essentials of food production, healthy food preparation, and proper nutrition.

These workforce development efforts build upon experience gained in prior programs, such as the Alaska Growers School sponsored by the Tanana Chiefs Council and Cooperative Extension, training programs run by the Tyonek Tribal Conservation District, both using USDA funding, and others.

Supportive Infrastructure is Also Required

Yet to exercise these talents, future graduates will require economic infrastructure that supports agricultural pursuits. The Subcommittee is considering launching more intensive Workforce Training in agriculture, farm business, and supportive industries. Since Alaska owns 90 million acres of land, with 580,000 acres currently in the state's land disposal bank for eventual lease or sale (AK DNR, 2000), the State has tremendous opportunity to use its land for this purpose.

Although not all of these acres are suitable for farming (some have limited fertility, many acres are forested, or sloped to such an extent that they would not be prime candidates for farming), the state has announced plans to open up 10,000 acres of land in Nenana Totchaket for agriculture. These plans are currently on hold pending construction of a bridge across the Tanana River. Plans for the bridge have been stalled for lack of funding and incomplete plans. The State has already taken steps to allow agricultural use of the land, which many consider to be the largest plot of decent agricultural land in Alaska. A livestock plan and transportation plan have already been written. The Doyon Corporation has been drilling exploratory wells to see what oil yields are possible from the basin.

If this region does eventually become developed as an agricultural enterprise area, it will be important to craft plans for these farms so that they are more effectively supported than farms in the Matanuska Colony, or the pioneering barley farms that were launched in the 1980s. This means:

- Farms must be developed that are a profitable size (this is possible with a few acres of produce production and for larger-scale commodity farms, given supportive infrastructure).
- Each farming type will require supportive physical infrastructure. As one example, a produce farm will require the kind of washing, packing, and distribution shed that we outlined in our 2014 report (Meter & Goldenberg 2014, pp. 69, 175, and reproduced here in Appendix A). Dairy farms will require a nearby processing plant, or the ability to sell raw milk directly to consumers. Cattle farms will require new meat processing capacity nearby.
- Nearby consumers must dedicate themselves to eating foods that are raised on these farms, and pay farmers a price higher than the costs of production.
- Adequate food storage caches must be built that protect against both winter freezing and summer heat.
- A cluster of supportive industries (input dealers, mechanics, seed growers, etc.) must be installed as part of the cluster of farms.
- Generations of youth must be skilled in farming and view it as a desirable occupation.
- Renewable energy supplies must be available so the farms have as much independence as possible.
- Ongoing training opportunities must be available at K-12, college, and adult levels.
- Extension research must engage farm families in research activities that help them build increasingly sustainable livelihoods.
- Especially for young farmers, it may be critical to locate such a training program near an urban area.

For the purposes of this report, we focus on the prospect of building "food production nodes" similar to those we proposed for produce farmers in our 2014 report. Projected costs for building such facilities on state-owned land, perhaps on four scattered sites across the state, are included in Appendix A.

First, however, we consider the nature of farmer training programs so that we can recommend the best possible programming.

Review of Incubator Farms Nationally

From an earlier review of incubator farms we compiled for the State of South Carolina (Meter & Goldenberg, 2013), we learned that a variety of farmer training models are functioning. Many focus more on showing immigrant farmers — who already know the basics of farming — how to grow food more sustainably and intensively and how to market in the US context. Most all expect a trainee to learn new skills, and then graduate to a permanent farm site of their own choosing after a few years. Often, the expectation is that this will happen within 5 years.

Through our research we discovered that perhaps the most difficult aspect of launching such a farm incubator program is finding good faculty. Often those who farm well have different skills that those who teach, and those who readily combine these skills are often successfully training emerging farmers on their own farms.

The Need for Leasable Land Nearby

Perhaps the next most important difficulty encountered by incubator farms is that graduates of the training programs are not always able to find land when they are supposed to leave the incubator farm. Indeed, many training programs, although attempting to avoid creating a dependency among farm trainees, find that graduates are valuable as mentors to new trainees. Also, the food that experienced farmers sell through the training program is valuable as an income source to the training program itself, as well as to the farmers.

Moreover, many of the graduates have no compelling reason to leave. Many value the friendships they have built with other farmers. Most are accustomed to having access to washing stands, packing sheds, staging/distribution space, storage areas, and markets through their engagement with the incubator. While some are eager to set out on their own, others view this as less desirable than staying in contact with the community they have built. Even for those who prefer to strike out on their own, farmland, water, and equipment costs may be prohibitively expensive, especially in areas that are close to metropolitan markets with high land prices.

For these reasons, we advocate building an incubator farm with leasable land nearby. This would allow those who wish to strike out on their own the option of leasing their own farm while remaining part of the incubator community, and taking advantage of both the physical infrastructure and markets that the incubator hosts while remaining available as mentors for upcoming farmers.

If Alaska were to build such a facility on State-owned land, it would find this to be relatively simple, compared to other states that lack extensive acreage for leasable land near a training farm.

Proper Infrastructure Creates Local Efficiencies

Note that the rough sketch of a “food production node” included in our South Carolina report was intended to be located near five farms of five acres each, sharing a common washing, packing, and distribution facility. This is by no means the only way such a model could be devised. Yet if this were

done, and the surrounding fields were leasable lands centered upon the washing, packing, and distribution facility, it would create tremendous efficiencies for local food sales.

If several farms co-located in close proximity to such a facility and coordinated their efforts, they would gain considerable market presence, with buyers wanting to know what they are growing and confident that deliveries could be made.

We envision that one of these incubator packages might be constructed at Nenana Totchaket, while others might be built near Anchorage or Palmer, in the Southeast, and in a rural village to the North. The Subcommittee and the host community should determine best locations for these food production nodes.

Calypso Farm's Experience Running a Training Farm in Alaska

It would also be important for any such incubator farm that might be developed to add value to, rather than compete with, existing training programs. To that end, we discussed the experience that Calypso Farm and Ecology Center has had with its training program.

Located on a steep hill outside of Ester, west of Fairbanks, Calypso Farm is a farm working 30-40 acres, depending on the year. Owners, Susan Willsrud and Tom Zimmer, sell vegetables and cut flowers year-round, supplementing that income with educational events including training programs and a lot of school tours. Pursuing individual interests in the colder months, Susan sells wool products, and Tom offers training in blacksmithing.

The diversity of these income sources creates a great deal of resiliency for the farm business. Willsrud noted that just a few years ago, there were 15 CSA (Community Supported Agriculture) farms in the Fairbanks area, but now Calypso is the only one. "There is almost no competition for us now. That is not good for food security," Willsrud said.

The couple once sold food to several restaurants in the Fairbanks area, but has now scaled back to a single restaurant because other purchasers were unpredictable. Overall, she attributes the success of the farm to selling direct to households. "It is harder to make it work the further you get from direct marketing," Willsrud said. Local grocers are "willing to feature locally raised foods," she added, but the scale of production has seldom been sufficient to meet that demand. Fairbanks Memorial Hospital has begun to purchase food from nearby farms, she said.

Two Types of Training Offered

Calypso Farm offers two types of training: (a) an intensive summer intern experience in which people come to the farm for the summer months, live on the property, and work on the farm to learn new farming skills; and (b) brief exposures for those who want to gain specific skills while remaining at a day job and living at home. Susan Willsrud pointed out that each program attracts different people.

The summer program runs for five months, attracting 4-7 trainees each year. Most are young. Willsrud said, "There is a wave of young people who are interested in farming." Each participant is trained to farm year-round, and completes a farm business plan as part of the program, so graduates are well positioned to launch a farm of their own. To date, approximately 30 people have completed the

program, and Willsrud stays in touch with each one. Most now run some business that is farming and food related — yet many have set up business elsewhere, typically outside Alaska.

Often those who attend, Willsrud added, are young people who view coming to Alaska as a challenging summer adventure. They may well feel that if they learn how to farm in Alaska, they can farm anywhere, but their choice to come to Alaska is often shaped more by their desire to live in the state for a while than by a desire to settle in and farm.

Those who attend the shorter courses, however, are more likely to stay in Alaska. This program combines a two-week session on the farm, another weeklong intensive, with weekend sessions and participation as a member of an ongoing network of trainees. Students often integrate their farm training with a part-time job, or run a gardening or farming business already. Willsrud said these students are more likely to be adults who have "clearly articulated an interest in farming." She added, "Nine out of 10 come from Alaska, and they stay in Alaska. Five have started farms near Fairbanks." While the program attracts a diverse age range (18 to 55), most students are in their 30s or 40s.

Willsrud has concluded from her farming experience that small-scale farms offer the most promise. "Twenty small farms could make quite a difference," she said. Willsrud further questioned whether anyone could launch a larger farm (of 10 or more acres) right now, due to the costs of land, equipment, and inputs. "How could you start such a farm now?" Even if one could pay for the startup costs, there are few support services, she added. "We don't have access to equipment here. There is no one to fix it." Her comments underscore the need to build both a culture and an economic infrastructure around new farms if Alaska is to have a permanent farm population. Farmers such as Tim Meyers have risen to this challenge by building their own equipment (see below), but not everyone has this ability.

Part-time Training Program Attracts More Alaskans Who Farm in Alaska

Her experience suggests that the optimal training program may best be located in a metropolitan area where there is a pool of students who hold jobs and can easily travel from home to the training farm with a short drive. Willsrud felt that the Nenana location, even though it is close to Fairbanks, may be too far away to attract this type of student.

This suggests that if an incubator farm were developed at Nenana, serious consideration should be given to how to ensure that those who would be invited to live and work on the farm would feel comfortable living in such a remote place, and what would entice them to remain in the area as they gain strong farming and marketing skills. It might be, for example, that this location would appeal greatly to an immigrant population or another highly motivated community that sought a place to settle together over the long term, but it might not appeal to individual young Alaskans hoping to start a farm.

Meyers Farm Suggests Cloning Itself

Tim and Lisa Meyers farm in Bethel. Tim has developed a number of innovative approaches to farming, in part because he holds an unusual blend of talents. In addition to managing the farm, he has made his living building homes, holds a wealth of skills including welding, is a creative thinker, and pilot. As profiled in our 2014 study (p. 104), he also has amassed some capital, but he says he earned this through his own labor.

The Meyers currently raise about 100,000 pounds of produce on his farm, located on state land near the Bethel airport. Tim said his land is far more fertile than most in Alaska, adding that there is no reason Bethel could not be supplying produce to most of the state. The only other land that has comparable fertility, he added, is at Delta Junction. Land in the Palmer area was only second-quality soil to begin with, and now is too expensive to purchase, he said.

Meyers' answer to the lack of machinery has been to build his own. Drawing upon his welding skills, he has built planters, harvesting equipment, and innovative buildings including a root cellar.

Focus on Crops that Grow Well in Alaska

The Meyers focus on crops that grow well in Alaska including root crops (potatoes, carrots, turnips) and vegetables (cabbage, tomatoes, cucumbers, celery, zucchini, yellow squash, etc.). In addition to selling directly from his farm, he also sells to AC stores in Kotzebue, Nome, and Dillingham. He saves on shipping these products by loading them onto cargo planes that otherwise would return empty to Anchorage and Fairbanks after dropping off shipments for rural towns and villages. "We have 6 empty jets flying out of here every day." He said that it would be possible to ship as much as 20,000 pounds on each jet. "I believe that we could ship food to Anchorage from here more cheaply than a farmer in Palmer can ship food to the same markets."

Meyers has contracted with a rural Community Action Program to supply their Head Start centers with fresh produce. He is also working with some health centers and village clients to ship food boxes to people who have diabetes. He ships a $45 box of produce (that also includes fresh oranges, apples, and plums he imports from the Lower 48) to people enrolled in care programs. He hopes to build up to sending 30 boxes a week.

New Farms Could Make Use of Meyers' Technology

Tim added that if only two or three additional farms like his could locate nearby, the region could become an important center for produce production for the state. In his view, the best way to expand production would be to open up a new farm near his. He offered to outfit that farm with the technology he uses, and would work with a new farmer for a year on his own land — and then would turn the operation over to the new farmer. He said it would not take a great deal of land to sell considerable product. If a farm started with an acre of carrots, an acre of potatoes, an acre of turnips, and so forth, there are buyers who would purchase these. He felt it should not be difficult to start in this way and quickly scale up to selling 90,000 pounds of produce per year. He cautioned, however, that the best way to build such a business is to sell these hardy crops that store well.

Since Meyers is selling to remote customers with limited access to fresh produce, he has been able to ship in smaller quantities at first, ramping up sales as he builds production capacity in a natural progression. The same step-by-step growth might be difficult to obtain in an urban setting where larger volumes are incessantly in demand.

Tim Meyers also cautioned that the state does not need more training programs. "If we had only 2-3 more working farms we would make a tremendous difference." He felt that the return from small-scale training programs is too slow to significantly boost production. In the Bethel area, he said, there is little state land that could be devoted to farming. Much of the fertile land is in Native allotments. If owners were willing to lease these lands to farmers, they could gain rental income for years to come, he said.

Coping with the Decline of Permafrost

Meyers took a proactive approach to the permafrost. After gaining approval from DNR officials for a pilot project, he scraped the layer of vegetation off of some of his fields. This caused the permafrost to recede to several feet down. He said this has created a very favorable soil microclimate, because water collects on the soil layer just above the permafrost. In his first ears of farming on this land, he said he watered too often. Now he lets the plants send roots down to this moist soil layer below.

As outlined later in this report, Meyers also built a 19,200-cubic-foot root storage cellar on his farm, creating innovative building techniques in the process, as shown below. He says the storage area can hold as much as 300,000 pounds of produce safely.

Our Recommendations:

1. Food Production Node. As part of a workforce training initiative, we recommend that the State of Alaska consider building up to four food production nodes at scattered locations across the state, using State-owned land. This would be a washing / packing / distribution shed that could serve multiple farms at one time.

- The Subcommittee should determine the best locations in collaboration with hosting communities, with each one tailored to local capacities and needs.
- We assume one would be built near Fairbanks, one near Anchorage/Palmer, one in the Southeast, and one in a rural village to the North.
- Cost estimates for diverse locations are included in Appendix A. Total cost for one prototype facility runs from $537,443 to $578,435. This prototype should be modified as needed to suit local conditions and needs.
- Storage caches or community kitchens might be added as appropriate. See Appendix B.

2. Combine nodes with Incubator Farm(s). It may be best to combine this food production node with an incubator or training farm to maximize the potential for growing new farms, and to create new efficiencies in community food trade. Expanding training opportunities that are close to urban centers will prove most useful in generating new commercial farms for Alaska, while immigrant communities may prefer access to residential settlement. Rural villages will have distinct needs and will pursue unique approaches compatible with their heritages; the State should facilitate planning that adapts to each constituency.

3. Leverage existing farm production in Bethel. Those who opt to farm at a slightly larger scale will require specific training, equipment, and infrastructure supporting their endeavors. To produce at wholesale quantities, it would be important to build production equipment in Alaska, and limit dependence on outside inputs, as Tim Meyers has done. Meyers advocates for cloning his own farm, rather than launching a training farm in the Bethel area.

4. Invest in related infrastructure. The experience of starting new agricultural industries in both the Matanuska Valley and Delta Junction show that simply opening up new land to farming will have limited impact unless a cluster of related businesses are also formed. These would include processing facilities, input dealers, lenders, and other supportive businesses. Ensuring that leasible land is located near training farms will be important in ensuring that farms can go to scale without breaking from relationships they have built with buyers and fellow farmers.

5. Part-time training opportunities may bring greater returns to Alaska. Calypso Farm has found through its training programs that full-time training programs often attract those who wish to experience life in Alaska briefly, while part-time programs attract residents who are committed to living and farming in Alaska.

6. Build Community and Culture. Farms should not be developed in isolation from other community members who can support the agricultural enterprises. Building a culture that supports effective farming will also prove important for ensuring the long-term impact of these investments.

Food Storage in Climate-Protected Food Caches Across the State

Food storage caches were integral to traditional rural culture. In countless remote villages, subsistence food hunters and gatherers constructed storage areas. These were built quite inexpensively using readily available natural materials. Many were dug into the ground, drawing upon a steady-temperature environment year-round.

However, recent efforts by rural villages to build such storage caches have found that traditional technologies are compromised by weather change. In areas where the permafrost has begun to melt, underground storage caches are prone to water damage from melted ice or physical damage from eroded soil. Moreover, air temperatures are less predictable and coastlines have changed — meaning that protecting a safe storage environment is more difficult than it was traditionally.

Further complicating the storage question is the fact that those modern materials that are readily available do not necessarily provide safe storage. Traditional practices used burlap sacks that were easy to obtain after White settlers arrived. These sacks allowed air movement through the woven material thus preventing unchecked bacteria growth. Today plastics are more plentiful so many store food items in plastic. Modern plastics trap moisture and lead to unsafe conditions, consultant Gary Ferguson said. This is especially a concern with fatty meats.

Some Use Traditional Technologies

Some villages are testing traditional storage techniques in parallel with renewable energy sources such as solar energy. Other sites have made use of waste heat from buildings heated using fossil fuels. Use of renewable energy that is generated on-site clearly can reduce potential costs for food storage caches, and add to longer-term food security.

So far the greatest impacts of weather change have occurred in the Northwest Arctic and North Slope Borough, Ferguson said. He has heard anecdotal reports about food storage efforts in the North Slope Borough, but specific details have been difficult to locate.

One village on Bristol Bay, Port Heiden, has made a priority of coupling food production with food storage so that village residents gain more food security, Ferguson added.

Root Cellar in Bethel

Farmer Tim Meyers of Bethel responded to melting permafrost in his area by accelerating the process (See profile above). He built a 19,200 cubic-foot root cellar on his farm that he said could hold as much of 300,000 pounds of produce. He constructed it for himself using a fairly straightforward approach. Using a grader, he scooped out the subsoil to create an opening larger than he needed for the cellar. He then built a steel frame, made of tubular steel posts, which he inserted into the opening. He built walls around this frame. Using the grader again, he banked up the soil he had removed from the hole to build an embankment as much as 9 feet high around the frame.

The resulting root cellar is 40 feet by 40 feet and 12 feet high. He laid a brick floor to help keep the storage area clean and easy to manage. He added that he has seen a great deal of deterioration in nearby buildings that were built with wooden foundations 60 years ago. Even in the permafrost, these wooden frameworks have rotted away. "We should be able to get another 100 years out of these steel frames," he said.

Meyers began construction in July, when the soil was easiest to work, and finished in December. He said this construction was quite inexpensive, since he had the means to purchase the steel and the equipment and time to do the work himself. He warned, however, that building such a facility on a state contract, and engaging professional designers and hiring laborers, could run into the millions of dollars for a similar facility, with potentially millions more in annual operating costs to cover.

Other Examples

The Maniilaq Corporation has built simple storage facilities so that traditional foods that are harvested for elders can be safely stored until they are used in elder housing food services.

Danny Consenstein noted that researching potential new food storage technologies represents an exceptional opportunity for creating newer, safer approaches. He added that USDA has potential funding sources that could be tapped, as do some private foundations.

Gary Ferguson reports that he has approached **Alaska Growth Capital,** a wholly owned subsidiary of the Arctic Slope Regional Corporation, to suggest the idea of financing food storage caches using New Market Tax Credits. He said AGC may release a call for proposals in August. He views these as offering considerable entrepreneurial and business opportunity.

One Illinois farmer built a new washing/packing shed on his property, hoping to entice his neighbors to make use of the building for collaborative distribution. Since he used his own land, there were no land costs. He said that the new building and refrigeration equipment cost him about $300,000, and he expects to spend another $50,000 to $60,000 adding used processing equipment and outfitting used shipping containers for cold storage. He is maintaining different storage areas for root crops that need to be stored at warmer temperatures than other produce.

Our Recommendation:

Alaska should create a Community Food Fund that could be used for R&D to create new storage models, to build climate-protected facilities, and to foster learning across rural villages that endeavor to create new storage cache models. Potential funding sources include: grant programs from private foundations, federal, state, tribal and local government, Alaska Native Corporations, etc.

Such a Fund might solicit proposals from individuals and nonprofit organizations that seek to launch R&D or implementation efforts in their own regions. Such community-based initiatives (for example Tim Meyers' root cellar) may be able to accomplish much at considerably less expense than direct state programs would.

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Appendix A: Food Production and Storage Node Cost Considerations

The following figures are based on models developed in the Lower 48 states for specific projects and adjusted for hypothetical scenarios in Alaska. While the example shown was proposed for South Carolina, similar facilities have been built in several other places, such as Minnesota and Illinois. Each is — and should be — closely adapted to local needs.

An architectural firm developed the original plans shown in Figures 1 & 2 for a food production node. This was intended as a re-use for an existing dairy barn in Minnesota, allowing the family to restructure their business as the dairy industry declined. In 2013, total construction cost estimates amounted to $370,000.

The cost estimate for this same design was adjusted for inflation to 2018 construction costs (roughly $455,000) and then adjusted again for specific areas in Alaska, as shown in Table 1. An average cost for most Alaskan locations would fall between $540,000-548,000. More remote rural villages could expect costs over $1 million.

Note that projected costs listed here do not include land acquisition costs, nor ongoing costs of operation. Both would have to be considered pragmatically in each setting.

Figure 1: Design for a Prototype Food Production Node

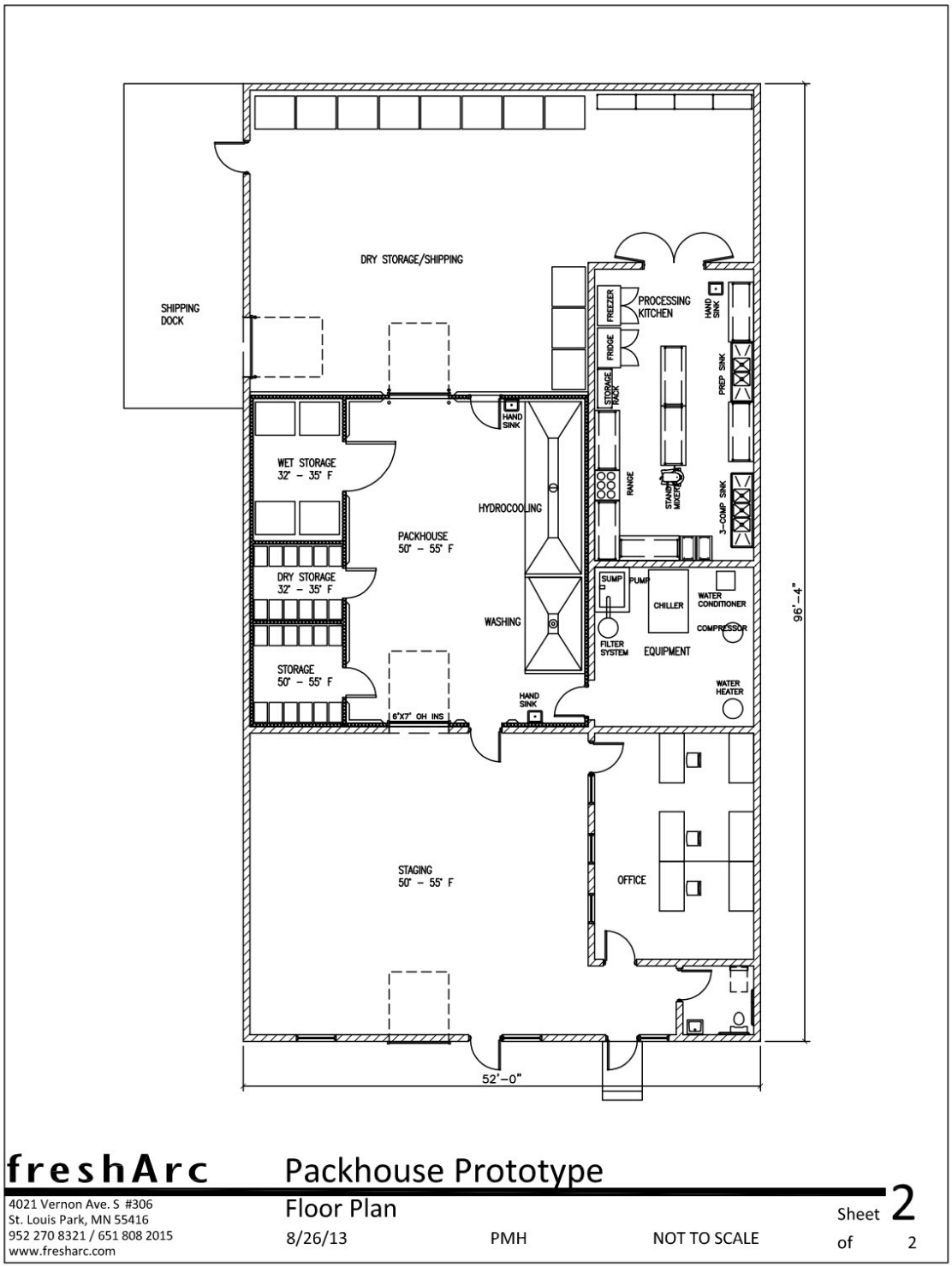

Figure 2: Layout for a Food Production Node Near Incubator Farm Plots

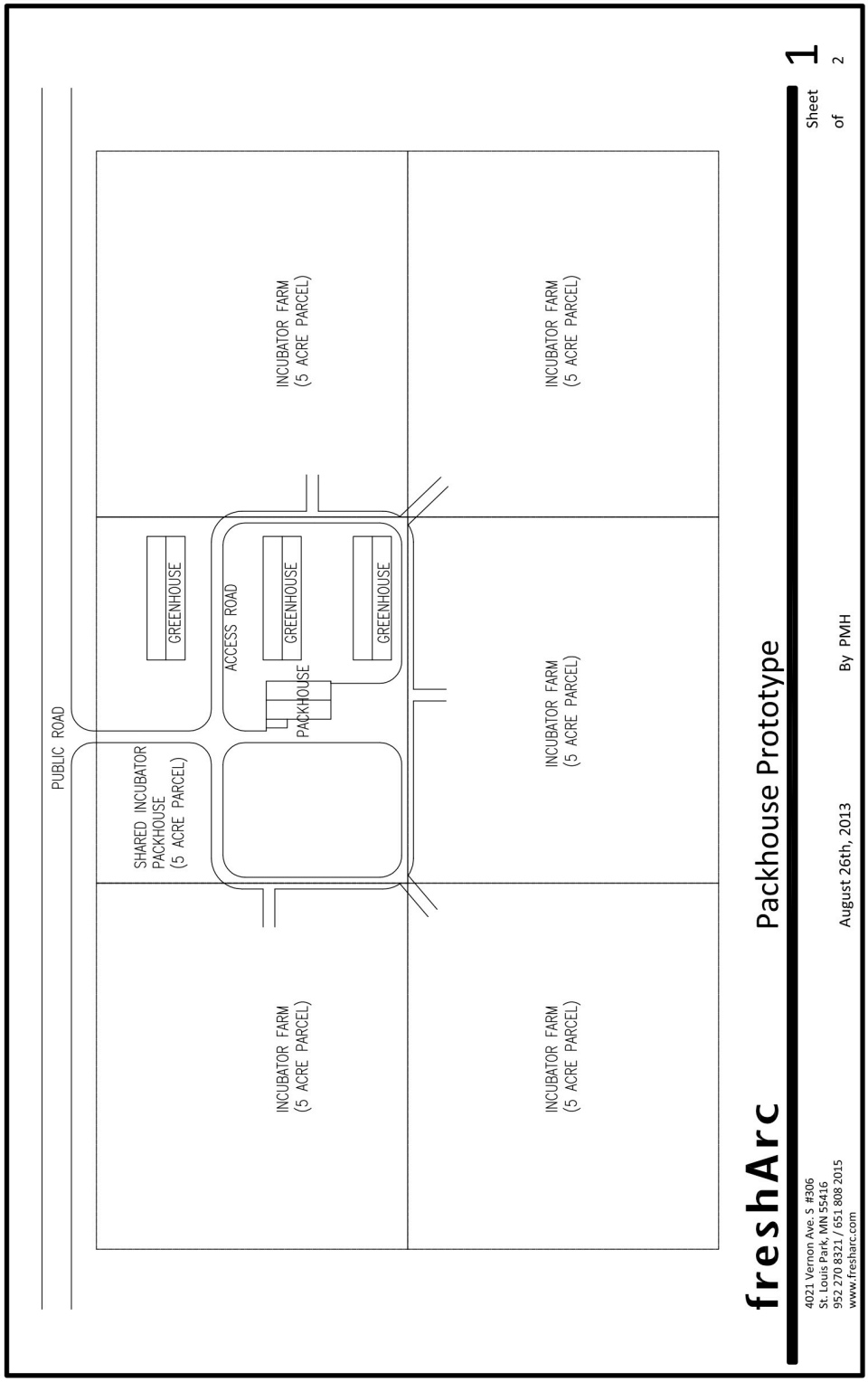

Table 1: Cost Estimates for Food Production Node In Alaska (next page)

General Conditions	TOTAL L48 COST (2018)	AVE. TOTAL COST AK	TOTAL COST ANCHORAGE/ FAIRBANKS	TOTAL COST KENAI/ JUNEAU
Design	$9,255	$11,384	$11,754	$10,921
Engineering	$2,962	$3,643	$3,761	$3,495
Project Mgr/Sup	$12,340	$15,178	$15,672	$14,561
Total	$24,557	$30,205	$31,187	$28,977
Site Prep				
Survey/Layout	$2,962	$3,643	$3,761	$3,495
Water Service	$17,770	$21,857	$22,567	$20,968
Grading	$23,693	$29,142	$30,090	$27,958
Total	$44,424	$54,642	$56,418	$52,420
Packhouse Shell				
Metal Building	$49,113	$60,409	$62,374	$57,954
Concrete	$19,250	$23,678	$24,448	$22,715
Overhead Doors	$6,219	$7,650	$7,899	$7,339
Swing Doors	$4,220	$5,191	$5,360	$4,980
Total	$78,803	$96,928	$100,080	$92,988
Packhouse Finishes				
Finishes	$11,846	$14,571	$15,045	$13,979
Electrical	$16,782	$20,642	$21,314	$19,803
Mech & Plumb	$54,296	$66,784	$68,956	$64,069
Overhead Doors	$3,208	$3,946	$4,075	$3,786
Swing Doors	$2,869	$3,529	$3,644	$3,385
Total	$89,002	$109,473	$113,033	$105,023
Kitchen Finishes				
Flooring	$11,106	$13,660	$14,105	$13,105
Wall/Ceiling	$11,353	$13,964	$14,418	$13,396
Mech & Plumb	$7,898	$9,714	$10,030	$9,319
Electrical	$7,774	$9,562	$9,873	$9,174
Total	$38,131	$46,901	$48,426	$44,994
Green/Hoop Houses				
30x120 Hoophouse	$24,063	$29,597	$30,560	$28,394
Water Service	$3,702	$4,553	$4,702	$4,368
Total	$27,765	$34,151	$35,262	$32,763
Packhouse Equipment				
Coolers	$44,424	$54,642	$56,418	$52,420
2 Bin Sink	$1,481	$1,821	$1,881	$1,747
Hand Sink	$247	$304	$313	$291
Stainless Tables	$1,851	$2,277	$2,351	$2,184
Shelving	$926	$1,138	$1,175	$1,092
Total	$48,928	$60,182	$62,139	$57,735
Kitchen Equipment				
20 qt mixer	$1,481	$1,821	$1,881	$1,747
Refrigerator	$1,481	$1,821	$1,881	$1,747

	Freezer	$1,111	$1,366	$1,410	$1,311
	2 & 3 Bin Sinks	$1,481	$1,821	$1,881	$1,747
	Hand Sink	$123	$152	$157	$146
	Range & Hood	$11,723	$14,419	$14,888	$13,833
	Stainless Tables	$4,319	$5,312	$5,485	$5,096
	Total	$21,718	$26,714	$27,582	$25,628
	Total Base Cost	$373,328	$459,194	$474,127	$440,527
	P&O (15%)	$55,999	$68,879	$71,119	$66,079
	T&I (7%)	$26,133	$32,144	$33,189	$30,837
	TOTAL PROJECT COST	**$455,460**	**$560,216**	**$578,435**	**$537,443**

Additional Food Storage Considerations

The above food production node designs and budgets could be easily reimagined as a central food storage facility, either to accommodate food supply chain disruptions (food bank) or for individual seasonal storage of locally harvested and hunted foods (food locker). Depending on the purpose of the long-term food storage, the following should be considered:

Will food be received on a pallet by truck in an ongoing way? This might be the case if large quantities are being sourced from a metropolitan area to supply a rural village. If so, rollup 8x10-ft doors ($9,000-12,000 each) and loading docks ($30,000 each) need to be added to the design and budget. A small facility available to community members for storing a large harvest could get by with only standard walk-through doors, if needed, but a rollup door is always nice to have.

Larger food storage caches serving the general population in case of emergency or supply distributions will want to consider multiple climate controlled rooms depending on the extent of their needs. These rooms could include deep freezers, freezers, cold storage for meats and proteins, cool storage for produce, and dry storage for grains. Typically 3-5 different storage zones, set at different temperatures and humidities, are required to store all produce items. A food locker arrangement will want to consider individual chest freezers, refrigerators, and dry storage racks.

Commercially available large-scale cold storage options are as follows:

Table 2: Commercially available large-scale storage options

Description	Storage Capacity	Cost per Unit*
8x4.5x4 Cooler, One Door, Floor, Ramp	93.56 cu ft	$6,578
8x4.5x4 Freezer, One Door, Floor, Ramp	93.56 cu ft	$6,224
8x10x10 Cooler, One Door, Floor, Ramp	480 cu ft	$9,894
8x10x10 Freezer One Door, Floor, Ramp	480 cu ft	$11,280
8x30x35 Cooler or Freezer	5,040 cu ft	$45,000

Additional cold storage options are as follows:

Description	Storage Capacity	Cost per Unit*
Reach in Cooler, Glass Door	10-20 cu ft	$2,000
Chest Freezer	10-20 cu ft	$300-600
Shipping Container w/Coolbot & AC	350-1280 cu ft	$3,000 - $9,500
Refrigerated Shipping Container	1280-2338 cu ft	$7,500 used; $23,000 new

*Pricing based on quote obtained for the Lower 48

Table 3: Costs for Larger Food Storage Caches

The size of building and total space needed for a large food cache could be estimated based on population size and desired length of time for total food storage. For example, a rural community with a population of 400 people may want to storage enough food for two weeks consider the following:

Description	Storage Capacity	Floor Space
Meat Storage	420-1260 cu ft	70-210 sq ft
Dairy Storage	294-588 cu ft	49-98 sq ft
Produce Storage	840-1680 cu ft	140-282 sq ft
Dry Storage	462-1386 cu ft	77-231 sq ft

These numbers represent three meals a day for fourteen days for the entire population of the village, using fresh foods. An emergency food cache will want to store milk powder and frozen or dehydrated produce, the above numbers should be adjusted accordingly.

A shared access community food locker will want to scale these numbers down based on the number of parties interested in using such a facility.

Appendix B: Shared Use Commercial Kitchens

An integral part of maturing food business clusters are intermediate processors. These entrepreneurial ventures take many shapes — bakeries, catering, milling, flash-freezing, meal production, etc. Building or renting a full commercial kitchen can be cost prohibitive to new and growing entrepreneurs that may only need a few pieces of equipment for a few hours a week at the onset. Shared-use commercial kitchens address these barriers to entry. A shared-use kitchen, at its most basic level, provides commercial kitchen facilities and storage space for an hourly rental rate. Many are kitchens that restaurants or churches rent out during off-hours; i.e. the rental provides them with extra revenue but their business model is not depending on that rent. More extensive programs, referred to as incubator or accelerator kitchens, provide wrap-around business development and support services including financial planning, marketing, legal assistance, training, etc.

The current commercial kitchen system creates the following challenges to the local food system:

- Over-reliance on broadline distributors decreases market opportunities for local producers and food entrepreneurs, resulting in significant economic leakages
- The leap from a home kitchen to a commercial kitchen may be too great for some entrepreneurs

Proposed Supply Chain and Infrastructure

A shared-use commercial kitchen would address the following goals:

- Increase opportunities for entrepreneurs to start and expand food processing businesses
- Reduce barriers to accessing commercial kitchen space
- Increase opportunities for producers to sell to processors
- Increase opportunities for processors to sell to local retail outlets
- Increase job training opportunities for residents
- Increase quantity of healthy, local foods at local outlets
- Reduce economic leakages

Community Kitchens Already In Place

Our sources also told us that several community kitchens have already been funded in different parts of the state. These include:

Anchorage:

The **East Anchorage Kitchen** has a fully functional commercial kitchen space with double convection ovens, 8-burner cooking range, stainless steel tables, a 3-compartment sink, preparation sink, chemical dishwasher, dry storage, and cold storage [Source: The Kitchen Door].

Anchorage School District was reported to be interested in exploring shared use of its kitchen.

MatSu School District was reported to be interested in exploring shared use of its kitchen.

MatSu Community Commercial Kitchen: Several national resources list this shared use kitchen, however, it no longer appears to be operational.

Kenai:
Kenai Peninsula Borough School District was reported to be interested in exploring shared use of its kitchen.

Fairbanks:
University of Alaska-Fairbanks Cooperative Extension Service lists a shared-use kitchen on their campus at 1751 Tanana Loop, Room 101, Fairbanks, AK 99775 [Source: The Kitchen Door].

Fairbanks North Star Borough School District was reported to be interested in exploring shared use of its kitchen.

Wasilla:
The **Bogard Food Hub** is listed as the site of a shared-use kitchen available for rent at 4721 E Bogard Rd, Wasilla, AK 99654 [Source: The Kitchen Door].

City of Wasilla — Curtis D. Menard Memorial Sports Center
Source: http://www.cityofwasilla.com/departments-divisions/menard-sports-center/kitchen-facility

The Menard Center has a 3,500 square-foot commercial kitchen available to rent by the hour or day, and also makes freezer and refrigeration space available for short-term use. Also, the facility may be rented for special events. Location is 1001 S. Clapp Street, Wasilla, AK 99654. Contact via: 907-357-9100 or recreation@ci.wasilla.ak.us

The Kitchen is equipped with commercial grade convection ovens, microwaves, refrigeration, freezer units, commercial dishwasher, ice machine, griddle, broiler, range, steam tables, deli unit, ice carts, stainless steel prep surfaces, and cold/hot food preparation tables.

The facility is available from 7 am to 11 pm daily, and may be rented at a rate of $50/hour up to a maximum of $500/day.

Sitka:
The Sitka Kitch is a DEC certified community kitchen that seeks to foster a sustainable and healthy community and food system through education, business incubation and community building. The Kitch features two commercial sized propane ovens, a commercial dishwasher, ample sink and counter space, and keyless entry for clients. The facility has a sliding scale rental fee, ranging from $10-30/hour.

Location: 505 Sawmill Creek Road (inside First Presbyterian Church), Sitka, AK

Contact: (907) 747-7509; sitkakitch@sitkawild.org; sitkakitch.org

Church / Community Center Kitchens: It is likely that dozens of commercially certifiable kitchens are available in churches or other community centers. Making use of such facilities may require upgrading equipment or ensuring that staff are properly certified.

Financial Considerations

The financial feasibility and utility of a shared-use commercial kitchen facility is largely dependent on the space being used by a variety of users with a variety of needs. A few anchor tenants are essential. One anchor tenant proposed in other plans and supported by other models across the country is an organization producing institutional meals such as Summer Food Service Program for Children meals, Senior Nutrition Program meals, prison meals, and school catering. A large throughput anchor tenant such as this could create financial stability for a shared-use commercial kitchen facility at the onset, while also utilizing local, healthy foods, and providing meals for people seeking emergency food assistance, while also providing job training opportunities. Delivery and distribution trucks could be collaboratively owned, and utilized for meal delivery during some hours and for produce delivery during other hours. One could reasonably envision CSA box delivery or mobile farmers market set-ups also concurrently taking place with meal deliveries depending on the needs and interests of the clientele at the meal site.

Additional tenants of the shared-use commercial kitchen will largely be entrepreneurs selling into the commercial market place though some will be health and cooking educators associated with non-profits, the input supply channels for these tenants will be for-profit suppliers including broadline distributors, specialty distributors, and local producers, depending on the needs of the tenant. Tenants will largely be responsible for securing their own supply lines, however they will benefit greatly from being co-located with farms and food nodes.

According to a recent national survey of incubator and shared-use kitchens, most are operated as for-profit businesses (61%) even though few are profitable (31%). Profitable, for-profit enterprises are more likely to be strictly shared-use kitchens whereas business incubating and meal production kitchens are more likely to be non-profits that are breaking even or relying on continuous grant support (Econsult Solutions, 2013).

A broad review of relevant models, feasibility studies, and surveys indicate that incubator kitchens are only profitable when paired with other revenue streams such as retail outlets, office space rentals, and educational classes. Renting office spaces is regularly recommended in order to float the rest of the operation. In one survey of fourteen kitchen incubators, nearly all of them were co-located with other enterprises, and only two thought that the kitchen and kitchen related storage rentals could support themselves (Mills & Wold, 2007).

Kitchens carrying a debt load from start-up costs will continually struggle and are much more likely to fail. Therefore initial start-up costs and equipment costs need to be grant funded if a shared-use commercial kitchen is intended to be a successful community enterprise and service. Most reports and feasibility studies consulted for this project reported equipment and build out costs around $200,000.

An initial business model study for a community-based kitchen projected start-up costs at $260,000 and initial start-up capital required at $700,000 (VanDerworp & Medvec, 2012). The initial business model was based on a kitchen rental rate of $17/hour, which was derived from other kitchen rental rates at the time (VanDerworp & Medvec, 2012). Longitudinal evaluations of shared-use commercial kitchens suggested that rental rates should, at the very least, be market-based, and ideally would be at least $20/hour (Mills & Wold, 2007). Kitchens report difficulties with raising rates once a tenant base has been established.

Conservative budget scenarios based on business plans and budgets for similar enterprises, and reports of lessons learned predict a possible break-even point in year 6 and possible profit in year 7, but only with one full-time staff person, grant funded start up capital, and raising rental rates to market levels (approximately $20/year). Other kitchen managers agree that it could easily be 7-10 years before a kitchen starts turning a profit.

Facility Considerations

Getting the size and make-up of the shared-use commercial kitchen bays right will be essential to the financial success of the program. The sample layout provided in one report has an open floor plan occupying 6,000 square feet, but the report assumes the rental kitchens will occupy 4,000 square feet (VanDerworp & Medvec, 2012). Starting Block, in Hart Michigan, has a kitchen space of 2,500 square feet, plus additional office and training spaces. Allen Market Place in Lansing has a 600 square foot rental kitchen, while Flint Food Works has two 400 square feet kitchens plus storage and additional infrastructure and Washtenaw Food Hub has two 600 square feet kitchens plus a 300 square foot joint-use dish washing line. Other shared-use commercial kitchens which accommodate larger tenants and large scale meal production have larger spaces (e.g. 5,000 square feet) but most facilities have a total size in the 1,000-3,000 square feet range with an average of 1,600 square feet allocated to up to three rental kitchen spaces (Econsult Solutions, 2013).

Operating Projections for Model Shared Use Kitchen and Food Storage Facility

**Based on cost quotes and projections in lower 48, including a commercial build out cost of $15 per sq. ft. for a 6,500 sq. ft. facility with a steel frame and a concrete foundation. Attempts to update build-out costs for Anchorage or Fairbanks AK for 2018 by calling local construction companies generated an estimated cost of $300 sq. ft., which seems really far off-base. National construction surveys suggest that on average, Alaska's building costs are only 23% higher that an average market basket, with Anchorage and Fairbanks being on the higher end (27% each) and Juneau and Ketchikan being on the lower end (19% and 18% respectively).

References for this Appendix:

Econsult Solutions. (2013). *U.S. Kitchen Incubators: An Industry Snapshot.* Philadelphia, PA: Econsult Solutions

Mills, S., & Wold, C. (2007). *Developing Shared-use Food and Agricultural Facilities in North Carolina.*

VanDerworp, T., & Medvec, M. (2012). *Seeds for Change Business Concept Model & Preliminary Business Plan.* Washtenaw County Government, Office of Community and Economic Development, Ann Arbor, MI.

Assumptions

Kitchen Rental	$20.00	an hour	3 Kitchens @ 600 sq ft each	25,200 kitchen hr avail
General Business Classes	$5.00	a class	1200 sq ft "fringe" space for classrooms, tenant office, etc.	
Serv Safe Classes	$150.00	a class		
Office Space	$1.00	sq ft/month	2 Rentable Offices @ 400 sq ft each	
Dry Storage	$1.00	sq ft/month	1800 sq ft dry storage	
Cold Storage	$1.50	sq ft/month	400 sq ft cold storage	
Freezer Storage	$2.00	sq ft/month	200 sq ft frozen storage	
Inflation	3%			

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Revenues							
# of Tenants	13	18	23	28	33	38	43
Ave. annual tenant hours	$200	$200	$200	$200	$200	$200	$200
Kitchen Rental	*$52,000*	*$74,160*	*$94,760*	*$115,360*	*$135,960*	*$156,560*	*$177,160*
Dry Storage	$1,123	$1,602	$2,047	$2,492	$2,937	$3,382	$3,827
Cold Storage	$1,498	$2,136	$2,729	$3,322	$3,916	$4,509	$5,102
Freezer Storage	$1,747	$2,492	$3,184	$3,876	$4,568	$5,260	$5,953
Storage Rental	*$4,368*	*$6,229*	*$7,960*	*$9,690*	*$11,421*	*$13,151*	*$14,881*
General Class Attendees	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
Serv Safe Classes	13	10	10	10	10	10	10
Education Revenues	*$6,950*	*$7,159*	*$7,373*	*$7,594*	*$7,822*	*$8,057*	*$8,299*
Office Space Rental	*$9,600*	*$9,888*	*$10,185*	*$10,490*	*$10,805*	*$11,129*	*$11,463*
Total Revenues	$72,918	$97,436	$120,278	$143,135	$166,008	$188,897	$211,803
Expenses							
Staff	$60,000	$61,800	$63,654	$65,564	$67,531	$69,556	$71,643
Marketing	$6,000	$6,180	$6,365	$6,556	$6,753	$6,956	$7,164
Utilities	$10,000	$10,300	$10,609	$10,927	$11,255	$11,593	$11,941
Rental	$72,000	$74,160	$76,385	$78,676	$81,037	$83,468	$85,972
Accounting/Insurance	$6,000	$6,180	$6,365	$6,556	$6,753	$6,956	$7,164
Equipment Maintenance	$6,000	$6,180	$6,365	$6,556	$6,753	$6,956	$7,164
Total Operating Expenses	$160,000	$164,800	$169,744	$174,836	$180,081	$185,484	$191,048
Start Up Costs							
Build out	$100,000						
Equipment	$100,000						
Plans/Permits	$50,000						
Incorporation	$10,000						
Total Start Up Costs	$260,000	$0	$0	$0	$0	$0	$0
Net	($347,082)	($67,364)	($49,466)	($31,701)	($14,074)	$3,413	$20,755
Start Up Cash	$550,000						
Annual Cash Flow	$202,918	$135,554	$86,088	$54,386	$40,313	$43,726	$64,480

Appendix C: Other Policy Suggestions from Our Sources

Prescriptions for Produce

Several hospitals, as well as the Alaska Tribal Health Consortium, have explored programs in which medical staff can prescribe fresh produce to customers who have food-related diseases. Some have received assistance in this from a national resource organization, Wholesome Wave.

In Indianapolis, (Meter, 2012) Eshkenazy Hospital extended produce prescriptions to low-income patients, and found that what the patients valued the most was that medical staff visited patients at their homes. Building stronger connections with medical staff appears to have been as important as access to the produce itself.

Considerations for Making Use of State-Owned Land

Our sources noted that the state's interest in allocating land is limited by the fact that state funds are sparse. Therefore, those uses that generate income are favored over those that do not. This means that in practice, forested land is more likely to take priority because the lumber on the land can be sold for income. After logging the land may be considered cleared and suitable for agriculture, but these are not necessarily prime agricultural lands. In the interests of food security for Alaska, AFPC may want to suggest specific criteria for designation of land for agriculture versus other natural resource industrial use.

Institutional Food Procurement

The Division of Agriculture has long worked with schools across the state to source food from Alaska producers.

Fairbanks Memorial Hospital has begun to purchase food from nearby farms.