

# Health Element

Clark County Comprehensive Growth Management Plan

## *Growing Healthier*

Pathways from the built environment to health:

### Access to Healthy Food



# Introduction

The food environment refers to the food-related aspects of the built environment, including but not limited to access to restaurants and grocery stores, food availability, price and quality. The National Institutes of Health (NIH) identifies seven categories within the food environment that serve as a useful introduction to thinking about the food environment.<sup>1</sup> These seven categories are described below in table 3.1. Each category is a sub-environment that contributes to the greater food environment that constitutes the food options available to each of us. The options available to each individual combine to influence diet, a critical factor in determining the risk of chronic disease.

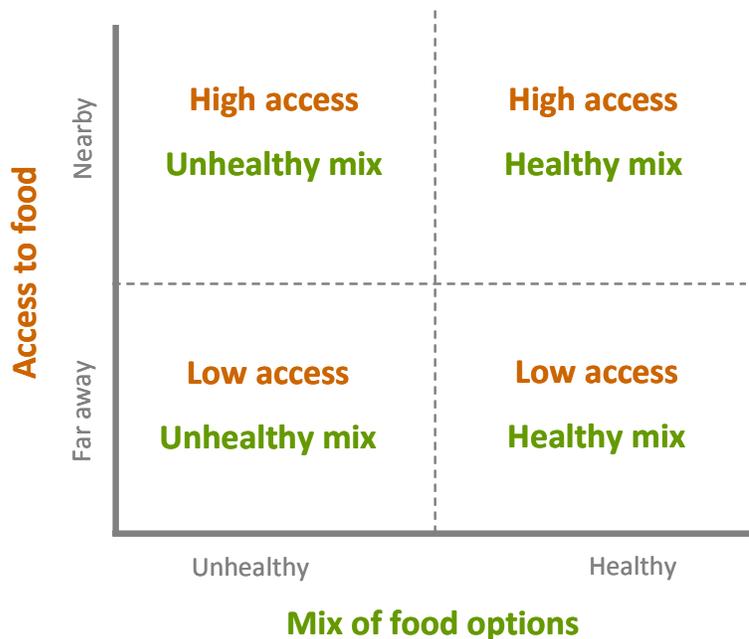
**Table 3.1.** NIH Food Environment Categories

Category	Description
Food store environment	Including grocery stores, supermarkets, convenience stores, snack bars, specialty food stores, farmer’s markets, bodegas, and food banks
Home food environment	Including food available within the home
Macro food environment	Including the food supply
Public facility food environment	Including cafeterias, vending machines, and snack shops in recreation centers, health care facilities, and other public venues
Restaurant food environment	Including fast food and full-service restaurants
School food environment	Including cafeterias, vending machines, and snack shops in daycare settings, schools, and/or colleges
Worksite food environment	Including cafeterias, vending machines, and snack shops.

As described in this literature review, there are two key pathways by which the food environment influences chronic disease. The first pathway is access to healthy food,

which is an important predictor of diet. At a basic level, the presence or absence of a nearby healthy food source influences diet. The second pathway is the relative availability of healthy food compared to unhealthy food. Where there are more numerous or more attractive options for healthy food, people’s diets improve. The interaction of access and relative availability can result in varying influences on diet, as displayed in figure 3.1. Access to healthy food, which is a basic part of community infrastructure, can be a daily challenge for residents of many communities. In some places, healthy food is not readily available, and in many communities unhealthy alternatives are more convenient or more appealing than healthy choices. Lack of access to healthy food and easy access to unhealthy food are widely recognized as leading contributors to the nationwide trend of increasing obesity rates.<sup>2</sup>

**Figure 3.1.** Interaction of food access and relative availability of healthy food



Unequal access to healthy food exacerbates existing disparities and contributes to disproportionate obesity rates in some populations. Although individual behaviors

are associated with obesity and obesity-related chronic diseases, the complex causes of obesity are influenced by social, economic and environmental factors, including food access.<sup>3</sup> Nationally, there is evidence that disadvantaged groups are more likely to experience conditions described by the left side of figure 3.1, in which there is limited access to healthy food or an abundance of unhealthy food. Understanding the conditions that perpetuate unequal food access is critical for community planning and policy development.

### Defining healthy food

Healthy food refers to foods that can provide an individual with a balanced diet that meets their personal dietary needs, comprised mostly of fruits and vegetables, whole grains, low fat dairy products, lean meats and legumes, and healthy unsaturated fats such as olive or canola oil.<sup>4</sup>

#### 3 Principles of Healthy Food

1. Healthful food is wholesome;
2. Healthful food is produced, processed and transported in a way that prevents the exploitation of farmers, workers and natural resources and the cruel treatment of animals; and
3. Healthful food should be available, accessible and affordable to everyone.

As part of community food planning, healthy food definitions often include multiple aspects of local food systems. In 2009, the Prevention Institute published a definition that was not limited to food nutrients, but recognized that healthful food is produced and processed in a healthy food system.<sup>5</sup> The definition recognizes three healthy food principles:

1. Healthful food is wholesome;
2. Healthful food is produced, processed and transported in a way that prevents the exploitation of farmers, workers and natural resources and the cruel treatment of animals; and
3. Healthful food should be available, accessible and affordable to everyone.

### Planning for food

**Community food security** is defined as “access to a safe, culturally acceptable and nutritionally adequate diet through a sustainable food system that maximizes self-reliance and social justice.”<sup>6</sup> Local food

production is a key component in community food security, a relatively new field that takes into account the full range of food chain events from the field to the consumer. Local or regional food, as defined by the U.S. Congress in the 2008

Food, Conservation, and Energy Act, is food transported less than 400 miles from its origin or

within the State in which it is produced.<sup>7</sup> Food is a basic essential for life, but food system planning has been largely absent in comprehensive plans. In 2007, the American Planning Association released a “Policy Guide on Community and Regional Food Planning.” This document details roles for planners in assuring community food security and can serve as a template for planning and evaluating food systems.<sup>8</sup>

**Community Food Security** is a condition in which all community residents obtain a safe, culturally appropriate, nutritionally sound diet through an economically and environmentally sustainable food system that promotes community self-reliance and social justice.

**Individual food security** refers to the ability of an individual or household to access food.

In addition to community food security, communities are challenged by individual food insecurity, which is “a household-level economic and social condition of limited or uncertain access to adequate food.”<sup>9</sup> Individual food insecurity is affected by transit access, location of affordable food outlets, and location of emergency food assistance.

### **Defining Access and Relative Availability**

An individual’s ability to choose a healthy diet is shaped by multiple determinants, including physical, financial, nutritional and cultural factors.<sup>10</sup> Planning focuses on physical access. As it relates to health, the

The **retail food environment** is the mix of food options for sale at all food stores in a given area. This includes restaurants, grocery stores, convenience stores, farmer’s markets, etc.

two key variables in physical access to food are the presence or absence of food retail, and the relative availability of healthy to unhealthy food options. The distance to food and the **retail food environment** can influence dietary choices. Although we focus on physical access to food, CCPH acknowledges that there are many other components of food access, including affordability and the cultural appropriateness of the food sold.<sup>11</sup>

Distance is the most widely used measure of food access. The term “food desert” is used to describe an area in which food access is difficult or in which no healthy food options are available. In addition to simple proximity, some organizations include access to private automobiles as part of their definition of food desert. To differentiate between areas that have *no* food access and areas that have *no healthy* food access,

CCPH uses the term “absolute food deserts” to refer to areas where there are no food retail at all.

Areas that offer only unhealthy food retail are

designated as “food swamps.”<sup>12</sup> This measure is important because there is a significant association between distance to food options and an individual’s weight as measured by **Body Mass Index (BMI)**.<sup>13</sup> All of these terms are summarized below in table 3.2.

**Body Mass Index (BMI)** is a measure of a person’s weight in proportion to their height. It is used in clinical definitions of overweight and obesity.

**Table 3.2.** Food access definitions

Term	Definition
Food desert	No healthy food retailers in area
Absolute food desert	No food retailers of any kind in area
Food swamp	Areas with few healthy options but many unhealthy options, such as fast food and convenience stores

## Access to Healthy Food and Health

**Consumption of healthy foods lowers the risk of chronic disease.** Obesity and overweight is created by an imbalance of energy taken in and expended, and diet is half of the energy equation. Healthy diets protect individuals against obesity and obesity-related chronic diseases, including heart disease, certain types of cancer, type 2 diabetes, and stroke.<sup>14</sup> The U.S. Dietary Guidelines, published every five years, provide scientific guidance on how to promote health and reduce risk for major chronic diseases through diet and physical activity. The 2010 U.S. Dietary Guidelines identify foods that Americans should eat more often in order to reduce chronic disease, and they stress the

importance of balancing calories and reducing consumption of unhealthy food and beverage options such as those high in salt or sugar.<sup>15</sup>

### **Increased access to healthy foods results in greater consumption of healthy foods.**

Several studies have examined the relationship between access to healthy foods and eating habits, consistently finding that healthier eating habits are associated with better food access.<sup>16,17,18</sup> One study demonstrated that each additional supermarket in a census tract was associated with an 11%-32% increase in produce consumption.<sup>19</sup> A study in Los Angeles found that residents traveling more than 1.75 miles to a supermarket had higher BMIs.<sup>20</sup> Research findings also indicate that there is an association between the amount of grocery store shelf space devoted to healthy foods and consumption of healthy foods such as low-fat milk and fresh produce.<sup>21,22</sup>

### **An overabundance of unhealthy food leads to increased risk for chronic disease.**

While access to healthy food is important, access to unhealthy food is also an influential factor in explaining chronic health conditions and the obesity epidemic. There is strong evidence to support the link between access to unhealthy options and obesity. Many neighborhoods have limited food retail with only small markets or fast-food outlets that typically sell high-calorie, energy-dense foods. These foods, which can be more convenient and less expensive than healthier alternatives, are associated with higher BMI.<sup>23,24,25,26</sup> One study estimated that removing one fast food restaurant from a neighborhood that has a high density of fast food outlets has the effect of decreasing

residents' weight by one pound. The same study estimated that adding a supermarket would decrease residents' weight by three pounds.<sup>27</sup> An increase in access to healthy food is more likely to affect community obesity rates if access to unhealthy food choices is limited.

### **Local food production and direct sales increase options for accessing healthy food.**

Farmers markets, farm stands, produce stands and **CSA** (Community Supported

Agriculture) farms increase opportunities to purchase and consume more fruits and vegetables.

Research indicates that the U.S. currently does not produce and process enough healthy foods, such

**Community Supported Agriculture (CSA)** is a system in which a group of people financially support a local farm and benefit by receiving a share of the produce.

as fruits, vegetables and whole grains, for all citizens to eat recommended amounts of these foods.<sup>28,29</sup> Evidence suggests that dispersing agricultural production in local areas around the country (e.g., through local farms and urban agriculture) would increase the amount of produce that could be grown and made available to local consumers, improve economic development at the local level and contribute to environmental sustainability.<sup>30</sup> Studies are underway to further assess the linkages between local food production and health outcomes.

**Does local food production increase community food security and resilience?** Little research has been conducted to examine the impacts of local food production on food security. Community food security is a relatively new field, and the influence of other

factors such as economic conditions, income and poverty status limit the ability to draw clear conclusions on the efficacy of local food systems in improving food security.<sup>31,32</sup> Expanding local food options might increase availability, resulting in improved access and security.<sup>33</sup> Scholars argue that local food production increases community food security, which in turn increases stability and resilience. However, more research is needed to draw more clear relationships.

**Local food production provides additional community benefits.** In addition to improving access to healthy food, local food production can provide economic and environmental benefits, additional health benefits such as improved mental and respiratory health, increased physical activity, and social connectivity. The Pennsylvania Fresh Food Financing Initiative found that new healthy food retail creates additional jobs.<sup>34</sup> A study in Iowa found that farmers markets had a positive impact on the local economy, increasing consumer spending at other businesses in the community.<sup>35</sup>

Many of the studies on economic impacts of local food production focus on the **local multiplier effect**, or how food produced and distributed in a community keeps dollars flowing locally. In a recent study of the local food system in Central Puget Sound area, it was found that food growth for export earned \$1.70 in community income for every dollar of sales, but farmers markets could generate \$2.80 for the local

**The local multiplier effect** is the economic term used to describe how many times a dollar re-circulates within the local economy before leaving. Every time money changes hands within a community, it boosts income and economic activity and fuels job creation.

economy. The same trend was found in the grocery and restaurant industries. The author concludes that “locally directed spending supports a web of relationships, rooted in place, which makes for a healthier and more prosperous community.”<sup>36</sup>

In addition, reducing the distance that food travels to consumers has the potential to reduce fossil fuel energy use, pollution and greenhouse gas emissions.<sup>37,38</sup> Research findings indicate that community gardens have a positive impact on mental health, increase physical activity, and increase social capital (i.e. social connections, mutual trust and civic engagement).<sup>39,40,41,42</sup>

## Disparities

### Socioeconomic Status (SES)

**Low-income people have unequal access to healthy food.** In the United States, 5.7 million households, or approximately 5.4% of all households live more than a half mile from a supermarket *and* don't have access to a vehicle.<sup>43</sup> Nationwide, most food deserts are characterized by rural residents living far from services or urban poor and ethnic minorities living in marginalized neighborhoods.<sup>44,45,46</sup> For example, lower income neighborhoods in Baltimore are three and a half times more likely to have limited access to healthy food compared with higher income neighborhoods.<sup>47</sup> When marginalized neighborhoods include food retail, it is likely to be in the form of convenience stores and fast food outlets where residents can purchase mainly energy dense, processed foods. Retail food environments with abundant fast food restaurants

and convenience stores are associated with conditions linked to unhealthy diets, such as obesity and diabetes.<sup>48,49</sup> While the causes of chronic diseases are complex, it is likely that the retail food environment is a contributing factor to poor health among individuals living in these communities. Low-income and minority neighborhoods tend to have less produce, inferior quality produce, and higher prices when compared with wealthier neighborhoods.<sup>50,51,52,53</sup>

## **Age**

**There are few proven differences in access to healthy food based on age.** It is difficult to determine the effect of age on a young persons' ability to access food because so many other variables are involved (e.g., transportation, parental choices, and school menus). Research on youth nutritional habits therefore focuses on patterns of consumption rather than access. The Centers for Disease Control and Prevention estimated that in 2009, approximately 77% of U.S. adults aged 18 years and older consumed fruits and vegetables less than the recommended 5 times per day.<sup>54</sup> Approximately 78% of high school students consumed fruits and vegetables less than 5 times per day.<sup>55</sup> Research findings on access to supermarkets by age show little difference between the elderly and non-elderly. However, the elderly might face additional barriers if they live in a facility that provides meals, have physical or mental disabilities, or are unable to drive.<sup>56</sup>

## **Race and Ethnicity**

**Racial and ethnic minorities have unequal access to healthy food.** Chain supermarkets today are almost four times more likely to be located in majority White census tracts

compared to census tracts with a majority of Black residents.<sup>57</sup> Controlling for socioeconomic status, one study that examined neighborhoods in Atlanta found that neighborhoods that are predominantly White have better grocery store access compared with those that are predominantly Black.<sup>58</sup> Another study found that eight percent of African Americans live in a census tract with a supermarket compared with 31% of Whites.<sup>59</sup>

### **Geography**

**People in rural areas have unequal access to healthy foods.** Emerging research in the US has revealed a disparity in food price and quality by geography. Populations living in rural areas often must travel longer distances to access full-service grocery stores. Controlling for population density, one study found that rural areas have fewer food retailers of any kind compared to urban areas.<sup>60</sup> A US Department of Agriculture report also found higher food prices in rural areas which typically have smaller food retail establishments.<sup>61</sup>

## **Conditions Needed to Thrive**

Creating conditions to assure that all Clark County residents have access to health-promoting foods is a priority for public health agencies and advocates. To help prevent obesity and obesity-related chronic diseases, residents need convenient access to healthy food that is available, affordable, and appropriate. In addition to convenient retail access, residents should have a secure food source through local land dedicated

and protected for agriculture. Linkages need to be developed between planning and food systems and should specifically focus on land use, transportation and economic development to build a more comprehensive approach to planning for food infrastructure.

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# Health Element

Clark County Comprehensive Growth Management Plan

## *Growing Healthier*

Current Conditions:

## Access to Healthy Food



## Health Data

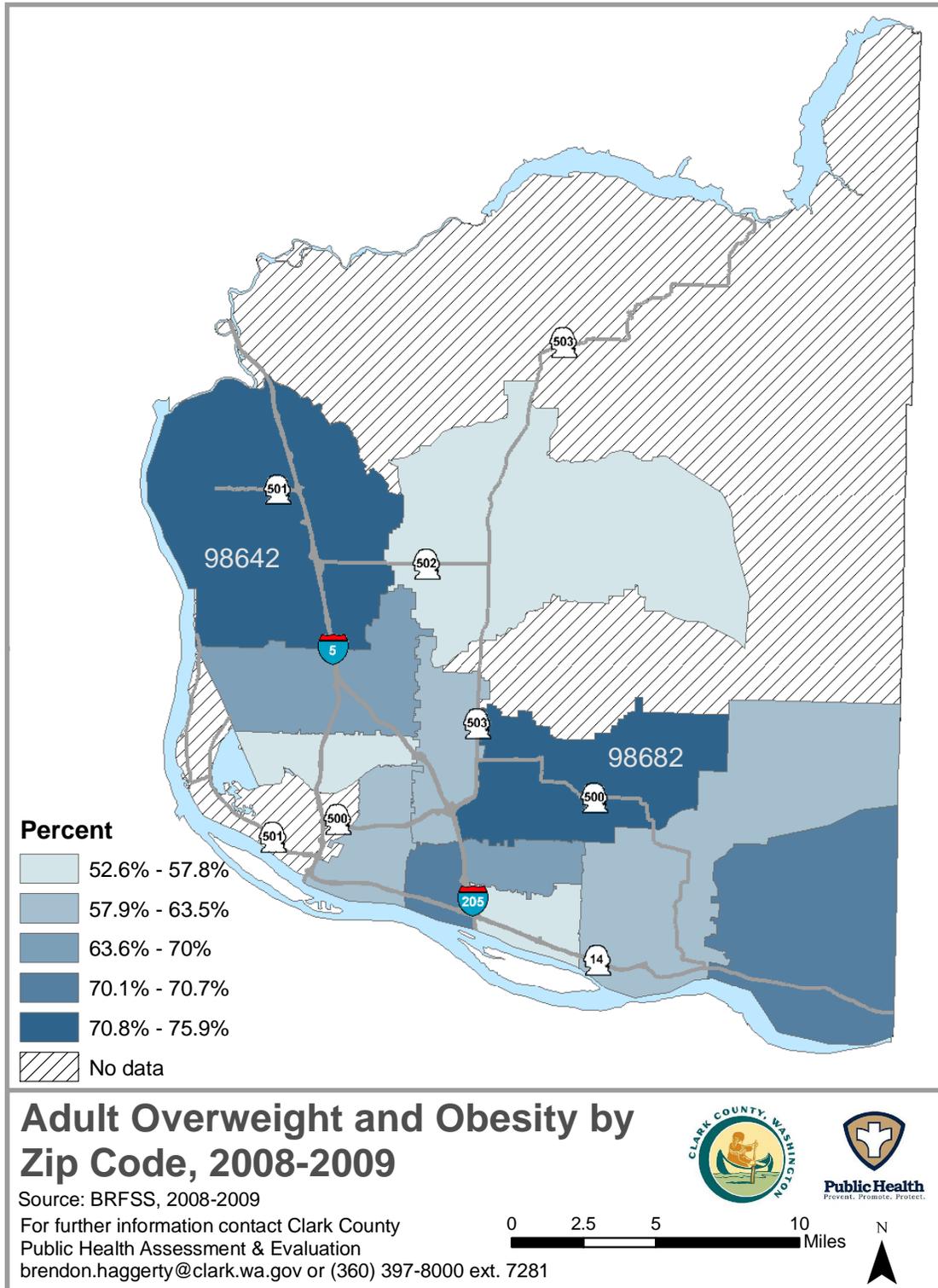
Access to healthy food results in healthier diets, protecting against many diseases, including diabetes, obesity, and leading causes of death such as cancer and cardiovascular disease.<sup>1</sup> Fruit and vegetable consumption is an important gauge of healthy eating and low intake is a risk factor for obesity-related diseases. About 22% of Clark County adults eat fruits or vegetables five or more times a day compared the Washington State figure of 25%. Approximately 25% of Clark County youth eat fruits or vegetables five or more times a day, a proportion comparable to the Washington State figure (Table 3.3).<sup>2,3</sup>

**Table 3.3.** Healthy Eating, Overweight and Obesity Figures by Age for Clark County and Washington

Health Indicator	Youth		Adult	
	Clark County	WA State	Clark County	WA State
Fruit or vegetable consumption: $\geq 5$ times per day	25%	25%	22%	25%
Obesity (adults: BMI $\geq 30$ and 10 <sup>th</sup> graders: top 5% BMI)	11%	10%	32%	27%
Overweight and obesity (adults: BMI $\geq 25$ , 10 <sup>th</sup> graders: top 15% BMI)	22%	24%	67%	62%

*Source: BRFSS, 2009, Healthy Youth Survey, 2008, 2010*

**Map 3.1. Adult Overweight and Obesity, 2008-2009**



*Weight status varies by area within the county with a higher percent of overweight/obese persons living in the 98642 and 98682 zip codes.  
 Source: Behavioral Risk Factor Surveillance System, 2010*

Healthy weight status is associated with eating healthy foods and getting adequate physical activity.<sup>4</sup> In Clark County, 32% of adults are obese (BMI  $\geq$ 30) and 67% of adults are

**Definitions of Overweight & Obesity**

Healthy weight: BMI 18.5-24.9

Overweight: BMI 25-29.9

Obese: BMI 30+

overweight or obese (BMI  $\geq$ 25). About 22% of Clark County tenth graders are overweight and 11% are obese (Table 3.1). These figures are comparable to Washington State. Weight status varies by area within the county with a higher percent of overweight/obese persons living in the 98664 and 98684 zip codes (Map 3.1).<sup>5,6</sup>

## Healthy Food

An individual's ability to choose a healthy diet is shaped by multiple determinants, including physical, financial, and cultural factors. Planning focuses on physical access. The two key variables of physical access to food are the presence or absence of food retail, and the relative availability of healthy to unhealthy food options. Food retail for healthier food options generally include supermarkets, grocery stores, farmers markets, produce stands and full service restaurants. Food retail that typically serve unhealthier food options include fast food restaurants and convenience stores, although it is recognized that some healthy options might be available at these sites.<sup>7</sup> There are a variety of food retail in Clark County. Table 3.4 gives a description of food retail descriptions in Clark County. Map 3.2 gives a picture of the physical food retail environment in Clark County.

## Access to Healthy Food

Clark County Public Health (CCPH) uses distance from residence to food retail to measure access to healthy food. A distance of ½ mile along a street network is used to define areas within walking distance of healthy food retail. In Clark County, 17% of residents live within a ½ mile of a **full service grocery or market**. These residents are considered to have the most options for healthy food.<sup>8</sup> Map 3.3 shows the areas within ½ mile of a full service grocery store or market.

**Food deserts** - areas with limited or no access to healthy food options, measured as a ½ mile distance from healthy food sources.

**Absolute food deserts** - areas with are no food outlets within ½ mile.

**Food swamps** – areas with access to only unhealthy food options within ½ mile.

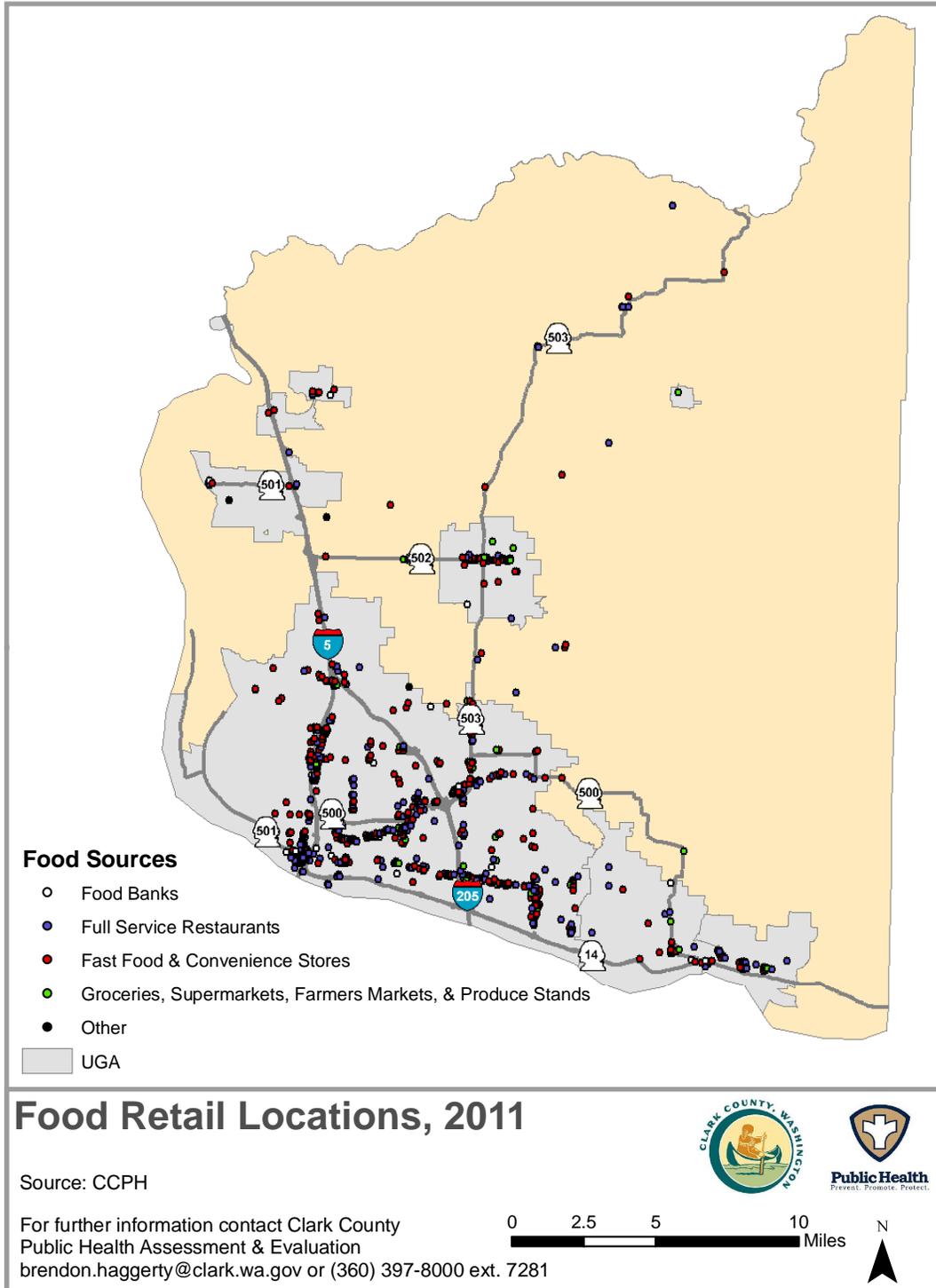
**Full service groceries and supermarkets** offer a full range of food including fresh produce, dairy, and meat, fish or poultry.

**Food deserts** are areas where there is limited or no access to healthy food options, measured as a ½ mile distance from healthy food sources. Approximately 83% of Clark County residents live in a food desert and must travel farther than ½ mile to reach healthy food options. This is displayed on Map 3.3 as areas outside the ½ mile buffer around food outlets.<sup>9</sup> Accessing healthy food retail will be especially difficult for individuals who rely on walking or biking for transportation and must travel farther to reach healthy options.

**Table 3.4.** Food Retail Classifications

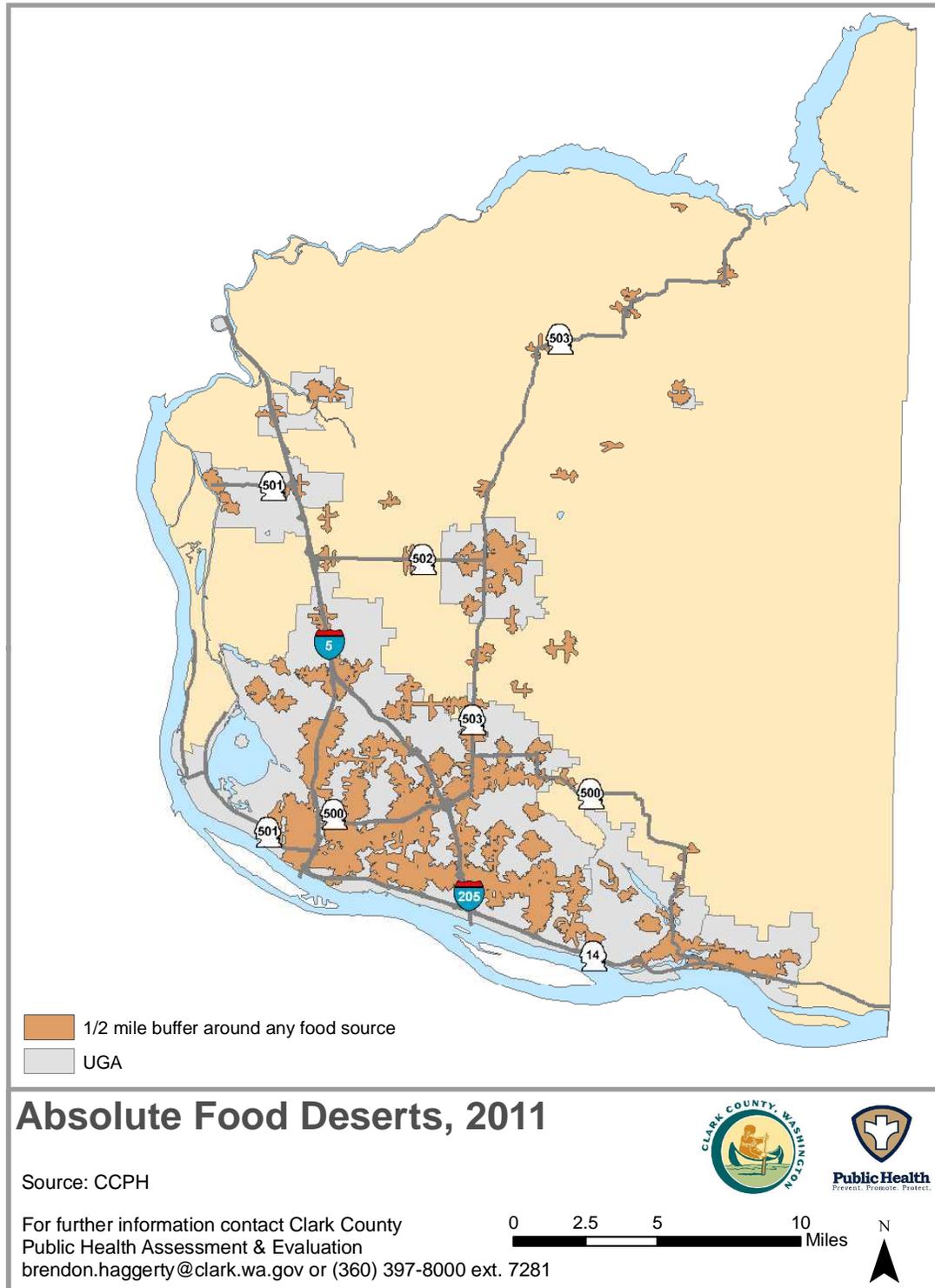
Food retail	Description
Healthy	Farmers markets, produce vendors, grocery stores, supermarkets
Unhealthy	Fast food restaurants and convenience stores
Full Service	All non-fast food restaurants
Donated	Food banks
Other	Meat markets

**Map 3.2. Food Retail Locations in Clark County**



*Most food retailers are located along major transportation corridors.  
Source: Clark County Public Health, 2011*

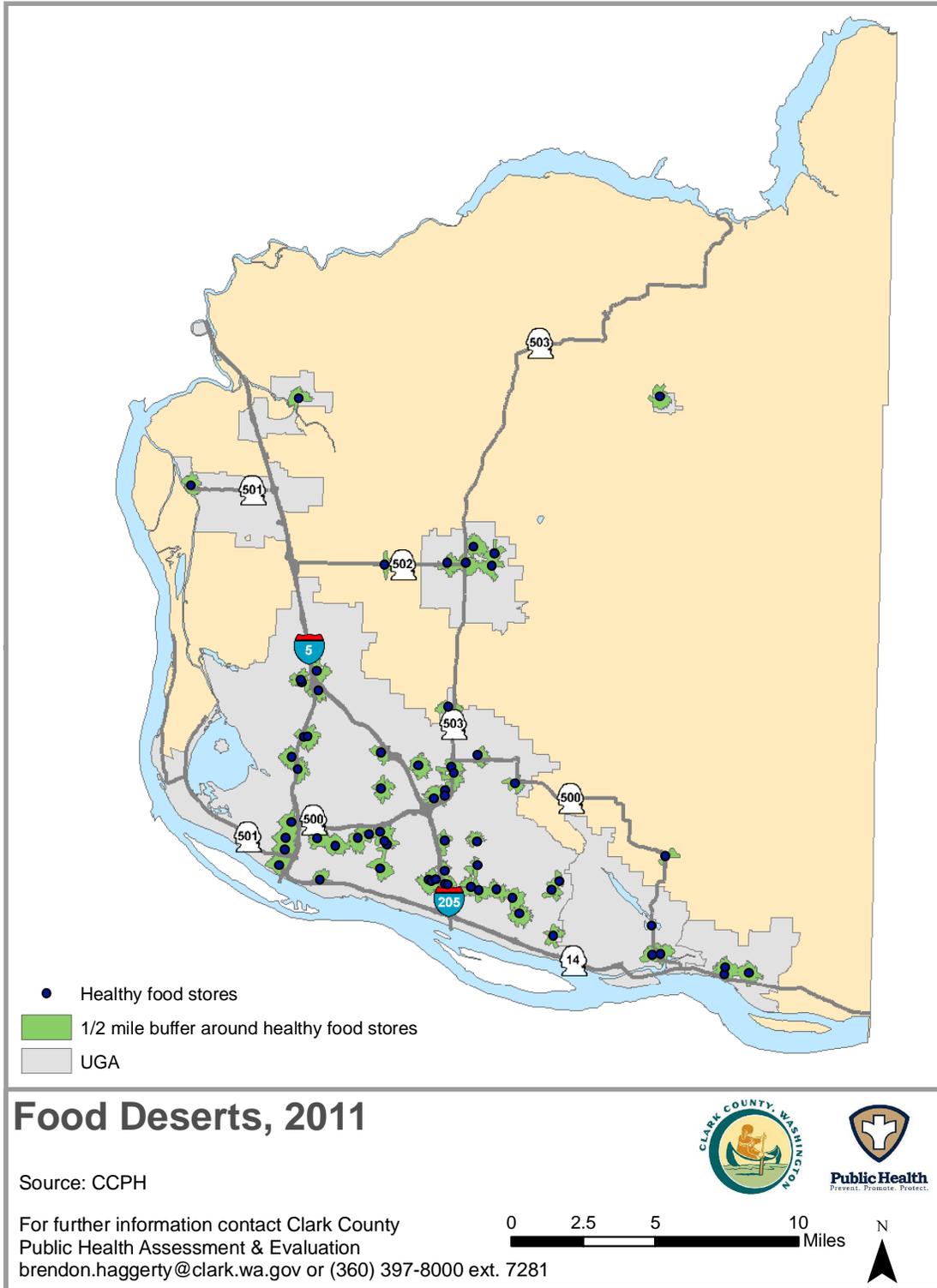
**Map 3.3. Absolute Food Deserts in Clark County**



*Areas in orange are within 1/2 mile of any food retail. Areas beyond this boundary are absolute food deserts.*

*Source: Clark County Public Health, 2011*

**Map3.4. Food Deserts in Clark County**



*Areas in green are within ½ mile of a farmer’s market, produce stand, grocery store, or supermarket. Areas beyond this boundary are food deserts.*

*Source: Clark County Public Health, 2011*

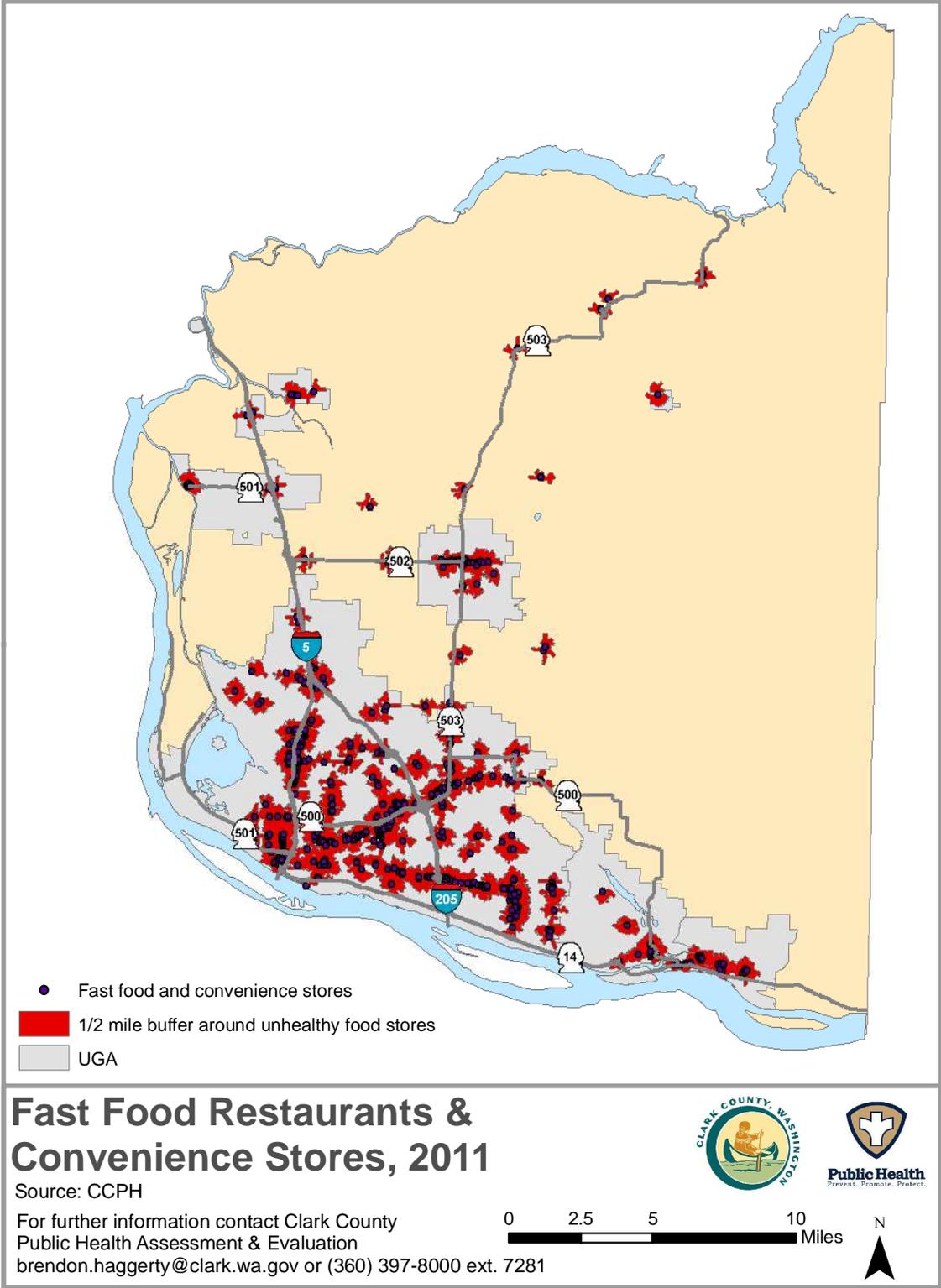
**Absolute food deserts** are areas where there are no food outlets within ½ mile. In Clark County, 54% of residents live in an absolute food desert and must travel greater than ½ mile to reach any food options – shown on Map 3.4 as areas outside the ½ mile buffers around outlets.<sup>10</sup>

### **Access to Unhealthy Food**

Unhealthy food might be more appealing or accessible than healthier food options. Calorie-dense fast food can be less expensive, closer and more convenient than fresh produce that needs to be prepared by the person buying it. Map 3.5 shows the areas within ½ mile of unhealthy food such as fast food or convenience stores. Approximately 41% of Clark County residents live within ½ mile of fast food or a convenience store. This is a substantial difference considering that only 17% of residents lived near a store with healthy food options.<sup>11</sup>

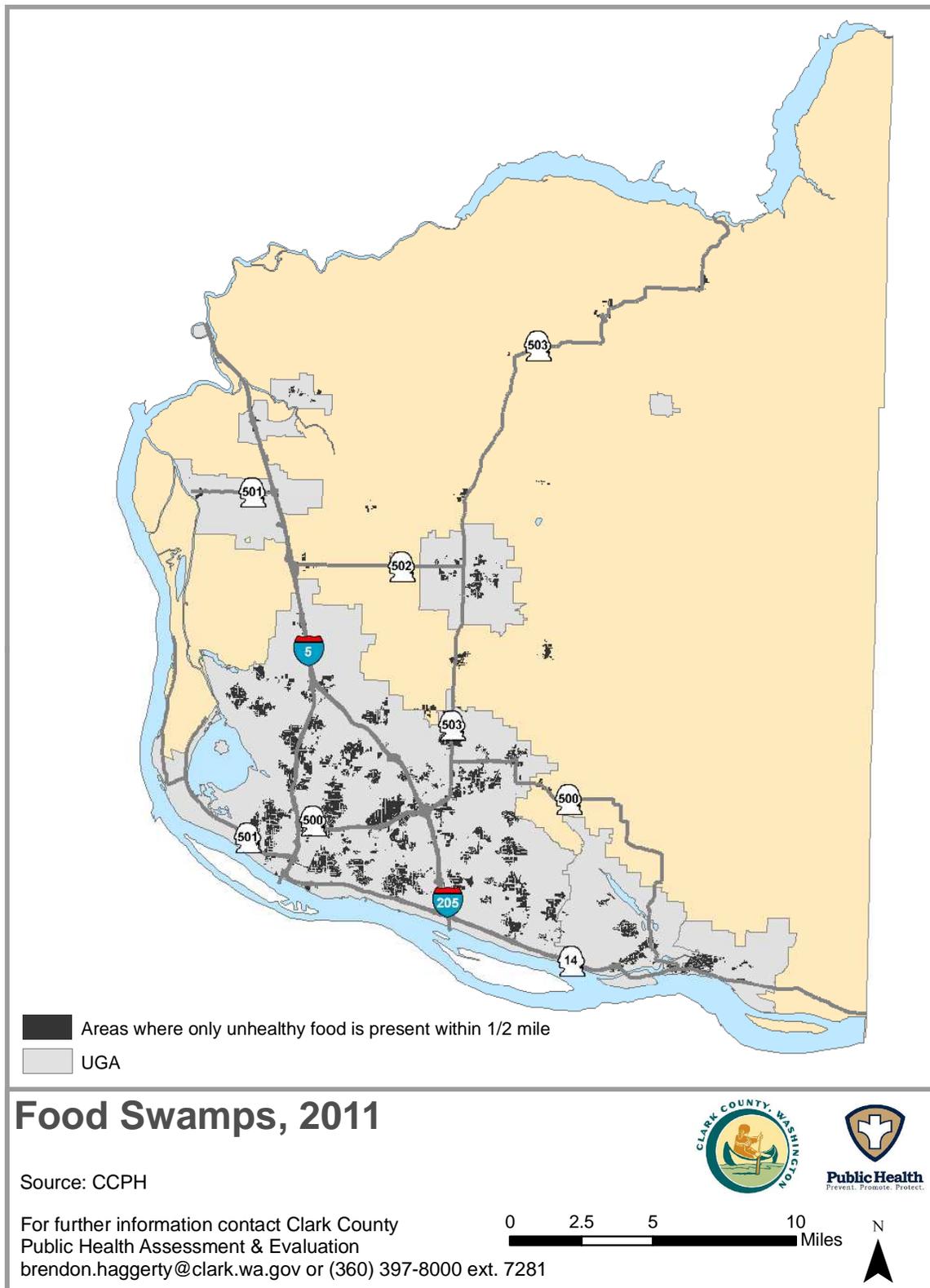
There are many areas where only unhealthy food is present (e.g., no grocery stores or full-service restaurants). Map 3.6 shows the areas within ½ mile of only fast food or convenience stores. These are designated as food swamps. Individuals living in these areas do not have healthy options that are easily accessible. In Clark County, about 25% of residents live close to a convenience store or fast food restaurant, *but not* close to a healthy food store.<sup>12</sup>

**Map 3.5. Access to Unhealthy Food Retail**



*Areas within 1/2 mile of unhealthy food retail.  
 Source: Clark County Public Health, 2011*

**Map 3.6. Access to Only Unhealthy Food Retail**



*Areas within 1/2 mile of only unhealthy food retail.  
Source: Clark County Public Health, 2011*

## Community Food Security

### *Community Gardens*

**Community gardens** offer residents a designated space to grow their own food. They are small plots located in both urban and rural areas. For residents without yards suitable for gardening, this is an important way to obtain fresh produce, recreate, and build community. There are many types of community gardens in Clark County. Larger regional community gardens are developed and managed by Vancouver-Clark Parks and Recreation, 78<sup>th</sup> Street Heritage Farm and the cities of Ridgefield and Washougal. Other community gardens are developed for specific populations or more localized areas such as neighborhoods, churches, housing complexes or social service programs. One type of community garden is a private organization, often referred to as a neighborhood garden, in which neighbors collaborate to garden on a single piece of privately-owned land, such as a residential yard. In recent years, there has been an increase in community garden areas within Clark County. A 2007 Vancouver-Clark Parks and Recreation Department (VCPRD) Community Survey on park and recreation needs, preferences, and priorities found a high level of community interest in community gardens. Typically there is a higher demand for plots than space allows.<sup>13</sup> Until recently most community gardens were located in regional parks and supported by VCPRD. To

**Community Food Security** is a condition in which all community residents obtain a safe, culturally appropriate, nutritionally sound diet through an economically and environmentally sustainable food system that promotes community self-reliance and social justice.

**Community gardens** are a single piece of land gardened collectively by a group of people.

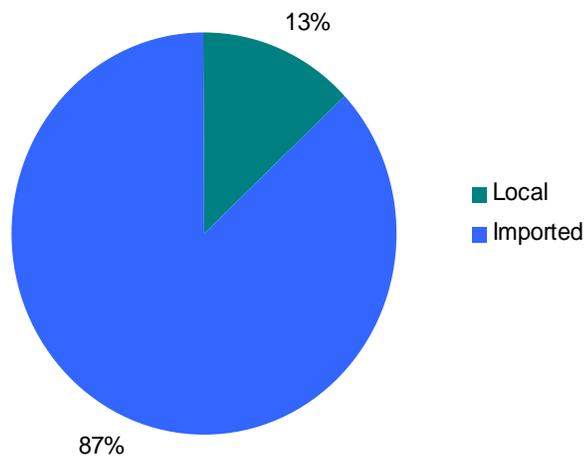
meet the increased demand, more community garden plots opened supported by local government. Policies were developed allowing residents to create community gardens in neighborhood park space. In addition, private-public partnerships formed to create collaborative community gardens. CCPH identified an additional 66,873 square feet of community garden space added in 2010.<sup>14</sup> Analysis of garden locations shows that about 13% of the county population lives within ½ mile of some kind of community garden.

### *Agriculture*

During 2007, Clark County consumers spent \$807 million on food. Approximately \$700 million of that was for products imported from outside the county. The local portion represents only 13% of the total food expenditures in Clark County (Figure 3.2).<sup>15</sup> In

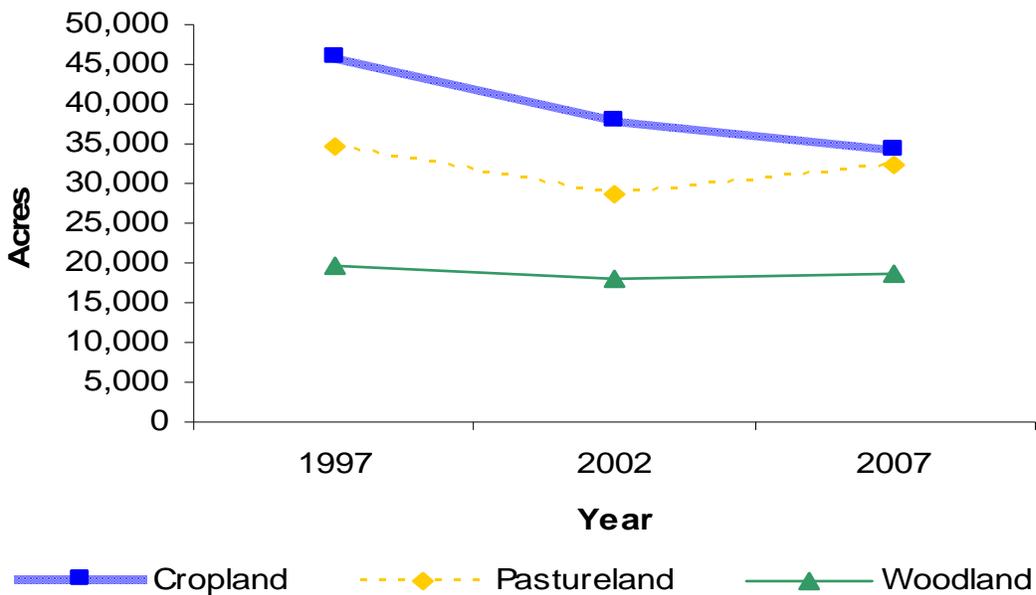
1997, there were 100,622 acres of agricultural land in Clark County. In 2007, the total figure had dropped by 16% to 85,030 acres. While woodland and pastureland both decreased, the largest decrease was in cropland

**Figure 3.2. Clark County Food Purchases**



with a 26% decline in acreage between 1997 and 2007. Cropland in Clark County has now decreased to 34,296 acres (Figure 3.3).<sup>16</sup> Not only does this lack of agricultural resources impact community food security, but it impacts access to local food.

**Figure 3.3.** Agriculture Land by Type in Clark County, 1997-2007



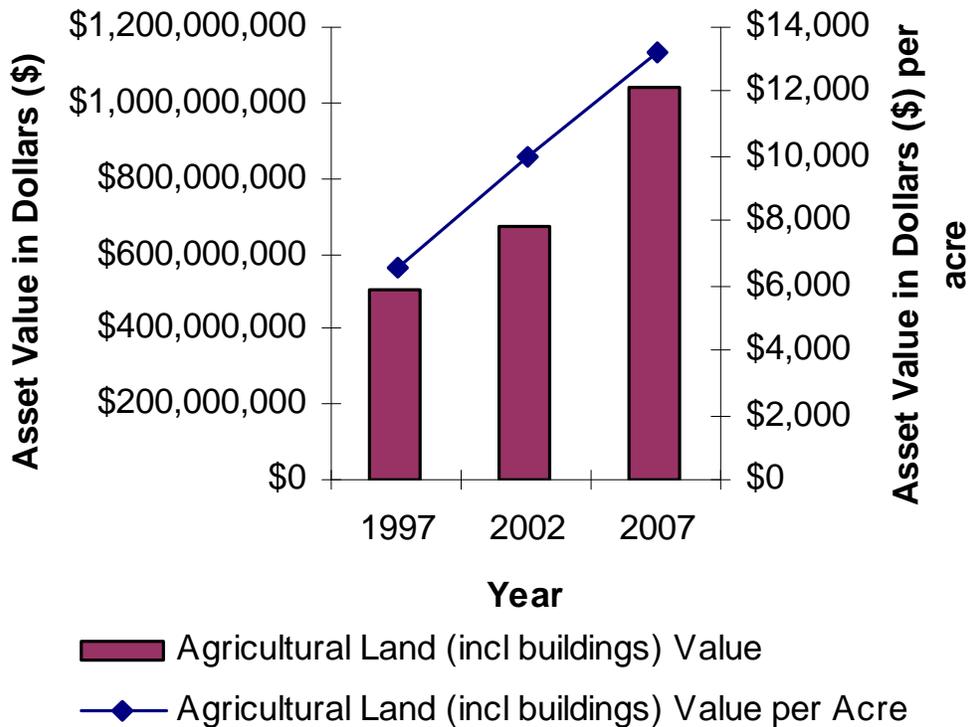
*There has been an appreciable decrease in agricultural land in Clark County from 1997-2007*

*Source: Census of Agriculture, 2007*

Although overall agricultural land acreage declined between 1997 and 2007, the value of the land has doubled (Figure 3.4). In 2007, agricultural land (including buildings) in Clark County was valued at \$1 billion or \$13,200 per acre.<sup>17</sup> The Clark County Agricultural Preservation Strategy Report identified the rise in land value as a barrier to maintaining local food production.<sup>18</sup> In 2007 there were 2,101 farms in Clark County, an

increase from 1,596 in 2002. Farm size, however, has declined from 44 acres in the 2002 Census to 37 acres in 2007.<sup>19</sup>

**Figure 3.4.** Agricultural Land Value in Dollars, 1997-2007



*The value of agricultural land has doubled from 1997-2007.  
Source: Census of Agriculture, 2007*

*Direct-to-Consumer Sales*

Clark County has experienced a variety of changes in the types of farms and food distribution opportunities located in the community. Although still only a small percentage of farms and farm income, the U.S. Department of Agriculture (USDA) reports show direct-to-consumer sales rising.<sup>20</sup> Direct-to-consumer sales is the terminology used for sales at farmers markets, farm stands and Community Supported

Agriculture (CSA) programs. CSA, a process where residents buy “shares” from a local farm, has gained in popularity in Clark County. According to the Southwest Washington CSA Farm web site, there were 16 CSA farmers in 2011. Local farmers markets have also gained in popularity. USDA reported a 16% increase in farmers markets nationwide from 2009-2010.<sup>21</sup> Clark County, once home to only one farmers market, had seven markets in operation in 2011.

## **Disparities**

### **Socioeconomic Status (SES)**

Measures of socioeconomic status, such as educational attainment and income, are associated with indicators related to healthy food consumption and obesity rates. For adults, eating fruits and vegetables five or more times per day increases with higher levels of education and income.<sup>22</sup> For youth, fruit and vegetable consumption increases with higher levels of mother’s education.<sup>23</sup> Obesity in adults decreases with higher levels of education and income.<sup>24</sup> Youth obesity and overweight/obesity decreases with higher levels of mother’s education.<sup>25</sup> These findings indicate that the consumption of healthy foods is associated with higher income and educational attainment.

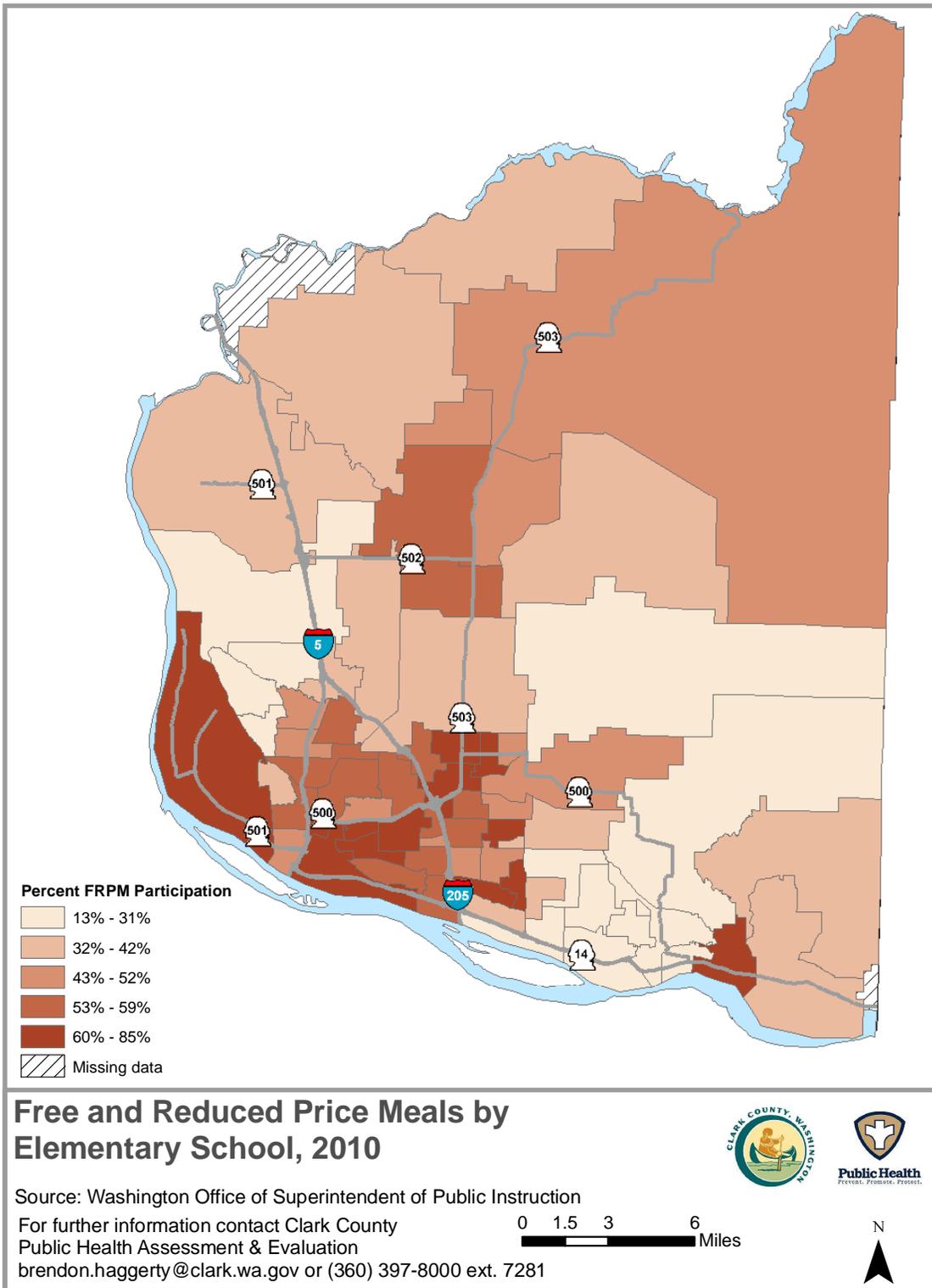
Financial resources affect the ability to obtain healthy food. Free and reduced priced school meal (FRPM) participation is an important measure of limited financial resource among families with school-aged children. Eligible students are from households with incomes at or below 185% of the federal poverty level. During the 2009-10 school year,

44% of elementary school children in Clark County participated in the FRPM program, an increase from the 2003-04 school year. In 2009-10, Clark County's participation rate of 44% was less than Washington State's rate of 46%.<sup>26</sup>

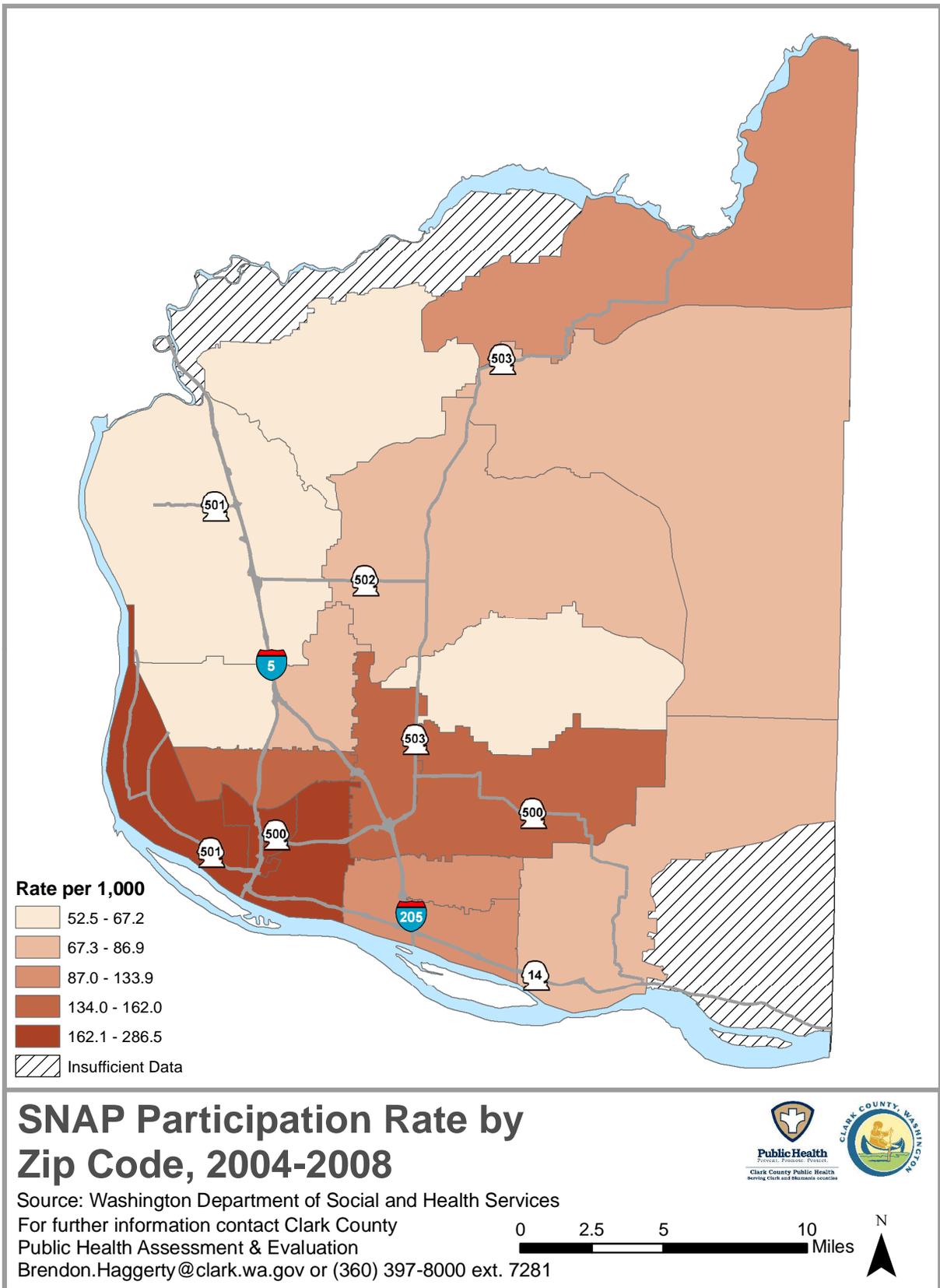
FRPM participation varies by school district (Map 3.7). The highest levels of participation coincide with some of the highest levels of poverty in the county – mainly in the Vancouver area. Vancouver School District's rate of FRPM participation is 55% compared with Evergreen Public School's rate of 45%. The lowest rates of FRPM participation are in Camas (19%) and Hockinson (20%) school districts.<sup>27</sup>

The Supplemental Nutrition Assistance Program (SNAP) of the USDA (previously known as food stamps) is a resource for low-income individuals to purchase food. SNAP participation is another measure of poverty associated with healthy nutrition, and is often considered an indicator for food insecurity. In 2008, 134 per 1,000 people received SNAP benefits in Clark County. This was higher than the Washington State rate of 126 per 1,000 people. Overall, about 9.5% of households in Clark County received SNAP benefits within the past year, similar to the rate for Pierce County (9.3%). This is higher than King County (6.3%) and Snohomish County (7%) but lower than Spokane (11.8%), two comparable counties.<sup>28</sup> SNAP participation varies by zip code (Map 3.8), with the highest rates in the Central to West Vancouver areas. The highest rate was 287 per 1,000 residents in South Central Vancouver, and the lowest rate was 53 per 1,000 residents in Brush Prairie/Hockinson.<sup>29</sup>

**Map 3.7. Free and Reduced-Priced School Meals by Elementary School Catchment Area, 2009-2010**



**Map 3.8. SNAP Participation Rate by Zip Code**



**Table 3.5.** Percent of Clark County Population Within ½ mile to Food Source by Race, Age and SES

Type of Nearby Food Source	Total population	White	Non-white	Youth (<20)	Older (≥65)	Low SES
Healthy Food (within ½ mile)	17%	16%	22%	17%	17%	26%
Unhealthy Food (within ½ mile)	41%	40%	49%	41%	42%	58%
Any Food (within ½ mile)	46%	44%	54%	45%	47%	62%

Source: Clark County Public Health, Food Outlets Data File, 2011, U.S. Census, 2011

### Age

Research on age and access to healthy food focuses on consumption. The percent of youth eating fruits and vegetables five or more times a day decreases as grade level increases, while percent of adults eating fruits and vegetables five or more times a day increases with age.<sup>33,34</sup>

School-aged children are exposed to the food environment near their schools just as adults are exposed to the food near their places of employment. The relative availability of healthy food to unhealthy food is particularly important, as youth is the best time to prevent obesity. In Clark County, about 39% of schools are within ½ mile of a fast food restaurant or convenience store.

Youth and older adults have about the same level of geographical access to food retail as the total population of Clark County – about 46% live within ½ mile of any food sources. Youth and adults also have similar access to healthy and unhealthy food retail. There are 17% who live within ½ mile of healthy food retail, and there are about 41% who live within ½ mile of unhealthy food retail (Table 3.3).

### **Race/ethnicity**

Compared to the White population, the non-White population tends to be located closer to healthy food retail in Clark County (Table 3.3). Approximately 22% of the non-White population lives within ½ mile of a healthy food retail compared to 16% of the White population. However, non-Whites are disproportionately closer to unhealthy food retail. About 49% of the non-White population lives within ½ mile of an unhealthy food source compared to 40% of the White population (Table 3.3). The non-White population has greater access to food sources in general, 54% compared to 46% for the total population.

### **Rural/Urban**

Of nearly 70,000 residents in the rural areas of Clark County outside of Urban Growth Areas, only about 5% live within ½ mile of any food store. This is largely intended by land use regulations and is consistent with the rural character of this area. The USDA recognizes the different level of service that can be expected in rural areas, and therefore defines a food desert in rural areas as more than ten miles from a healthy food store. Using this standard, only 8% of rural residents live in a food desert; about 92% of rural residents live within 10 miles of a healthy food store.

## **Summary**

Table 3.6 below summarizes findings from the literature compared to current conditions in Clark County.

**Table 3.6.** Summary of Literature Findings Compared to Current Conditions

<b>Finding</b>	<b>Conditions in Clark County</b>	<b>Level of Concern</b>
Consumption of healthy foods lowers the risk of chronic disease.	22% of Clark County adults eat fruits or vegetables five or more times a day. 25% of Clark County youth eat fruits or vegetables five or more times a day.	<b>High</b>
Increased access to healthy foods results in greater consumption of healthy foods.	17% of residents live within a ½ mile of a full service grocery or market.	<b>High</b>
An overabundance of unhealthy food leads to increased risk for chronic disease.	41% of residents live within ½ mile of a convenience store or fast food restaurant.	<b>High</b>
Local food production and direct sales increase options for accessing healthy food.	In 2007, about 87% of all money spent on food in Clark County was spent on food imported from outside the county.	<b>Medium</b>
Local food production provides additional community benefits.	The number of farms in Clark County increased by 31% from 2001-2007, although average acreage declined 16%.	<b>Medium</b>
Low-income people have unequal access to healthy food.	26% of residents who live in poverty live within ½ mile of a healthy food store, compared to 17% of the county as a whole. 58% of residents in poverty live within ½ mile of convenience stores or fast food restaurants, compared to 41% of the county as a whole.	<b>Medium</b>
Racial and ethnic minorities have unequal access to healthy food.	22% of non-White residents live within ½ mile of a healthy food store, compared to 16% of White residents. 49% of non-White residents live within ½ mile of convenience stores or fast food restaurants, compared to 40% of White residents.	<b>Medium</b>
There are few proven differences in access to healthy food based on age.	The percent of older adults and youth who live within ½ mile of a healthy food store is the same as the county as a whole, 17%.	<b>Low</b>
People in rural areas have unequal access to healthy foods.	92% of rural residents live within 10 miles of a healthy food source.	<b>Low</b>

*Levels of concern were determined by CCPH staff based on research and current conditions and are subject to change.*

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