

EATING ANEW

IMPROVING NUTRITION THROUGH ENVIRONMENTAL DECISION-MAKING AIDS

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I declare that this dissertation, which I hereby submit for the degree Master of Landscape Architecture (Professional) at the University of Pretoria, is my own work and has not been previously submitted by me for a degree at this or any other institution.

I further state that no part my dissertation has already been, or is currently being submitted for any such degree, diploma or other qualification.

I further declare that this dissertation is substantially my own work. Where reference is made to works of others, the extent to which that work has been used is indicated and fully acknowledged in the text, list of references.

Mikael de Beer

Title:	Environmental consumption patterns: improving nutrition through environmental decision-making aids
Programme:	Spinal urban development with public Demonstration Kitchen, store-front upgrade, Play Park and supporting infrastructure
Address:	Un-zoned Erf 36397, Informal Settlement Alaska, Moshumi Street, Mamelodi, Tshwane
GPS Coordinates:	25°43'38.80"S, 28°26'31.76"E
Research Field:	Human Settlements and Urbanism
Clients:	Real-time Foods research group (University of the Western Cape and University of Pretoria Centre of Excellence in Food Security)
Keywords:	Nutrition, Food Environment, Eating Behaviour, Infrastructural Upgrade, Landscape Influence
Site description:	Mamelodi's eastern most informal settlement on a south-western slope of the Magaliesberg range
Theoretical Premise:	Investigating the influence landscape architecture has on eating patterns
Architectural Approach:	Novel behavioural science toolbox application to site

PREFACE

This project explores the effect landscape elements may have on eating behaviour within the informal settlement of Alaska, Mamelodi, South Africa. The overall intention is to decrease the poor-lifestyle diseases prevalent in Alaska through aiding better consumption patterns within the settlement. The project deals with issues of environmental health influences, specifically salutogenic environments and behavioural stimuli, urban street spaces in informal settlements and community participation through neighbourhood amelioration.

This study is undertaken through the Real-time Foods research group in partnership with the Centre of Excellence in Food Security jointly hosted by the University of Pretoria and University of the Western Cape, and the Human Settlements and Urbanism study unit of the Department of Architecture, University of Pretoria. It is made possible by a generous study grant from the National Research Fund of South Africa.



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ABSTRACT

Recognising food security as a subset of the broader health debate surrounding life-style disease within South Africa's burgeoning informal settlements lead to an investigation into the designed landscape's ability to influence eating habits.

Much has been written on the potential health benefits of landscape architecture, yet very little that focusses on the influence landscape architecture has on health through food choices (other than productive agricultural landscapes). An eating toolbox is developed to guide design decisions—it is based on psychological and behavioural science principles. The toolbox encourages social norm dissemination, not creating cognitive fatigue, the exposure to healthy choices and the utilisation of healthy foods in self-image creation, amongst others.

Some of these tools require a salutogenic (healthy) environment. A clean, accessible and legible street is proposed and supported by an ancillary landscape system. This 'food street' is proposed as the most effective manner in which healthier consumption patterns may be aided. The congruence of existing networks in Alaska, the influence on pedestrians along a linear route, the facilitation of existing subsistence agriculture and upgrading of existing infrastructure all serve to create Alaska's first urban street.

The design and incorporation of transporting, producing, displaying, trading, preparing, consuming and recycling food all blends into creating a healthy eating experience.

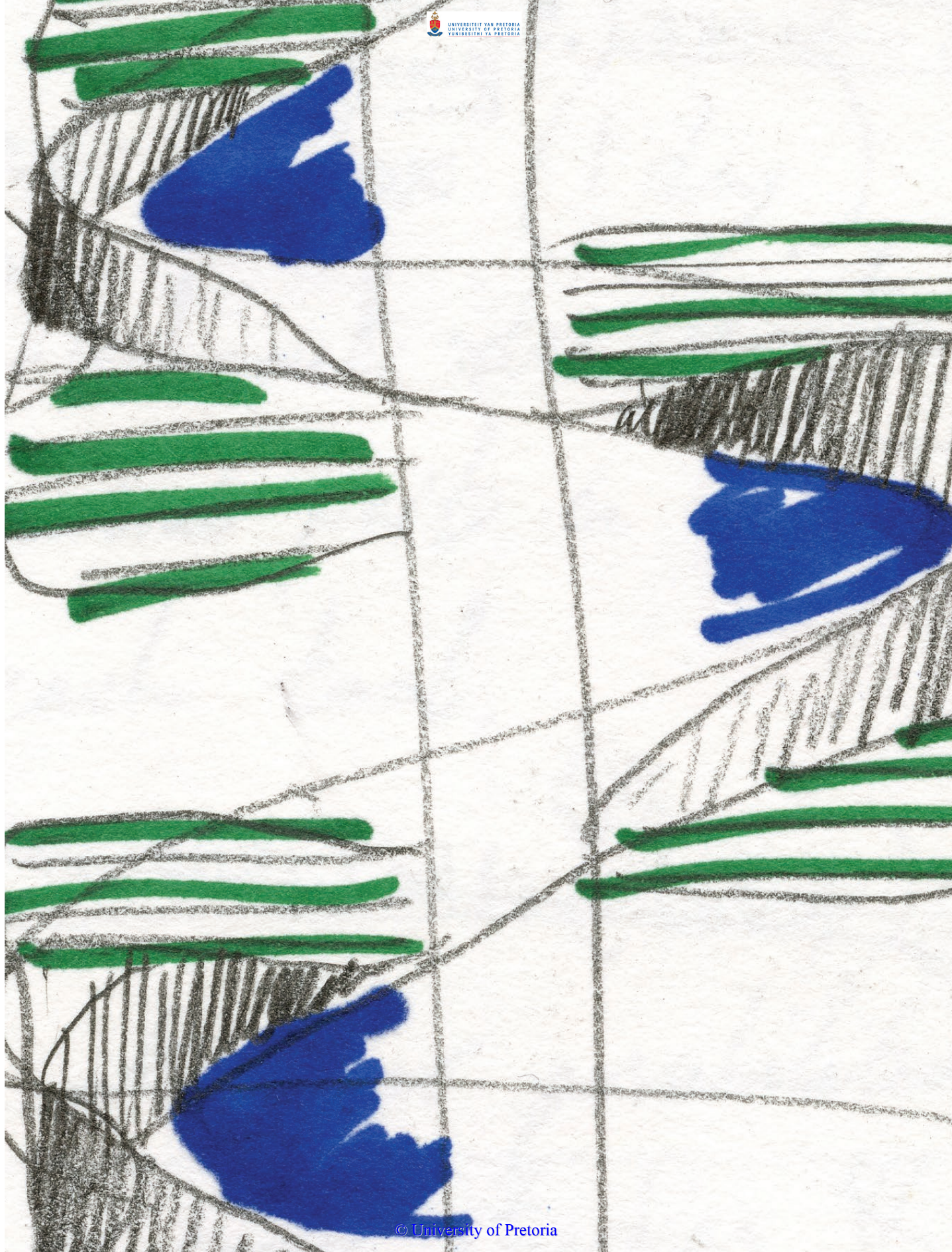
DEFINITION OF TERMS

- Food desert:** Food deserts are defined as urban neighbourhoods and rural towns without easy access to fresh, healthy and affordable food even though they may have fast food restaurants and convenience stores.
- Food environment:** A food environment is a collection of physical, biological and social factors that affect an individual or a group of individuals' eating habits and patterns.
- Good food:** Food that provides nourishment and enables people to thrive, is tasty, is visually appealing, is produced in an environmentally sustainable manner, is not exploiting people during its creation and is affordable to all people.
- Heuristics:** A common-sense rule or pattern intended to increase chances of solving a problem in a shorter amount of time.
- Malnutrition:** Malnutrition is the condition that develops when the body does not get the right amount of the vitamins, minerals and other nutrients it needs to maintain healthy tissue and organ function. This can be either getting too much or little of these nutrients.
- Nutrition:** The process of taking in food and using it for growth, metabolism and repair.
- Salutogenic:** Based on *salutogenesis* which describes an approach focusing on factors that support human health and well-being, rather than factors that cause disease.
- Salutogenic Environment:** An environment that is easy to walk on, legible to the user and clean of waste.
- Undernutrition:** A type of malnutrition: undernutrition is a consequence of consuming too few essential nutrients or using or excreting them more rapidly than they can be replaced. Also called caloric deficiency.

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1. OBSERVATIONS

This section outlines a series of observations of health in the informal settlement of Alaska, Mamelodi, Tshwane, as related to food.

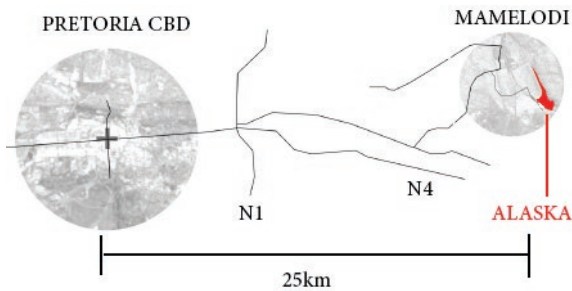


Figure 1 Location of Alaska in relation to Pretoria's CBD (HONS 2014)

1.1 SOUTH AFRICAN FOOD & NUTRITION SECURITY

Food and Nutrition Security (FNS) as defined by the World Health Organisation is 'when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life' (WHO © 2015:para.1).

In Jonathan Foley's (2014:29) article, 'A Five Step Plan to Feed the World', he illustrates the link between our global population and its impact on our environment through our civilization's largest endeavour: agriculture. He points out that the predicted 35% increase in population to 9 billion by 2050 will require a 100% increase in food production due to changing dietary patterns and bio-fuel requirements. Most of this increase will be required in developing countries such as South Africa.

The fact that the Department of Science and Technology, the National Research Foundation, the Water and Agricultural Research Councils and all the universities and universities of technology in South Africa apart from one (see Appendix 1), are involved in developing a national food security policy illustrates the severity of South Africa's looming FNS crisis.

The primary reason to assure a country's food is to

continue a supply of sustaining nutrition to its citizenry. There are strong links between the health of a country's populace and the food they consume as illustrated in Figure 2. Poor nutrition has effects such as straining a country's healthcare system, lowering its economic capabilities and increasing the chance for civil unrest (von Braun 2008:1). A healthy populace equates to a healthy country.

1.2 POOR HEALTH IN POOR COMMUNITIES

Let your food be your medicine and your medicine be your food.

Hippocrates

What then, is the relationship between citizens' health and their food?

According to Roberts (in Potteiger 2013:264) there has been a shift in the public health paradigm from focussing on infectious disease to focussing on chronic illness, since diseases such as cancer, diabetes, heart disease and high-blood pressure have become the main pathogenic causes of death. These diseases are all largely influenced by diet, behaviour and environment (Roberts in Potteiger 2013:265). This means that the government's Health Department spends a lot of resources on these chronic diseases, which can be prevented and controlled through creating healthy environments and lifestyle behaviours, i.e. encouraging

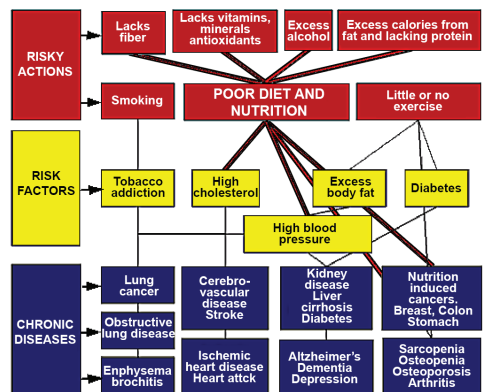


Figure 2 Diagram illustrating food's large role in chronic disease prevalence (combat-aging.com [Sa])

healthy eating.

Recent research has shown that lifestyle or chronic diseases are the most prevalent diseases in Mamelodi (Hugo 2015). There is a high percentage of hypertension, tuberculosis and diabetes amongst those living in Alaska according to Community Health Workers (CHWs) working in the area (CHWs 2015).

Nutrition is considered a large determinant of chronic disease (WHO/FAO 2003:2) which points towards the poor suffering from malnutrition and not necessarily only from undernutrition, as is commonly believed.

The same applies to Alaska as can be seen from the high chronic disease prevalence: Alaskans suffer more from malnutrition than from undernutrition. Put simply, people in Alaska are sick not because they are eating too little, but because they are eating wrong.

1.3 FOOD ACCESS

If food plays such a large role in health and it is clear that there are poor health indicators in Alaska, then is the problem perhaps that there is not enough good food in Alaska?

As the following section shows, Alaska benefits from the same industrialised agriculture and distribution system as most of South Africa. There are small stores selling a limited stock in Alaska called 'spaza' stores; taverns or shebeens selling alcoholic beverages; a single fresh vegetable store and a single supermarket

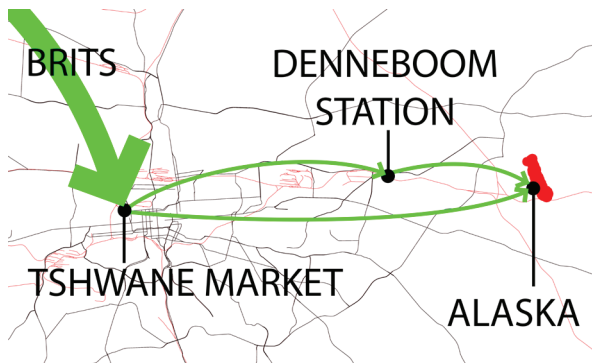


Figure 3 Fresh produce primarily comes in from Brits, through the Tshwane Market, to Alaska (Author 2015)

almost exclusively selling non-perishables. Individuals peddling fruit and vegetables walk the streets daily and there are 'tuck-shops' spread around which sell snacks and sweets. See Figure 9 for locations.



Figure 4 Fresh produce on display at the vegetable store (Author 2015)



Figure 5 Some of the items on sale at the supermarket (Author 2015)



Figure 6 Supermarket fridges used to cool non-perishables instead of fresh produce (Author 2015)

Even though there are spazas nearer at hand, most Alaskans prefer to shop abroad primarily at the shopping centres around Denneboom train station on a weekly shopping trip. Denneboom train station is ten kilometres to the west of Alaska and offers some larger chain supermarkets such as Pick n Pay, Checkers and Score Supermarket. These stores offer the perception of safer, better foods and the social status gained when purchasing from a more expensive but convenient retailer when compared to informal vendors (Food Safety Mini-Symposium 2015). Low-income orientated chain stores have the same quality of products, sourced from the same suppliers, as more upmarket chain stores but strategically place and bulk package their products to cater for the lower income groups (Van der Woude & Van der Woude 2015). This creates more desire to shop at a chain store than to shop at private stores or street vendors.

A small portion of the Alaskans highest upon the mountain practice subsistence agriculture by tending to a small fields of maize and keeping chickens. This provides less than half of their nutritional needs (Alaskan Farmer 2015) with the other food originating by the same means as the rest of Alaska: from South Africa's industrialised agricultural system.

Access was also considered as the possible cause of malnutrition in Alaska. Access to food in poor, informal settlements is considered a mainstay to food

security (Romanik 2008:1). But this investigation shows that large Coca-Cola delivery trucks and bakkies with goods make it to Alaska (Figure 7) and that there are accessible stores that sell good food, therefore access is not a problem. The Real-time Foods research group also concluded that establishing a new supermarket chain-store such as Spar or Pick n Pay would not bring in any significant new options to the food environment of the Alaskans (Real-time Foods Meeting 2014).

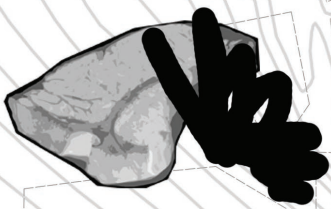
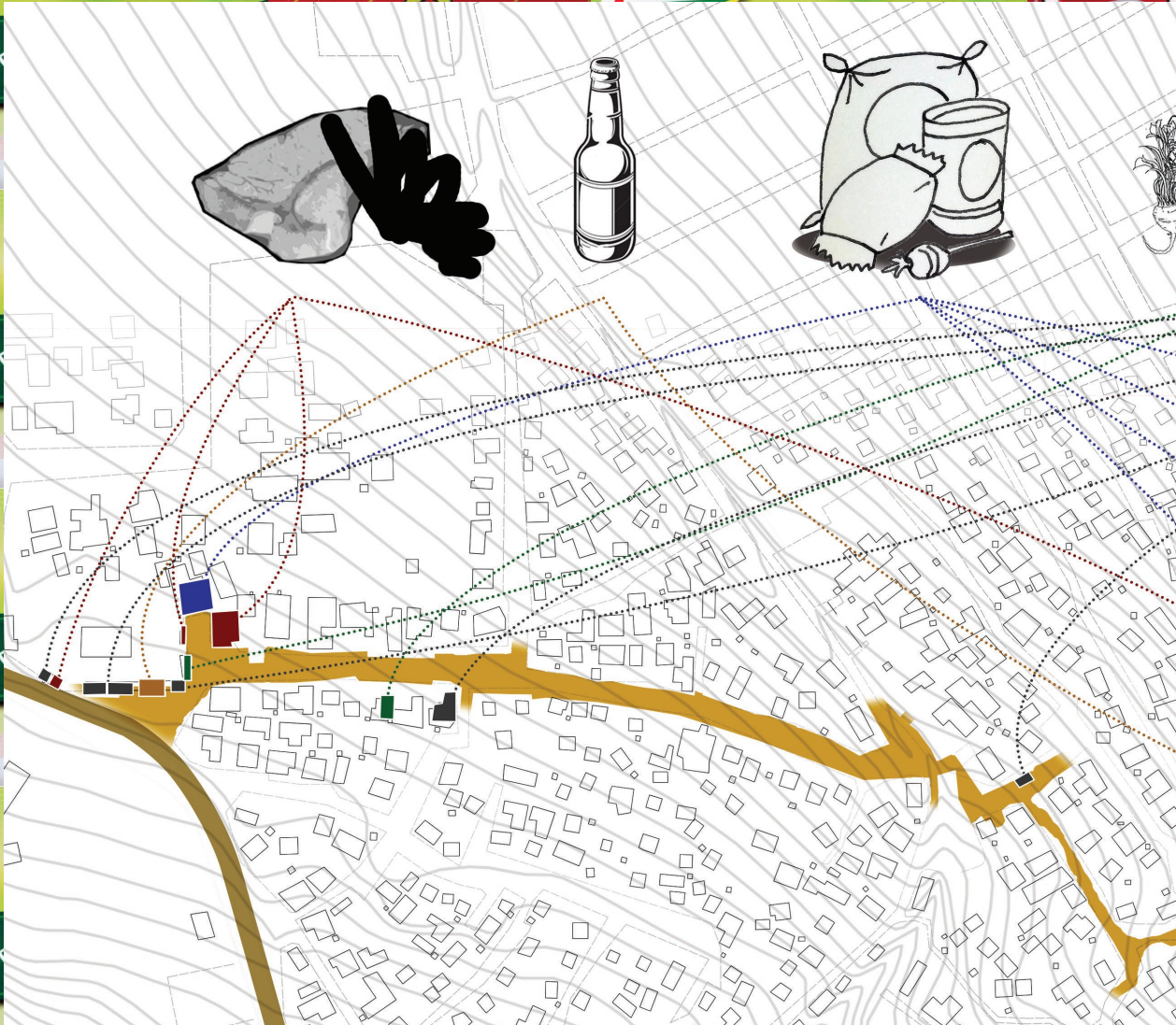
Alaskans have access to local pedlars, spazas, a vegetable store and a supermarket. They also often travel to upmarket stores out of choice. It seems, therefore, that the availability of good food is not the reason for malnutrition in Alaska.



Figure 7 Small maize field on the upper mountain edge of Alaska providing a meagre supply (Shaku 2015)



Figure 8 Privately owned delivery vehicle supplying spazas and other stores in Alaska (HONS 2015)



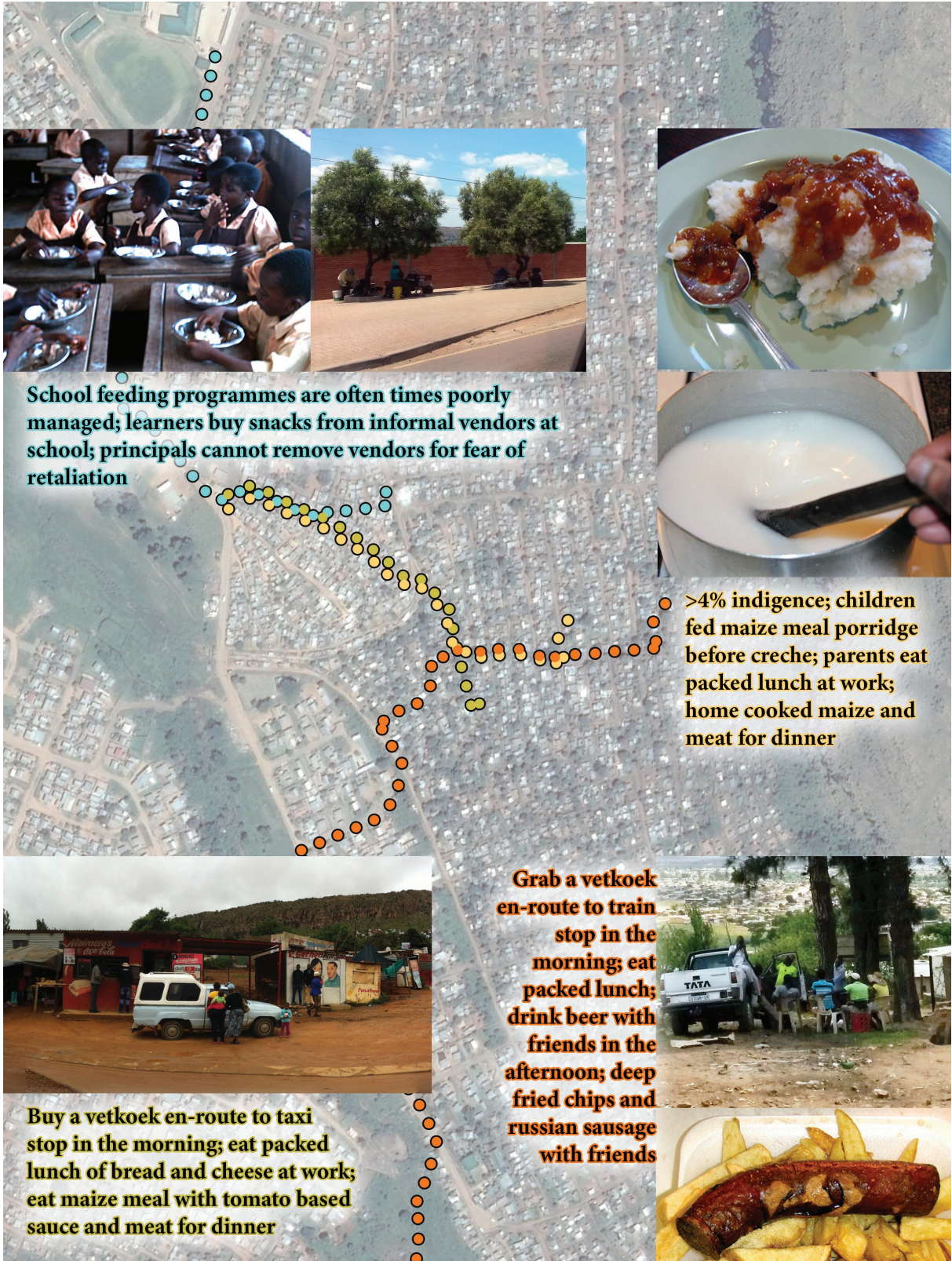


Figure 10 Typical food routes and days of four individual Alaskans (Author 2015)

1.4 ENOUGH MONEY FOR CHANGE

The fact that there is poor health brought about by poor eating habits, yet there is access to good food begs the question: are Alaskans not just too poor to afford the healthier food?

Oxfam (Tsegay *et al* 2014) released a report at the end of 2014, '*Hidden Hunger in SA: The Faces of Hunger and Malnutrition in a Food Secure Nation*' that claimed one in four South Africans experience hunger on a regular basis and that about half of South Africans are at risk of going hungry. Yet a preliminary assessment in 2015 of the 200 000+ individuals registered on the City of Tshwane & University of Pretoria's Community Oriented Primary Care (COPC) programme indicated only 4% of Mamelodi—a historically poor working area in Tshwane—not having enough food .

When one takes the COPC reports to be the more accurate—it is local while the Oxfam report is based on a minor investigation in the Eastern Cape and census data—the difference in reports shows up a misconception that the poor in South Africa are unhealthy because of undernutrition. They are not starving, they have enough money to buy a variety of foods. Mamelodi only has 4% indigence, indicating that the poor are not as destitute as believed.

There is some indication of social spending in Alaska, which shows that there is money that can be used for buying healthier food. The Author has experienced worrying levels of the abuse of alcohol. There is a high prevalence and availability of alcohol. This is disconcerting not only from a physiological aspect but also due to the damage it is causing the community socially. It is universally argued that if people have money to abuse alcohol, they should be able to use that money for food instead. There are also gambling syndicates that operate in poor areas of Mamelodi (Author witnessed and informal interview with Alaskan Resident 2014) which is again potential for food spending. Social spending of money is an indication of the availability of money.

Analysing Figure 10 (previous page) one may also

argue that better spending of existing food budgets may increase health in Alaska. The current norm is to eat meat and pap (maize meal) with some sheba (fried tomato based vegetable sauce). If more balance, variation and even moderation on energy dense foods was practiced there it would be healthier (Wenhold 2015). If expensive meat was replaced by legumes and fresh leafy greens eaten instead of oil fried sheba once in a while there would be no need to alter shebeen or gambling practices.

Looking at the factors mentioned here, the indigence of Mamelodi and the spending trends, it seems as though the Alaskans in Mamelodi, for the greater part, have enough money to buy alternative, healthier food, should they choose to do so.

It has been shown that the people in Alaska suffer more from malnutrition than undernutrition and that their bad food choices impact on the chronic disease prevalence. The two most obvious reasons for the malnutrition in Alaska, namely access to good food and poverty, were explored and it was found that Alaskans do have access to good food and have the money to afford to eat differently. This leads to the conclusion that Alaskans choose to eat, in part, unhealthy food. Therefore, the challenge is not to create access or provide money, but to change Alaskans' behaviour so that they choose healthy food instead. This leads to the question: how can designed landscape change people's food choices?