Healthy Foods in a Convenience Store Setting

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Abstract

The Sipaulovi Development Corporation (SDC) is a non-profit, tax-exempt corporation of Sipaulovi, an autonomous village of the Hopi Tribe.

SDC is developing a convenience store with a deli and gas station (Sipaulovi Marketplace), to be located at the junction of highways 87 and 264 in Sipaulovi, Second Mesa, AZ. SDC realizes that often the types of food sold in convenience stores are highly processed and contribute to worsening health conditions, especially in rural Native Nations. More importantly, disappearance of traditional foods translates into disintegration of the Hopi culture.

Similar challenges are being faced by many other Native communities as the convenience store complex, with fast food and a gas station, often are the first businesses chosen by rural citizens for their entry into local economic development. Although healthy corner stores are becoming more common in urban areas, to date, few Native communities are aware of proven alternatives for stocking and merchandising fast food and healthy choices concurrently, when they set up their stores.

Through this project, SDC conducted research to develop a model that incorporated a healthy "fast food" deli with a menu based on traditional Hopi ingredients and culture. The methods used to determine the information in this report were a strategic planning session, interviews, a qualitative questionnaire, food tastings, and documentation of meetings with project partners.

The project first defined the terms "food" and "healthy food", which were determined to be "nourishment" and "natural, minimal environmental impact, not processed," respectively. Avenues for incorporating locally-sourced ingredients into these traditional-based foods were then researched. Based on this information, several foods were selected and sampled at events in Hopi. The public filled out surveys related to the foods being sampled. With these foods as the core menu for the deli, SDC developed a business plan for the food manufacturing venture to determine if this range of healthy, locally-sourced food choices could be both competitively priced and profit-making.

In addition, this project targets health and nutrition issues faced by the working poor: limited access to healthy foods and limited food dollars to spend. This model includes market-rate sourcing, pricing, and educational outreach ideas to develop a locally-owned, sustainable, and profitable project to benefit the community. A primary goal was to determine whether meeting cultural, nutritional and health goals benefiting working poor could be financially sustainable. Based on the analysis conducted and project findings, the answer is yes.

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I. Background (Project Summary)

The Sipaulovi Development Corporation (SDC) is a non-profit, tax-exempt corporation of Sipaulovi, an autonomous village of the Hopi Tribe. SDC is pursuing development of the Sipaulovi Marketplace, which will include a convenience store/neighborhood market and gas station.

The SDC board is aware of the epidemic health problems of our community and is disheartened by the change in diet that contributes to them, despite the existence of a proud farming heritage. From the beginning, an SDC strategic goal has been to develop a feasible food business within the Marketplace that will impact better food choices. This will lead to overall health and wellness improvement within the Hopi community.

SDC researched and developed a model demonstrating that a convenience store with fast food components can profitably offer and promote a range of "healthy fast food" choices based in traditional Hopi food and culture. The model includes market-rate sourcing, avenues for incorporating local products into traditional foods, competitive pricing, and educational outreach. Most importantly, this project targets the health and nutrition issues faced by the working poor: limited access to healthy foods and limited food dollars to spend.

II. Current Food Purchases

Food Expenditures

During 2004-2005, the Hopi spent between 8.1 million and 11.2 million dollars each year on food. The majority of these food dollars, between 5.8 and 8 million dollars, were spent off Hopi. This is due to the limited number of food merchants, as well as the price, selection, overall freshness, and quality of food found in larger stores off Hopi. The items purchased in Hopi were primarily beverages and snacks, with a total of $15.34 spent on each trip.

Avg. for 2004-05	Where Spent	% of total	Items Purchased	Amt Spent per trip	# of Trips Yearly
$6.9 million	Off Hopi	71%	dairy, meat, fruit and vegetables	$54.96	125,545
$2.8 million	In Hopi	29%	beverages and snacks	$15.34	182,529

(Hopi Figures derived from Natwani Hopi Community Food Assessment, 2004)

The average number of soft drinks consumed daily in Hopi average about 2.7 per person. The consequences of these choices are reflected in the alarming obesity rates for children in Hopi. According to the National Body Mass Table and Chart, 55 percent of the children are classified as at risk for overweight. Another 35 percent are classified as

overweight or obese (Hopi Health Care Center, Childhood Obesity, 2006). This is 90 percent of the child population at risk for health problems.

Soft Drink Expenditures

Hopi Nation Soft Drink Consumption	**Avg. sodas/day**	**Total # consumed**		**Price/can** (9.30.08, Smith's, Abq, NM)	**Total $ spent**	
7,500 pop. w/in HN boundaries		**daily**	**yearly**		**daily**	**yearly**
Avg/person/day (55% of pop.)	2.27	9,364	3,417,769	$0.31	$2,903	$1,059,508
Avg./ economic disadvantaged person/day (45% of pop.)	3.1	10,463	3,818,813	$0.31	$3,243	$1,183,832
Totals		**19,826**	**7,236,582**		**$6,146**	**$2,243,340**

A recent study done in 2005 found that consuming just one-half of a can of soft drink per day increases by 26 percent a person's risk for obesity and being overweight. Consumption of 2+ cans per day increases the rate to almost 50 percent. The average consumption of 2.7 soft drinks per day in Hopi puts the health risk over 50 percent.

Risk of Obesity and Overweight for Consumers of Soft Drinks

Daily Consumption	**Regular (%)**	**Diet (%)**
Up to 1/2 of a can	0.26	0.37
1/2 to 1	0.30	0.38
1 to 2	0.33	0.55
2+	0.47	0.57

(Sharon P. Fowler, MPH, University of Texas Health and Science Center, 2005)

III. Analysis of Existing Hopi Stores

The junction of highways 264 and 87, called Second Mesa, is at the center of Sipaulovi. The proposed Sipaulovi Marketplace will be located at the southeast corner of this intersection. There are few stores close to this intersection or even within reasonable driving distance. The following stores were visited by project personnel in September 2008 to assess the availability of fresh fruits and vegetables, as well as ingredients for Hopi foods as described in the recipe section.

From the 264/87 crossroads, distances to the nearest stores and their food selections are:
a) to the West, on Highway 264

- *Sichomovi Community Store* – ¼ mile west on 264; 1,000 sq. ft. new store with household goods, fast foods, and packaged food. Prices are moderately high. Occasionally there are some fresh fruits and vegetables. No gas.
- *Kykotsmovi Village Store* – 11.7 miles to the west, about 1 mile off of 264; 6,000 sq. ft. grocery store with a moderately-sized produce department, deli, and a section with household items. Reasonable selection of fruits and vegetables with quality varying; prices are reasonable given distances to next lower-priced alternative. Usually carries packaged blue, white, and yellow cornmeal. Two gas pumps.
- *Hotevilla Community Store* – 17.5 miles to the west, and about 1 mile west of the highway; 3,200 sq ft. general store with dairy and meat counter, as well as some fresh vegetables; other services, including a video store. Selections vary depending on delivery times. Prices are moderately high to high. Two gas pumps.

b) to the East on Highway 264

- *Polacca Circle M* – 8 miles to the east on 264; 2,000 sq. ft. convenience store; has a small vegetable display with basics such as lettuce, tomatoes, broccoli, onions, potatoes, apples and oranges, and a few other selections. Prices are moderately high. No gas pumps.
- *Food Mart* – 18.5 miles to the east on 264; 2,000 sq. ft. convenience store stocked with fast food. Four gas pumps
- *McGee's Grocery Store* – 18.6 miles to the east on 264; 7,000 sq. ft. grocery store with a moderately-sized produce department, similar to the Kykotsmovi Village Store in selection and prices. Carries packaged blue, white, and yellow cornmeal, along with mutton. Offers additional services, gifts, and merchandise. No gas.

c) to the South on Highway 87

- *Basha's* – 35 miles to the south and 3 miles off of 87; supermarket and other shopping available in Dilkon Shopping Center, which also includes gas stations and fast food outlets. Has full produce department, meat department, deli, and other services. Carries different types of packaged corn meal and mutton. Prices are reasonable. No gas at the store, but several pumps available across the road.

Except for Basha's, which is rated average, the other shopping opportunities are rated below average to weak. There are other locations for fast food, but the selections are of

the sandwiches, hamburgers, and fries variety. Several road-side stands offer limited selections of foods such as burritos, hamburgers, and occasional dinners, but these are often seasonal. The Hopi Cultural Center has one "sit-down" restaurant, but it is sometimes closed for health code violations. The Hungry Bear offers locally-grown beef and a moderate selection of menu items. A Trade Area Map with market comparisons was prepared for the 2005 Sipaulovi Marketplace business plan.

Schwann's mobile store has a high profile in the Hopi communities. The truck is frequently parked in highly-visible locations and the drivers stop at local office buildings. The company catalog includes nutritional values for its products. Preliminary, anecdotal information indicates that ice cream and frozen dinners are among the most purchased items. The primary reason is that the selection nearby is limited. Frozen products purchased at Basha's would have to remain cold for about one hour for travel time. Also, limited or no freezer space were noted as reason for Schwann purchases. Schwann's prices are high compared to frozen foods offered in Basha's, but the convenience and immediacy of Schwann's makes it a popular service in this remote area.

Especially during the time of ceremonies, mobile vendors set up at visible locations selling fruits, vegetables, beef jerky, and other food items. Their prices are competitive and usually reasonable. Most of these products come from wholesalers in Arizona and New Mexico.

IV. Summary of Relevant Projects

Several recently completed studies specific to food and health of the Hopi community provided information on community- based health and nutrition initiatives that were pertinent to this study. Data from these studies informed the educational campaign of this project, which will be part of the future in-house marketing and outreach plan for the Sipaulovi Marketplace. Input from the Health Promotion and Disease Prevention Program of the Hopi Health Care Center, and the Hopi Tribe Diabetes Program also impacted the scope of the educational campaign. Several ideas relevant to a convenience store setting have been determined in regards to eating habits and purchasing habits.

Teesto Chapter Convenience Store Study, June 2006
prepared for NN Teesto Chapter
prepared by Sage Business Solutions
funded by NPTAO, University of Arizona

Information on the food component from this study:

- Subway-type operation requires at least 150 sq ft (pg 5)
- purchased in-store food at c-stores accounts for 11.9 percent of all in-store sales dollars and
- 21.3 percent of in-store gross margin dollars in 2004 (pg 5)

- 30 percent of customers purchase only gas; 30 percent of customers are in a hurry but have at least one other mission in the store; 40 percent are not rushed and will spend more time in the store (pg 12)
- based on current trends for a convenience store located in the vicinity of Sipaulovi, the Year 1 income from "branded fast food" was $148,000; cost of goods sold was $66,600; therefore, the net income was $81,400 (pg 17)

Applications to SDC project:

- local residents are the target market; proximity to the school and bus stop will attract youth
- special projects such as solar energy installation and local visitor center will attract visitors
- currently no gas station or convenience store on highway 87 between I-40 and the highway 264 junction
- more developed local everyday foods deli offerings will attract loyal local customers and those Hopi customers driving on 264 and 87

The "good, everyday foods" concept for the deli will be a compelling product and philosophy that can attract PRIs, grants, and regular loans from the BIA, USDA, and private investors.

RIDGE-funded studies applicable to this project:

"Availability and Cost of Healthier Food Items," March 2005
Karen M. Jeeter and Diana L. Cassady
Agriculture Issues Center, Issues Brief #29, University of California

This study surveyed consumers and stores in California to investigate perceptions, availability, and costs associated with low-income consumers choosing healthier foods in the USDA's Thrifty Food Plan healthier food basket. Low-income consumers cited higher prices and difficulty in accessing the healthier choices as barriers to purchasing healthier foods. Results from surveying 12 stores in Los Angeles and 13 stores in Sacramento included:

- While in general most stores carried healthier items, availability was most limited in independent stores in very low or low-income neighborhoods.
- Items most likely to be unavailable were 100 percent whole grain products, low-fat cheddar cheese, and low-fat ground beef.
- The healthier TFP market basket was from 16 to 22 percent higher in cost than the regular
- TFP basket; however, most of this additional cost was attributed to the prices of 100 percent
- whole grain breads, low-fat beef, and skinless poultry, as well as the fact that the healthier products such as brown rice, whole wheat flour, and canola oil were sold in smaller containers which have higher per unit costs.

Applications to SDC Project:

- change perceptions of value to help consumers make price comparisons based on nutritional
- units for the dollar, rather than volume for the dollar
- identify a local source for 100 percent whole grain breads and/or offer store-baked options
- purchase locally-raised grass fed beef, which is lower in fat content
- educate consumers about how to reduce fat content in chicken by purchasing less expensive cuts and removing the skin, as ell as skimming the fat off of stews and broths
- educate consumers about estimating portion sizes, using interesting graphics and colorful visuals
- source more nutritious cooking oils and non-hydrogenated, non-GMO cooking fats
- educate consumers to compare costs of purchasing locally with costs of driving the 150 mile RT or more, to shop for food that may only be a few cents less expensive

The selection of foods and the consumer education must mesh to result in healthier, cost competitive, shelf items and healthier choices. Working with local producers is important for cutting transportation and middle-person costs to be price competitive while supporting the local economy.

V. Healthy Food

METHODS

a. Feasibility of Offering Hopi Foods

For this project, the word feasibility included not only assessing the economic feasibility of this idea, but also the cultural feasibility of offering several traditional Hopi foods, as healthy alternatives and new products to be found in a neighborhood market

This process required several steps. The first step was to define 'healthy' and 'healthy foods;' the second was to identify which Hopi foods would be considered to be developed as new products; the third step was to create the recipes; and the last step was to test the recipes for taste and authenticity.

b. Determination of 'Food' and 'Healthy Food'

A strategic planning session was held with project staff and several village members to discuss these terms and cultural perception values regarding food. **Defining the terms 'food' and 'healthy food'** provided a scope for the project to work with and helped in identifying the foods that would be included as part of this project.

It was determined that '**food'** is nourishment for the body. Some foods are consumed on a daily basis, while others are consumed only on specific occasion, such as holidays or ceremonies. Some foods are also seasonal.

'**Healthy food'** was determined to have the following qualities: is not processed, is natural, has a positive impact on the environment, is locally produced, the source or traceability of the ingredients/products are known, and is organically grown or grown without a lot of inputs. Cooking methods also assisted in determining the definition of 'healthy food.' They can be baked, boiled, steamed, roasted, or dried. For the purposes of this project, elements of this definition are based on these factors in utilizing the word 'healthy.'

c. Identifying Hopi Foods for Project

The strategic planning session included a lengthy discussion on the suggested food offering for this project. Discussion included a clarification that not all traditional Hopi food is 'healthy," due to the influence of modern oils, fats and meats. Also, trendy 'healthy food' may not be 'healthy' for specific groups of people, including the Hopi because of the inability of certain genetic groups to process foods.

Rationale for determining which of the many traditional Hopi foods would be included in this project was: seasonality of "healthy" Hopi food within the parameters stated above, existing foods that are familiar but not necessarily made too often, and those foods not yet found on a menu in an existing Hopi restaurant. The following Hopi foods were considered for recipe creation and testing:

- Sakwaviqaviki - Blue Corn Tortilla
- Pivlak'kutuki – Roasted Piki
- Somiviki – Sweet blue corn bread
- Hurzusuki – Blue corn bread
- Qömi – Baked sweet corn snack
- Hohoysi – Wild herbal tea
- Kwivtoosi – Ground hominy and cornmeal drink
- Kutuki – Salted parched corn
- Sakwats'tsilsomiviki – Blue corn tamale
- Tangu'viki – Baked green corn cake
- Morzi – Bean soup
- Mawingwa – Hopi purple string bean
- Hatiko – Hopi lima bean
- Tsatsaymorzi – Hopi small white lima bean
- Patuvsuki – Hominy and bean stew

VI. Product Development and Testing

Creating Recipes

Recipes were created for seven traditional Hopi foods, five that would eventually be sampled by the public. These include Sakwaviqaviki (Blue Corn Tortilla), Sakwats'tsilsomiviki (Blue corn tamale), Pivlak'kutuki (Roasted Piiki), Somiviki (sweet blue corn bread), Patuvsuki (hominy and bean stew), Hurzusuki (Blue Corn Bread) and Hohoysi (wild herbal tea).

The project partnered with the Hopi Elderly and Nutrition Center which allowed the use of their commercial kitchen and assistance by their staff on the creation of the recipes. Ms. Isaura Andaluz led this process and was assisted by the head chef at the Nutrition Center, Raymond Namoki . "Guidelines for Recipe Formation" (Appendix) was provided and utilized by Ms. Andaluz and her team. This along with another form titled, "Recipe Name" was used to document the entire process. This outlined the necessary equipment, measurements of ingredients, the mixing process and cooking techniques. The created recipes were tested several times utilizing the new instructions. These recipes established an exact measurement of ingredients, established the serving size, established the ratio of servings per recipe and confirmed the cooking procedures.

Two points of this process were very important to the aspects of this project. The first being identification of the amount of ingredients per serving size, because this would determine the pricing and sourcing needs of the product. Secondly, because we chose to consider Hopi foods that are still made and served today, it was important for the team to create a recipe for a product that, as close as possible, resembled the authentic traditional version, both in taste, presentation and portion. The elders at the Nutrition Center provided much input throughout the entire process – from recipe development to tasting of the final product.

Taste Testing and Pricing

The next step was a qualitative approach utilizing a questionnaire to gain information from the local public on the food products. Specifically the project was interested in getting opinions for the future market. A questionnaire was developed (Appendix) and was completed after a sample of the foods was tasted. Food sampling, with a follow-up questionnaire, was conducted ten times over the course of three months at public events held in Hopi. A total of 150 people completed the questionnaire.

This approach allowed us to gather input from the local public on the foods sampled. The answers are a gauge of the authenticity of taste, opinions on pricing, and beliefs about health factors associated with these foods. Information gathered in the survey was the basis for development of a range of products designed to meet local desires, wants, and needs while being healthy, affordable and convenient.

Survey results yielded information as to the primary determinants among the Hopi in purchasing traditional foods.

- **Availability of product was the primary determinant in purchasing traditional foods, as 89 percent reported they would purchase the foods if available in a convenience store.**
- 31 percent reported that taste is what they liked about the traditional foods. This was the most common response.
- Hopi foods were considered healthy because they were made with natural or local ingredients (51 percent), not processed (25 percent) and not fried or containing fat (16 percent).
- 84 percent would be interested in knowing the nutritional information about the products.
- 23 percent would purchase the food 1 time per week; 22 percent, seven times; and 9 percent, three times.
- Most people reported that the foods would be eaten in combination with something else, like beans or meats. Some foods like the Hohoysi and blue corn tortilla would be eaten every day.

- Prices of items sampled was determined by those of existing fast food products that could be substituted by a traditional Hopi food product, e.g. hohoysi tea compared to bottled teas; roasted piki to a bag of chips; patuvsuki (hominy bean stew) to a bowl of soup. Prices the public said they would pay for traditional Hopi food products were in line with current market prices for contemporary fast food products.

Brand of Potato Chips *for comparison with roasted piki*	**Serving Size (oz)**	**Price**
Pringles	5.75	1.30
Boulder Chips	5	2.45
Kettle (60% less fat)	4	2.37
Average	4.92	***$2.04***

	Price Public Will Pay ($)	**Cost/unit ($)**	**Sales Price ($)**	**Profit ($)**
Tamale	N/A	1.25	3.00	1.75
Tortilla	1.80	0.96	1.92	0.96
Hohoysi	1.48	0.69	2.00	1.31
Paatuvsuki	2.81	1.30	3.25	1.95
Somiviki	1.69	0.96	2.40	1.44
Hurzusuki	N/A	0.43	1.08	0.65
Roasted Piki	1.40	1.00	***2.00***	1.00

Based on this information, it is possible that other Native products considered "healthy" could be sold in the convenience store. This could include additional tea drinks, corn products and dry fruit from local and regional producers.

Nutritional Analysis – "Giving Good Health"
In a study done 30 years ago, on the analysis of Hopi Food, "Composition of Traditional Hopi Foods," the authors write that the older Hopi recognize their traditional foods as **"giving good health."** A secondary research of these foods indicate that this is quite likely valid. (Kuhnlein, Harriet; Doris H. Calloway; Barbara F. Harland. July 1979. Composition of traditional Hopi foods. Journal of the American Dietetic Association 75: 37-41.)

The Kuhnlein study found a limited number of traditional food items in less than 25 percent of the daily food records for the sample population in 1979. The elders were dismayed that the young people no longer learned to produce and prepare these foods. Also, according to comments by Third Mesa women, they were told by the local medical community to avoid traditional foods during illness because they are "fattening" or "causing diabetes."

The study included several of the same foods and ingredients that this project researched - hominy, cornmeal, culinary ash, somiviki, hurzusuki, beans, and piki. The researchers found that of these traditional Hopi foods contain a broad spectrum of nutrients. Of particular value was the essential mineral content of the cornmeal foods, especially with the addition of culinary ash, which resulted in the level of certain minerals far in excess of normal levels. The study found that locally grown and traditionally prepared Hopi cornmeal foods are more likely to meet mineral needs than isoenergetic amounts of today's foods.

Collaboration with USDA Agricultural Research Service
The five food products sampled at the tasting events have been sent for complete nutritional analysis to Dr. Pamela Pehrsson, at the USDA Nutrient Data Laboratory. The data will be used to educate the Hopi people about the nutritional values of these foods and shared with our partner programs including Hopi Diabetes Program, IHS Health Promotion and Disease Prevention Program, and Natwani Coalition.

The American Indian/Alaska Native (AI/AN) Foods database is compiling information on tribal and traditional foods to seek solutions that can address health problems in these communities. Approximately 2.5 million American Indians/Alaska Natives (AI/AN) from over 560 federally recognized tribes live with high disease rates for obesity, diabetes, cancer, cardio-vascular disease and strokes, hypertension, and alcoholism. In addition, vitamin and mineral deficiencies are common in young children (1/3 of AI/AN are under 18 years of age). Evidence is growing that traditional foods, harvested, hunted, fished and prepared, contribute to a healthier lifestyle for Native Americans; consequently, many tribes are researching, encouraging and implementing changes in dietary practices.

The Nutrient Data Lab (NDL), US Department of Agriculture database has nutrient content of up to 200 traditional AI/AN foods. Included in the project are subsistence,

traditional, and ceremonial dishes. These include various forms of agave (traditional preparation, NM) and piki bread from Hopi. Values for over 150 AI/AN foods were shared with tribal and scientific collaborators and are now available on the ARS website: http://www.ars.usda.gov/nutrientdata.

Identification of Sources

The project researched avenues to supply large amounts of ingredients that would be needed to produce a high volume of these food products. This included website research on existing suppliers, their costs, delivery and amounts available for purchase. This project also considered strategies for the village to consider in seeking the ingredients from the local public, such as offering a cooperative outlet for tribal members who have excess ingredients that they are willing to part with, or the creation of a farm on village lands in which the yield would be for exclusive use by this initiative with local Hopi people contracted to farm the land. At this time, it is difficult to obtain guarantees on the quantity of products producers can provide. Once the opening date for the Marketplace has been set, then producers should be contracted out in the fall so they can plant accordingly to demand.

Guidelines for Purchasing "Sustainably Grown" Foods for the Project

Sipaulovi Development Corporation's goal, for its proposed deli foods menu in the Neighborhood Market, is to purchase food that is locally-grown and sustainable. However, when a local, sustainable option is not available, or when an item cannot be grown locally, then the next choice is to purchase regionally from small-scale operations, and so forth. Each sourcing decision will examine the farming practices utilized by the producers. The following guidelines were adapted from Yale University's Sustainable Food Project. According to these guidelines, the word "sustainable" is a tool to aid in making these decisions: "A practice can be called sustainable if and only if it can be continued indefinitely without degrading the systems and resources upon which it relies."

Organic means organic-certified; ecologically-grown includes pesticide-free, grown with Intergrated Pest Management, or sustainable methods like Fair Trade. Conventional is anything grown with pesticides, herbicides or genetically-modified seed.

<u>Vegetable Guidelines</u>

First Tier (in order of preference)

- Hopi organic or ecologically-grown
- Regional organic or ecologically-grown
- Hopi conventional (small-scale operation)
- Regional conventional (small-scale operation)

Second Tier

- Hopi conventional (medium-scale operation)
- U.S. organic (small-scale operation)
- U.S. ecologically-grown (small-scale operation)

- Hopi conventional (large-scale operation)
- Regional conventional (medium-scale operation)
- Regional conventional (large-scale operation)

Fruit Guidelines

First Tier (in order of preference)

- Hopi organic or ecologically-grown
- Regional organic
- Regional ecologically-grown
- Hopi conventional (small-scale operation)
- Regional conventional (small scale operation)
- Hopi conventional (medium scale operation

Second Tier

- U.S. organic (small/medium scale operation)
- U.S. ecologically-grown (small/medium scale operation)
- Regional conventional (medium scale operation)
- Hopi conventional (large-scale operation)
- U.S. organic (large-scale operation)
- U.S. ecologically-grown (large-scale operation)
- International organic
- U.S. Conventional

Meat and Poultry Guidelines

First Tier (ranked in order of preference)

- Hopi free-range/pasture-fed
- Hopi organic
- Regional free-range/pasture-fed
- Regional organic
- Regional conventional (small-scale operation)

Second Tier

- U.S. free-range/pasture fed
- U.S. organic (small/medium scale operation)
- Conventional (small/medium-scale operation)
- U.S. organic (large-scale operation)
- U.S. conventional (large-scale operation)

VII. Educational Campaign

Several recently completed studies specific to food and health of the Hopi community have led to community based healthy initiatives. Data from these studies have helped to direct the educational campaign of this project, which will be part of the future in-house marketing and outreach plan for the new store.

Local stores are not just economic enterprises. In a remote rural community, they fill an important community need while also serving as a tool for educational outreach to the public. Data suggests that local stores can play a pivotal role in shaping food choices. Given the epidemic rates of diabetes and obesity at Hopi, local enterprises could have a positive impact on these problems (Natwani 2004). Specific sub-points that are relevant to this study are:

1) procure as much food as possible from local or regional providers,
2) reduce stocks of sodas and non-nutritious snack foods, and
3) increase other beverages, nutritious snack food, and non-snack food items.

The Health Promotion and Disease Prevention Program of the Hopi Health Care Center completed a Childhood Obesity Study in 2006, which found that 55 percent of the elementary student population of three schools (Hopi Day School, First Mesa Day School and Moencopi Day School) is at risk of being overweight. This study also determined that 35 percent of this population is overweight or obese. This is 20 percent more that the national average. For this reason they have targeted their programming efforts on this population.

Most of their programming takes place during the school year. Discussions have begun to address how their education and prevention efforts can be included in a convenience store. One early idea is to incorporate the messages and educational objectives within their curriculum, into the Hopi Marketplace. Reinforcing messages in additional places outside the classroom with the parent in hand is important.

The Hopi Tribe Diabetes Program addresses the diabetes specific issues associated with the Hopi community. This program has not yet been invited to provide their input to elements of the marketing plan. Several ideas are listed below that may be considered.

<u>Eating Habits</u>

- Change percentions about what is calssified as “food”
- Create educational graphics with what a calorie is, how many one needs, etc.
- Teach individuals how to read labels and what to look for
- Pass out pamphlets with calories for food, including fast food
- Pass out charts with types of oils, sugars, artificial sweeteners, etc.
- Promote keeping a food diary
- Hold tastings of various foods with recipes to hand out or seeds with growing techniques
- Hold a film festival with films like Supersize Me and The Future of Food

Purchasing Habits

- Hold workshops on how to do a family budget.
- Teach individuals to do a cost analysis of their purchasing habits, including gas, wear on vehicles, and their time.
- Include menu planning and how to shop for "bargains" (no processed foods)
- Classify "bargains" in terms of nutritional value for the cost
- Do food sampling so people can see how a real apple tastes and how one can be more satisfied with a quality apple (may be more expensive), rather than buying a bag of old apples
- Highlight foods in season through food sampling to revive yearly anticipation for these foods.
- Emphasize how to stock and use nutritious foods when there are limited kitchen facilities and/or refrigeration in the home.
- Design a list of Phase I, Phase II products, etc. to help transition families to healthier foods. For example, substituting a diluted fruit juice for Kool Aid, or buying a small ham/roast to cook and slice at home, instead of buying prepackaged lunch meat.

The project paid particular attention to any Hopi cultural concerns as to appropriate economic development in the area of agriculture.

VIII. Financial Analysis of Food Purchases

The Natwani study provided financial data that allowed SDC to analyze the profitability of a healthy food market venture based on recent food expenditures. About 71 percent of purchases for basic food products are off of Hopi. An average of 15 million miles are traveled annually to purchase $6.9 million in groceries. This translates into about $1.4 million in expenses at current gas prices. (The analysis does not take into consideration that these trips may include activities other than grocery shopping). The financial leakage from Hopi is approximately $8.3 annually.

Avg. for 2004-2005	Where Spent	% of total	Items Purchased	Amt Spent per trip	# of Trips Yearly
$6.9 million	Off Hopi	71%	dairy, meat, fruit and vegetables	$54.96	125,545
$2.8 million	In Hopi	29%	beverages and snacks	$15.34	182,529

Avg. Miles Per Round Trip	National Avg. mpg	Price gas/gal (6/30/09)	Cost/trip	Yearly Total Spent on Trips
120	27	$2.64	$11.73	$1,472,642

An average of $15.34 is spent on each trip to a local convenience store. This totals almost $3 million spent annually on food with low nutritional value. Of this amount, an

estimated $556,660 is spent on snacks. If at least 10 percent of these purchases were directed to "healthy fast foods," this would total $280,000. In the Natwani study, the number of people who shopped locally was 10 percent higher for people who were unemployed. If 10 percent of the total spent off Hopi by the employed were recaptured locally, that would total $837,262.

Recapture Potential. If the SDC's Sipaulovi Marketplace was able to recapture these savings through sales of healthy fast foods based on traditional Hopi foods, it would amount to about $1.1 million annually. Preliminary financial projections indicate that this level of sales would be able to employ approximately 35 to 40 people full-time with benefits at salaries ranging from $18,000 to $24,000.

$ Spent IN Hopi	
$2,800,000	Beverages and snacks
- 2,243,340	Yearly Amount for Soda
556,660	Estimated spent on snacks
$ Spent OFF Hopi	
$1,472,624	Gas expense
$6,900,000	Annual Food Expenditure
0.10	Difference Spent IN by employed vs. unemployed
$837,262	Recapture Potential for Local Purchases

IX. Feasibility Study for Certified Community Kitchen

In the development of this project model, the establishment of a community kitchen in the deli was considered. The reasoning was that local people could produce the food products sold in the deli, creating additional jobs. Nationally, the development of community commercial kitchens (shared-use) has been increasing. Growth has been spurred by community efforts to create jobs by providing access to affordable facilities for small food processors and entrepreneurs. Yet, the kitchens have not been as successful as anticipated (Cornell University 1999; Boise State University 2005). Factors include:

COSTS

- A kitchen manager would need to be hired to oversee the facility.
- Technical and business services were found to be crucial to clients' success. These services would have to be available for clients (Cornell University 1999).
- The Boise State University study, found that only four out of 14 kitchens broke even, and all were supported by grants.
- The hourly rates for kitchen use ranged from $5.00 - $50.00; average $15.30.

- The kitchen with the smallest drawing area had a population of 25,000 persons. The smaller the community, the higher the operating costs (overhead and administration) per client, due to limited number of users.
- The average hourly rate to breakeven is $20.00 per hour (based on Boise study)

RISKS OF USING SHARED SPACE

- Loss of business due to equipment breakdowns.
- Increased risk of cross-contamination.
- For meat products, the facility has to be USDA certified and closed off during production, unless a separate room exists for meat production.
- Possible increase in insurance requirements – mechanical breakdown and business interruption

CLIENT CHALLENGES

- Clients have to obtain their own product liability insurance.
- Facility would not be large enough to provide clients with storage space.
- Smaller kitchen cannot meet diverse equipment demands.
- Facility cannot provide multiple purpose rooms (meat only – USDA certified).
- A HACCP (Hazard Analysis at Critical Control Points) plan has to be implemented for each meat product.
- Depending on the product produced, clients will have to received FDA or HACCP training and ensure that their workspace is adequate.
- Clients would have to receive training in the use of equipment.
- The studies revealed that start-up food processing businesses tend to be small for a number of years, and rely heavily on voluntary proprietorship. This is reflected in the sales numbers for the Taos Economic Development Center (Taos, NM) clients, who averaged $5,000 in sales in 2006.
- Value-added does not always translate into a higher profit margin. Many times fresh produce can be sold or traded directly for a higher value with less costs.

Due to these factors, the limited population area and the proposed size of the facility (500 sf), it is not recommended that the kitchen be used as a shared-use facility at this time. In the future, the kitchen might be used as a seasonal communal processing facility when people need to store food, e.g. dry peaches, ground corn.

X. Business Plan for Iss Ahli Deli (Means "Yummy, delicious")

A primary goal was to determine if meeting cultural, nutritional and health goals benefiting working poor can be financially sustainable. The answer is yes.

The draft business plan for the Sipaulovi Marketplace indicates that the operation will meet its sales goals within several months of operation and will be profitable in about 18 months. The Iss Ahli Deli will be profitable in about 24 months and will employ around

15 employees. This timeline could be reduced if the Marketplace has already calculated some of the setup costs for the deli.

The financial projections for Iss Ahli Deli assumed no support from the Marketplace. Assumptions also included a $200,000 loan at 3% for 12 years for equipment and working capital. The analysis was done with true costs, including overhead cost based on an hourly rate. Therefore, the operating costs could actually be lower when the operation starts, as several products can be produced concurrently, which would allow the overhead costs to be spread over several products instead of only one.

	Price Public Will Pay	**Cost/unit**	**Sales Price**	**Profit**	**Qty**
Tamale	N/A	1.25	3.00	1.75	60
Tortilla	1.80	0.96	1.92	0.96	40
Hohoysi	1.48	0.69	2.00	1.31	80
Patuvsuki	2.81	1.30	3.25	1.95	40
Somiviki	1.69	0.96	2.40	1.44	40
Hurzusuki	N/A	0.43	1.08	0.65	48
Roasted Piki	1.40	1.00	2.00	1.00	40

A conservative estimate for sales at the Iss Ahli Deli was based on the production of the seven recipes once a day. The estimated maximum daily sales is $774. If one takes the $2.8 million spent in Hopi on snack and beverages, which is broken down to $15.34 spent on each trip to the store, it would take 50 trips daily to reach the projected sales for the Iss Ahli Deli. The breakeven point is in the beginning of year three. At an average salary of $20,000 annually, this project could employ 15 persons full-time with benefits by year three.

The complete business plan and financial projections are attached to this report.

XI. Other Considerations for Project Feasibility

Remaining Research Questions

This project was ambitious in that it looked at a new model of offering prepared foods, but with several objectives, aside from economics, that determined the feasibility of this idea. Therefore, there are remaining issues that should be researched in determining this further. Some future research questions are:

- The Hopi already locally produce the source ingredients. Should Sipaulovi village provide a field for corn and beans and manage a farm which would provide the yield for supplying the deli? Would this field use dry-farming techniques or be irrigated?

- Can hohoysi tea be cultivated? The annual wild tea harvest is based on the amount of rainfall received each year. What impact would major harvests of wild yields have on the natural supply?
- Would Hopi people be willing to sell or trade their surplus of source ingredients to a cooperative managed by Sipaulovi Development Corporation?
- Can such a cooperative store offer services that are currently needed for the existing farming needs (e.g. safe and secure corn storage) in exchange for source ingredients?
- Should we offer pre-cooked, frozen or prepared versions of the products we decide to sell?
- Should the project look to other economic alternatives like Islamic lending or Ug'cht (Guatemalan farming approach – consume, conserve, support farmers), cooperative grocery store, or fair trade programs for the financial structure of this business and its sourcing with farmers?

Finally, as a result of the research done on this project, there appears to be strong support for a local grocery store. Financially, there is an opportunity to recapture part of the estimated $7 million that is currently being spent off Hopi (Natwani, 2004).

The grocery store could be based on a neighborhood market model of around 3,000 to 5,000 sq. ft., which is the size of the proposed convenience store. Based on local preferences and needs, a new store model could be developed that takes this into consideration when planning the store layout and product mix. Space could be used more efficiently by incorporating "just in time" delivery from local producers, and the store could be tailored to meet local food needs with a range of culturally-appropriate foods, not industry standards. Additionally, more purchases from local farmers would revive Hopi's agricultural sector and increase the availability of fresh, local, traditional foods that are reasonably priced.

APPENDICES

- Business Plan and Financial Projections
- Tasting Survey
- Sample of Recipe Checklist
- Sample of Recipe Cost Breakdown