

Nutrition Environment Measures Survey Findings 2018: A Point-in-Time Assessment of Retail Food Outlet Options in Douglas County, Nebraska

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EXECUTIVE SUMMARY

Douglas County Health Department (DCHD), with grant funding from the Nebraska Department of Health and Human Services (NDHHS) via the Center for Disease Control (CDC), carried out a county-wide assessment to examine the nutrition environment of retail food outlets located in Douglas County. This endeavor was part of the broader vision of DCHD to make the right choice the easy choice by working with the community to improve the viability of healthy eating. This report provides a snapshot of the availability, affordability, quality, and physical accessibility of healthy foods within 10 regions of Douglas County using census tract boundaries. The assessment tool was administered with the assistance of 40 community volunteers and the data analyzed by the University of Nebraska Lincoln's Bureau of Sociological Research in the spring of 2018. This assessment has previously been conducted in Douglas County in 2009, 2012, and 2015.

Key Findings:

- In Douglas County as a whole, the number of stores meeting “healthy access” criteria per 10,000 population has increased each year assessed.
- From 2009 through 2018, there has been a meaningful shift from the percentage of stores scoring “limited healthy access” to stores scoring “moderate limited healthy access” (the percentage of “1’s” decreased and the percentage of “2’s” increased).
- “Adequate Healthy Food Access” increased from 119 sq miles in 2009 to 130 sq miles in 2015 and decreased to 128 sq miles in 2018.
- Assessing Douglas County’s retail outlet food nutrition environment continues to facilitate opportunities for residents to maintain a healthy diet via food purchasing behaviors in retail environments based on modifications made as a result of assessment data.

DCHD Recommendations Informed by Findings:

Following are some identified opportunities and actions to strengthen the community food system and provide all community members with improved access to healthy diets.

- Increase targeted offerings of healthy foods, with a greater variety of healthy foods being made available frequently.
- Increase promotion of healthy foods by making them easy to locate and highly visible.
- Reduce prices and/or offer vouchers to reduce price/provide discount for purchase of healthy foods.
- Utilize point-of-purchase information with signage to identify healthy foods.
- Communicate store promotion of healthy foods with advertising thru various media channels.
- Explore environmental and policy initiatives
- Use a mixed methods approach for future assessments of Douglas County’s food environment.

INTRODUCTION

Food decisions can play a significant role both in the cause or prevention of chronic diseases (Drewnowski, 2004). It has been shown that proximity to a retail food store is also linked to the cause or prevention of chronic diseases and that the lack of healthy food options in retail food stores leads to weight-gain (Story, Kaphingst, Robinson-O'Brien, & Glanz, 2008). Low income and minority neighborhoods commonly have lesser access to supermarkets and greater access to convenience stores that tend to lack affordable healthy options. Residents of these neighborhoods are less able to maintain a healthy diet and have higher rates of obesity as a result (Powell, Slater, Mirtcheva, Bao, & Chaloupka, 2007; Glanz, Sallis, Saelens, & Frank, 2007). Studies have found that the availability of healthy food correlates with the healthiness of the community – communities with healthier stores have healthier diets (Cheadle et al., 1991; Fisher & Strogatz, 1999; Moore, Diez Roux, Nettleton, & Jacobs, 2008).

In order to better understand and monitor Douglas County's retail food outlet environment, (physical access, availability/variety, cost, and quality) DCHD performed a Nutrition Environment Measurement Survey (NEMS). Since 2009, DCHD has performed this assessment every three years in partnership with University of Nebraska–Lincoln's Bureau of Sociological Research (BoSR). This report provides a snapshot of the retail food environment in Douglas County in 2018. The report first provides a broad overview of the issue of food access and relevant background information specific to Douglas County followed by the methods used to collect the data. The body of the report summarizes the key findings and results. The report concludes with recommendations.

BACKGROUND

Douglas County, population approximately 517,000 in 2010, forms part of one of the nation's major metropolitan areas along the Missouri River, with Omaha as its largest city. Douglas County's population is approximately 72% white, 11% African American, and 11% Hispanic or Latino/a (U.S. Census Bureau, 2010). Douglas County has a unique racial and ethnic geographic distribution with marked physical separation of major racial and ethnic groups. The Northeast quadrant is home to much of the county's African American population with the Southeast quadrant is home to much of the county's Hispanic and Latino/a population. Both quadrants also make up the lowest income portion of the county with the highest number of residents living below the poverty line.

Availability of healthy food in a community does not always mean that everyone has access to it. According to the US News and World Report's Healthiest Communities rankings (2018), 8% of households in Douglas County have no access to a vehicle compared to the national average of 6%, Douglas County's peer group counties at 5%, and the state of Nebraska at 4%. Healthy food is simply unavailable in some areas. The same 2018 US News & World Report found that only 12% of Douglas County's population has access (living within 1 mile) to a large grocery store compared to the national average of 22%.

The lack of availability of large supermarkets is of concern because, in general, larger/chain supermarkets tend to sell food at lower prices and/or provide a wider variety of foods at a higher-quality than do smaller grocery/convenience stores (Story, et al., 2008). Therefore, for community members who are fortunate enough to live in areas where healthy food is available and physically accessible, there may be additional barriers such as the aforementioned cost and/or quality. The 2018 US News & World Report source did find Douglas County to be on par with the national average of number of local food outlets per 100,000 total population. Evidence suggests that people are more likely to meet dietary recommendations when they have ready access to grocery stores with healthy foods (Story, et al., 2008). However, healthy foods are often more expensive and less available than less nutritious foods, especially in smaller, quick-stop oriented stores, such as convenience stores. Smaller, convenience type, food stores have limited distribution of perishable items and smaller economies of scale than supermarkets. This contributes to staple food items generally being priced higher at convenience type stores compared with supermarkets. Smaller stores also tend to sell items in smaller package sizes than supermarkets, and these items tend to have a greater price per unit (Caspi, Sorensen, Subramanian, & Kawachi, 2017). Supermarket prices are 10 percent lower, on average, than those of smaller food stores, in part, due to lower per unit costs resulting in lower margins over cost of goods sold (Kaufman, MacDonald, Lutz, & Smallwood, 1997).

Both large supermarkets and smaller groceries and convenience stores are important environments where store owner/management engagement may increase the availability of and access to affordable food choices that are healthy and of acceptable quality. Such interventions to implement pricing; and promotional strategies have been found to be a reasonable endeavor. Further, evidence has demonstrated their effectiveness in influencing healthy eating behaviors (Glanz & Yaroch, 2004). Thus, retail food environments and the consumer level interventions (e.g., healthful, affordable foods in food stores) are promising settings for positive changes (Glanz, Sallis, Saelens, & Frank, 2005).

DCHD recognizes that continuing to improve the food environment in Douglas County, as well as facilitating retail food purchasing changes, requires a sustained public health effort, which addresses not only individual behaviors but also the environmental context and conditions in which people live and make choices. Individual behavior change is unsustainable if the context in which people make decisions is not addressed. Therefore, measurement and evaluation of Douglas County's retail food environment is essential.

METHODS

Nutrition Environment Assessment Tool

A community's nutrition environment is described as the sum of all of its food outlets – such as grocery stores, convenience stores, full-service and fast-food restaurants, farmer's markets, etc. A consumer's nutrition environment is described as what he or she encounters when buying food – particularly regarding the availability, cost, and quality of healthy food choices (Glanz, et al., 2005).

One approach to evaluating the nutrition environment landscape of a community is to assess its retail food outlets. The NEMS tool, measures the availability, price, and quality of nutritious foods and was designed to quantify what a consumer encounters in retail food outlets (Glanz, et al., 2007). NEMS is an evidence-based measurement tool developed with support from the National Institutes of Health, the United States Department of Agriculture, the Robert Wood Johnson Foundation, the Georgia Cancer Coalition and the Center for Health Behavior Research at the University of Pennsylvania. The survey tools are specifically designed to be easily customizable to suit a project's needs. In 2009, the NEMS-S (supermarket/grocery store) tool and NEMS-CS (corner store) tool were combined and modified by the BoSR to better reflect the unique components of healthy access within both urban and rural areas of Nebraska. The modified instrument, known as the "NebNEMS tool," provides a point-in-time observation of the availability, affordability, and cost of healthy food options. Measurement includes the following areas: fruits, vegetables, meat and meat alternatives, whole grains, milk, and snacks. The Nebraska NEMS tool was designed to only examine grocery and convenience stores. Other venues for the procurement of healthy foods (e.g. farmers' markets, specialty stores, restaurants, etc.) are not meant to be assessed by this tool. NEMS has been conducted in Douglas County in 2009, 2012, and 2015. NEMS measures the availability/variety, affordability, and quality of healthier and less healthy foods items. The tool is not meant to rate a retail food outlet as healthy or less healthy.

Store Selection

DCHD's retail food section provided a list of all licensed retail food outlets in Douglas County as of January 2018. DCHD staff assisting with NEMS reviewed the list and removed specialty, secondary, and single food venues (i.e. candy stores, farmers markets). Of the remaining 433 stores identified and assessed, 48 stores were removed prior to data analysis for reasons such as the store is no longer in business or otherwise unable to be completed (e.g., seasonal, closed at time rater went to complete; manager refused participation; not open to the public, etc.). A final list of stores (n = 385) included in the data is available in this report's Appendix A.

Training and Data Collection

Volunteers were recruited from various local entities (i.e. universities, non-profit organizations, etc.) and trained as raters. Training included how to use the NEMS tool to record their observations of a store's availability/variety, quality, and price of the items listed on the NEMS

tool (see Appendix D for rater training points). The raters were equipped with packets for each store that included an informational letter for the store manager, the NEMS tool, and a business reply envelope (see Appendices B & C for tool and letter). Data collection was performed by the raters over a five week period during February and March of 2018. Three group training sessions were offered with a total of 40 community volunteers trained as raters. To assess inter-rater reliability, two trained raters independently visited a subset of 37 retail food outlets (assigned at random by BoSR) to complete the same set of assessments.



DCHD volunteer NEMS rater performing an assessment

All completed forms were sent to BoSR using the business-reply envelopes provided in the packets. All forms were in English. BoSR received all forms by April 16, 2018. BoSR staff completed data entry, cleaning, interrater tests and scoring calculations. Only base cases (no interrater cases) are included in the final NEMS data set.

Scoring Criteria

The types of stores present in a community, accessibility to residents, and the variety, quality, and affordability of the food available in these stores all play a significant role in how easy or difficult it is to obtain healthy food and maintain a healthy diet. An essential component of the NEMS scoring criteria is an overall scoring system to categorize stores based on the food products available at the time of the observation. It is important to note that since this is a point-in-time observation, some stores that may be expected to score high may not due to inventory schedules, etc.

Two different scoring methods were utilized. “Healthy Access” (NebNEMS) is a measure of the food categories sold and the variety of healthy options within a category. A maximum score of 5 was possible. A second combined score summarizing availability/variety, affordability, and quality (AVAQ) was also calculated. A maximum of 70 points were possible. Healthy Access Score is based on the assessment of 5 food categories. AVAQ score is based on the assessment of 6 food categories.

Healthy Access Score

Stores in low income and/or minority urban areas are often smaller stores where the majority of choices include high calorie convenience foods with little in the way of “healthy foods” such as produce and whole grains. This can be a substantial barrier to healthy eating as studies show a significant correlation between the availability of healthy foods in nearby stores and the quality

of residents' diets (Glanz, et al., 2007; Powell, et al., 2007). Presence and variety of healthy food choices in five food categories was assessed (see Table 1 for variables/values if category criteria). Healthy access for each food group was determined by slightly different criteria, based on the number of servings an individual would need to meet current dietary recommendations and clear criteria regarding product specifications such as: no added sugar, salt, sauces, dressing or gravy.

Table 1. Healthy Access Criteria for Each Food Category

	No Access	Limited Access	Limited/Moderate Access	Moderate Access	Healthiest Access
Fruit	No healthy fruit*		One type of healthy fruit*		Fresh fruit plus at least one other type of healthy fruit*
Vegetables	No healthy vegetable*		One type of healthy vegetable*		Fresh vegetable plus at least one other type of healthy vegetable*
Meat/meat alternative(ma)	No healthy meat/ma**		One type of healthy meat/ma**		Two or more healthy meat/ma**
Grains	No whole grains	One whole grain		Two whole grains	Three or more whole grains
Milk	No milk	Whole only		Includes 2%	Includes skim and/or 1%

*Healthy fruit/vegetable is defined as fresh or canned/frozen in 100% juice/no sugar/no sauce

**Healthy meat/ma is defined as at least 90/10 lean beef, tuna packed in water, beans (legumes)

An overall “healthy access” total score was computed based on the “healthiest access” criteria for the five categories’ sub-scores in Table 1 (i.e. food categories: fruits, vegetables, meats, grains, milk).

A store was considered to offer overall “healthy access” if it received a total score of at least 3 out of 5.

0= No Healthy Access

1= Limited Healthy Access

2 = Moderate Limited Healthy Access

3 = Adequate Healthy Access

4 = Moderate Healthy Access

5 = Full Healthy Access

In order to evaluate healthy access by region of Douglas County, the number of stores with a healthy access (total score of at least 3) per 10,000 population in each region was calculated. This indicator was adapted from “Measure 3” in “Strategy 3: Improve Geographic Availability of Supermarkets in Underserved Areas” in the 2009 CDC publication, “Recommended Community Strategies and Measurements to Prevent Obesity in the United States” (Keener, Goodman,

Lowry, Zaro, & Kettel Khan). The original measure calculates the number of full-service grocery stores and supermarkets per 10,000 residents located in a census tract-based area.

Availability/Variety, Affordability, and Quality (AVAQ) Score

The AVAQ score is a complex score comprised of several measures assessed for multiple food categories (milk, fruit, vegetables, grains, meat/meat alternative, and snacks).

Availability/Variety Component: A combined availability score was calculated based on the sum of the fruit, vegetable, meat/meat alternative, grain, milk, snack sub-scores. Availability was calculated for each store based on the number of healthy options that are sold in the store. Points are awarded per food category depending on the presence and variety of healthy options available. The maximum score is 48.

Affordability Component: Affordability score was calculated based on a cost comparison between healthy food items and their less healthy equivalent. Prices were compared for eight products (canned fruit, beef, tuna, bread, tortillas, rice, pasta and milk) evaluated in the NEMS tool. For each, the price for the same size low-fat or no-additive (i.e., no sugar or sauce) food item was compared to the food product with higher fat content or additives (i.e., sugar or sauce). The maximum score is 16.

Quality Component: Quality score was based on the percentage of fruits or vegetables that raters considered to be of acceptable quality. Quality was only assessed for fresh fruits and vegetables on the NEMS questionnaire as either acceptable or unacceptable. Assessed fruits included bananas, apples, oranges, grapes, and cantaloupe. Assessed vegetables included carrots, broccoli, cauliflower, tomatoes, and green leaf lettuce. It should be noted that the quality score was calculated based on the number of produce items that were considered to be of acceptable quality. Therefore, stores with high quality produce, but a limited variety of items (i.e. only selling apples and bananas) would receive a low score, even though their produce was of high quality. The maximum score is 6.

A total score was calculated based on the sum of the availability/variety, price, and quality subscores. Even though negatives points are possible on price, the points received for availability for the items for which they could receive a deduction in points cancel each other out or add points beyond the deduction, thus the overall scores are in the range of 0 to 70 points (Table 2).

Table 2. Availability/Variety, Affordability, and Quality Scoring

Measure	Minimum Score	Maximum Score
Availability/Variety of the food indicator	0	48
Price of the food indicator	-8	16
Quality of certain fresh produce items	0	6
Sum of availability/variety + price + quality*	0	70

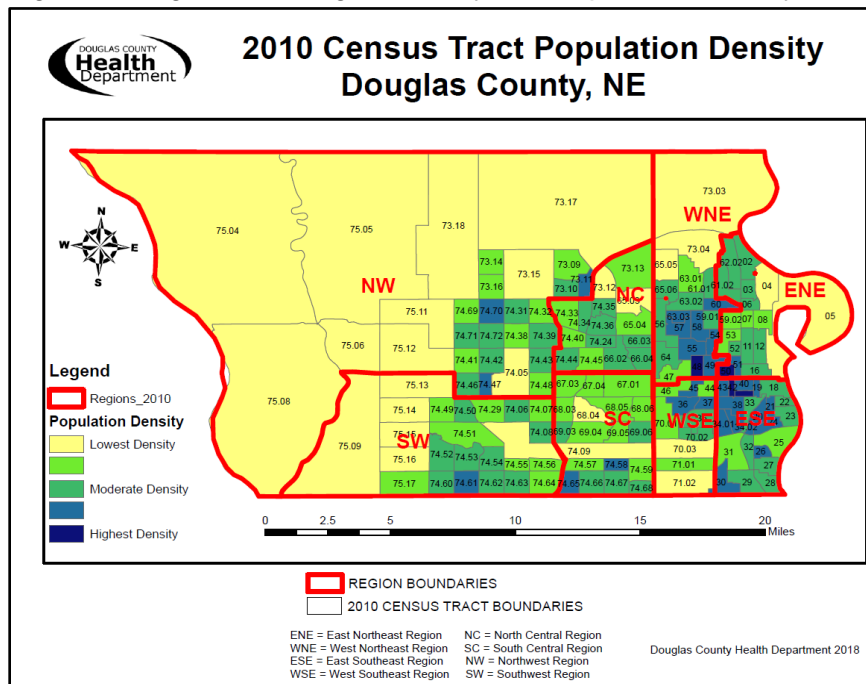
*Even though negative points are possible on price, the points received for availability of the items for which they could receive a deduction cancel each other out or add points beyond the deduction.

Because the food environment of a store is comprised of all three variables assessed (availability/variety, cost, quality) the total score measures differences in food store environments that might be contributing to food purchasing behaviors. Disparities in access to healthy foods (i.e. availability, cost, quality, or any combination of the three) could contribute to disparities in eating patterns, obesity, and chronic diseases.

Regional Breakdown of Douglas County

Douglas County was divided into 8 regions using census tract boundaries (Figure 1). These regions have been used by DCHD to demonstrate the health of populations across the county. Population data from the 2010 Decennial Census was used because of the availability of census-tract level population demographic information.

Figure 1. Regions of Douglas County and Population Density



RESULTS

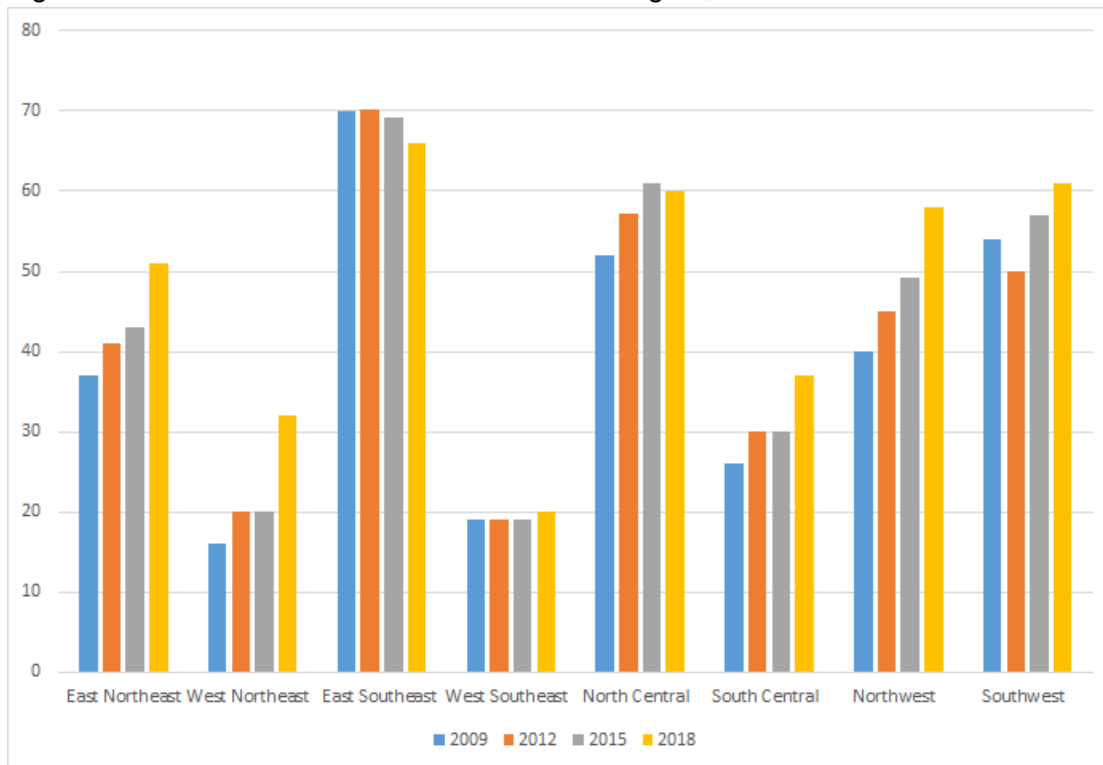
Number of Stores Observed by Region

A total of 385 stores were assessed in Douglas County. The number of stores assessed in each region of Douglas County is presented in Table 3. The population as of 2010 in each region is also presented. The total number of stores assessed increased by 23 percent from 2009 to 2018 in the county overall. The number assessed increased in all regions except east southeast (Figure 2).

Table 3. Number of Stores Observed in Each Region, 2009-2018

Region (Population)	2009	2012	2015	2018
East Northeast (44,410)	37	41	43	49
West Northeast (65,705)	16	20	20	34
East Southeast (71,160)	70	70	69	67
West Southeast (33,839)	19	19	19	20
North Central (52,716)	52	57	61	60
South Central (54,644)	26	30	30	37
Northwest (100,465)	40	45	49	58
Southwest (94,171)	54	50	57	60
County Total (517,110)	314	332	349	385

Figure 2. Number of Stores Observed in Each Region, 2009-2018



Store Classifications by Percentage Overall for Douglas County

A store was either designated as a full-service grocery store or a convenience store. Grocery stores such as Bakers and Aldi, and chain superstores such as Walmart and Super Target are classified as full-service grocery stores. Gas stations, Walgreens, Dollar General, etc., are classified as convenience stores. Table 4 shows the percentage by store classification in each region.

Table 4. Number and Percent of Stores Observed Categorized as “Convenience” and “Full-Service Grocery” in 2018

Region	Convenience		Full-Service Grocery		Total
	n	%	n	%	
East Northeast	29	59%	20	41%	49
West Northeast	23	68%	11	32%	34
East Southeast	47	70%	20	30%	67
West Southeast	16	80%	4	20%	20
North Central	39	65%	21	35%	60
South Central	27	73%	10	27%	37
Northwest	41	71%	17	29%	58
Southwest	37	62%	23	38%	60
County Total	259	67%	126	33%	385

Healthy Access Score Results for Douglas County

Of the 385 convenience and grocery stores that were observed, 64 stores scored a five in healthy access {i.e.. met presence and variety criteria for healthy access in all five food categories (fruit, vegetables, milk, meat or meat alternatives, and whole grains)}, 16 stores had a healthy access score of four, 14 stores had a score of three, 97 stores had a score of two, 95 stores had a score of one, and 94 stores did not meet health access criteria for any of the food categories. Table 5 shows the number and percent of stores for each healthy access score for each year a NEMS assessment has been completed. From 2009 through 2018, there has been a meaningful shift in the percentage of stores scoring “limited healthy access” and stores scoring “moderate limited healthy access” (the percentage of “1’s” decreased and the percentage of “2’s” increased).

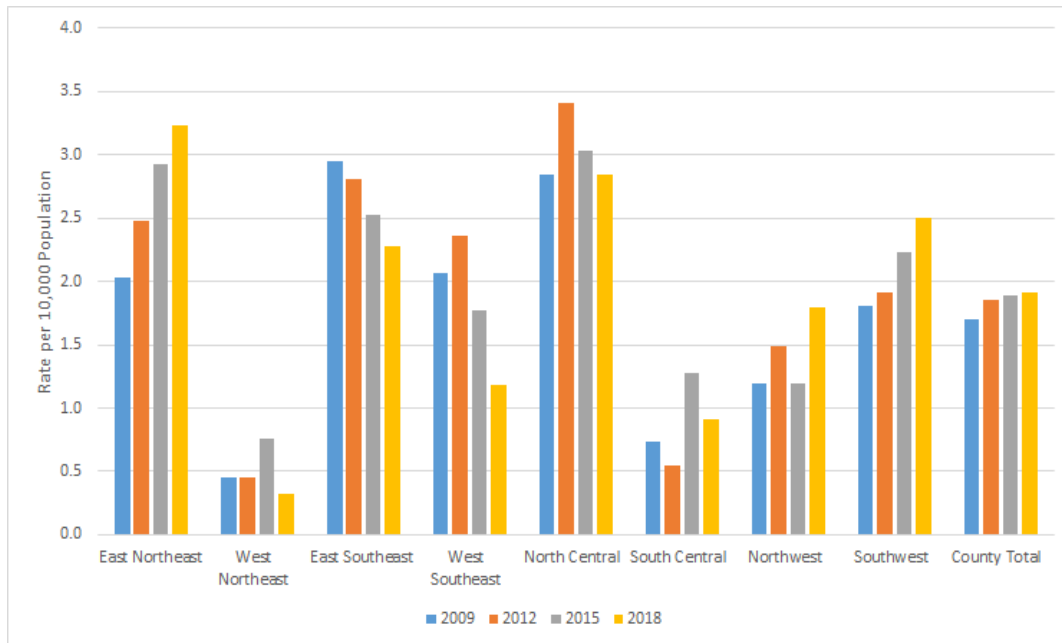
Table 5. Number and Percent of Stores in Each Category of Healthy Access by Year

Healthy Access Score	2009 n (%)	2012 n (%)	2015 n (%)	2018 n (%)
No Healthy Access	71 (23%)	65 (20%)	62 (18%)	94 (24%)
Healthy Access Score of 1 (limited)	107 (34%)	108 (33%)	90 (26%)	95 (25%)
Healthy Access Score of 2 (moderate limited)	48 (15%)	63 (19%)	98 (28%)	97 (25%)
Healthy Access Score of 3 (adequate)	24 (8%)	25 (8%)	23 (7%)	19 (5%)
Healthy Access Score of 4 (moderate healthy)	6 (2%)	5 (2%)	8 (2%)	16 (4%)
Healthy Access Score of 5 (full healthy)	58 (18%)	66 (20%)	67 (19%)	64 (17%)
Total Stores Observed	314	332	348	385

Healthy Access Score Results for Douglas County by Region

The number of stores with healthy access (score of at least a 3) per 10,000 population in each region is presented in Figure 3. Comparing 2009 to 2018, the number of healthy access stores per 10,000 increased in four regions: east northeast (ENE), south central (SC), northwest (NW), and southwest (SW). The number remained the same in north central (NC) and decreased in west northeast (WNE), east southeast (ESE), and west southeast (WSE). In the county overall, the number of stores scoring at least three increased each year assessed.

Figure 3. Number of Stores Scoring at Least a 3 per 10,000 Population by Region



Distance to Stores with “Healthy Access” for Douglas County

Geographic access to healthy foods has been measured in previous Douglas County NEMS assessments as the area within a one-mile radius of stores scoring of 5 (full healthy access). In 2018, GIS also mapped a one-mile radius of stores scoring at least a 3 out of 5 (adequate healthy access). Tables 6 and 7 (Figures 4 and 5) depicts a continued decrease in healthy food access. It should be noted that in a neighborhood where a single store provides healthy food access, a store closing or changes in business plans resulting in a decreased healthy access score can lead to a complete lack of access for residents living within a mile of that store.

Table 6.

	2009	2012	2015	2018
Number of square miles within one mile of stores with a Healthy Access Score of at least 3	119	121	130	128

Figure 4. One-Mile Radius around Stores with Health Access Score of Three or Above: 2009-2018 in Douglas County, Nebraska

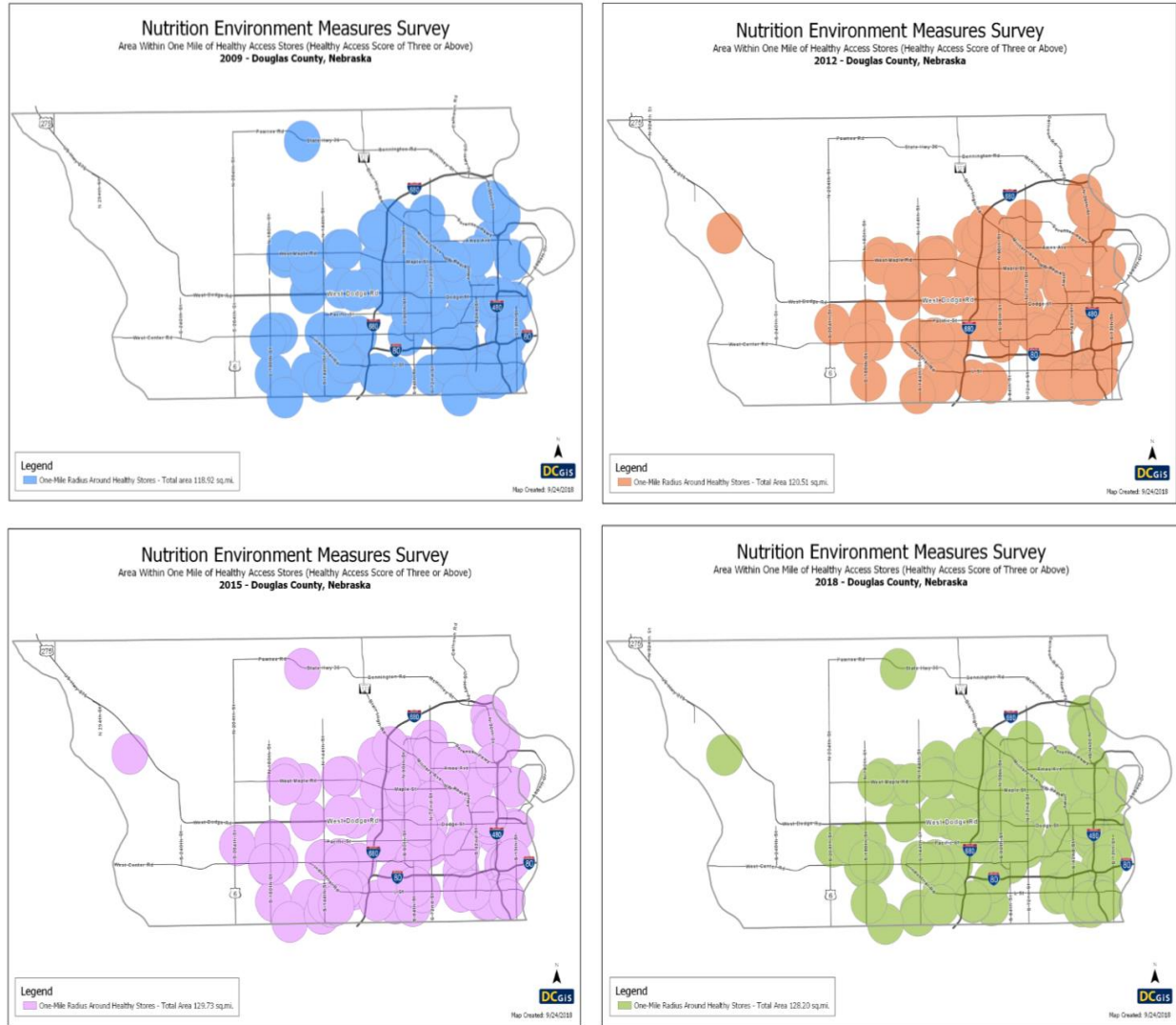
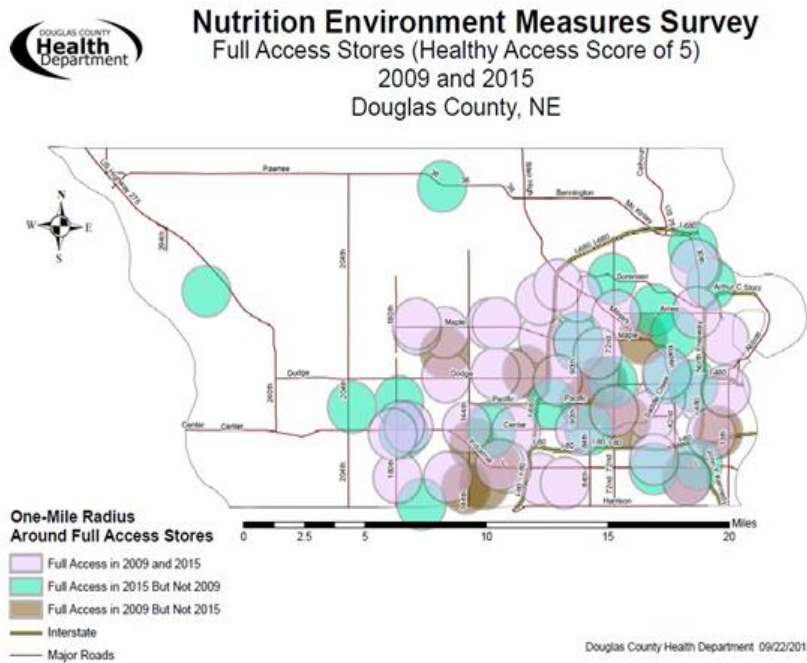
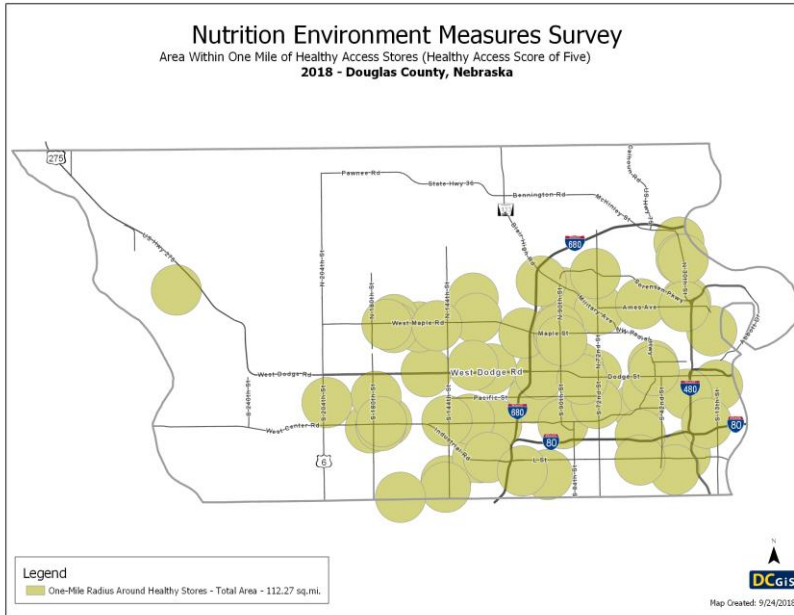


Table 7.

	2009	2012	2015	2018
Number of square miles within one mile of stores with a Healthy Access Score of 5*	99	116	122	113

*2009 and 2012 findings are slightly lower than previously reported in 2012 due to inclusion of coverage areas that extended into Sarpy County.

Figure 5.



Availability/Variety, Affordability, and Quality Score Results

Of 70 maximum points possible, Availability/Variety, Affordability, and Quality (AVAQ) scores ranged from 1 to 54 (no stores scored above 54). Scores were categorized into eight levels. As displayed in Table 8 below, stores overall scored comparably on the two scoring methods.

Table 8. Scoring Method Crosstabulation: Total AVAQ Score by Overall Healthy Access Score

AVAQ Score	Healthy Access Score						Total
	No healthy categories	One healthy category	Two healthy categories	Three healthy categories	Four healthy categories	All five healthy categories	
0	12	0	0	0	0	0	12
1-10	73	31	5	0	0	0	109
11-20	9	60	58	5	0	0	132
21-30	0	4	32	12	8	1	57
31-40	0	0	2	1	2	1	6
41-50	0	0	0	1	0	16	17
51-60	0	0	0	0	6	46	52
Total	94	95	97	19	16	64	385

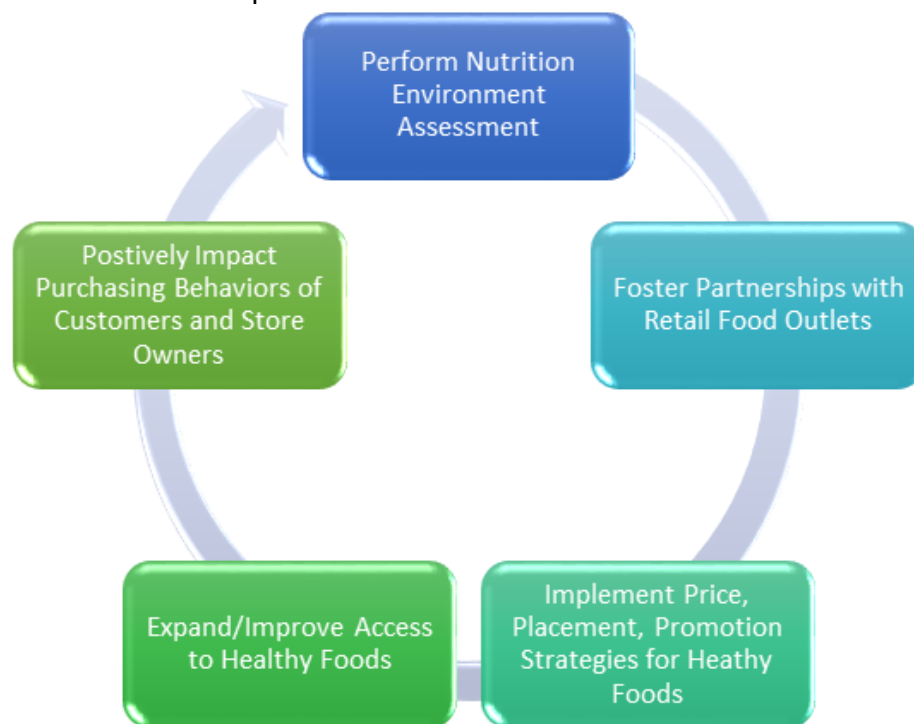
There is a positive association between the Healthy Access score and the AVAQ score. An AVAQ score of 21 or higher provides an overall scoring system to categorize stores as “healthy access” in terms of availability/variety, affordability, and quality (the AVAQ score is based on six categories of food - milk, meat/meat alternative, fruit, vegetable, grains, and snacks). The Healthy Access Score provides an overall scoring system to categorize stores as “Healthy Access” if a store scores at 3 or higher in terms of variety of healthy food items assessed (the

Healthy Access score is based on five categories of food - milk, meat/meat alternative, fruit, vegetable, and grains). Table 8 furthers credibility and reliability in both scoring methods regarding the number of stores in Douglas County that provide at least a minimum level presence and variety of healthy foods that are also affordable and of acceptable quality.

DISCUSSION

While a large-scale assessment of the food environment can be daunting, measurement is necessary to understand and to manage food environments to support healthy food choices (see Figure 6). NEMS combines direct observation with standardized methods to obtain objective, valid measures of the consumer environment in retail food stores.

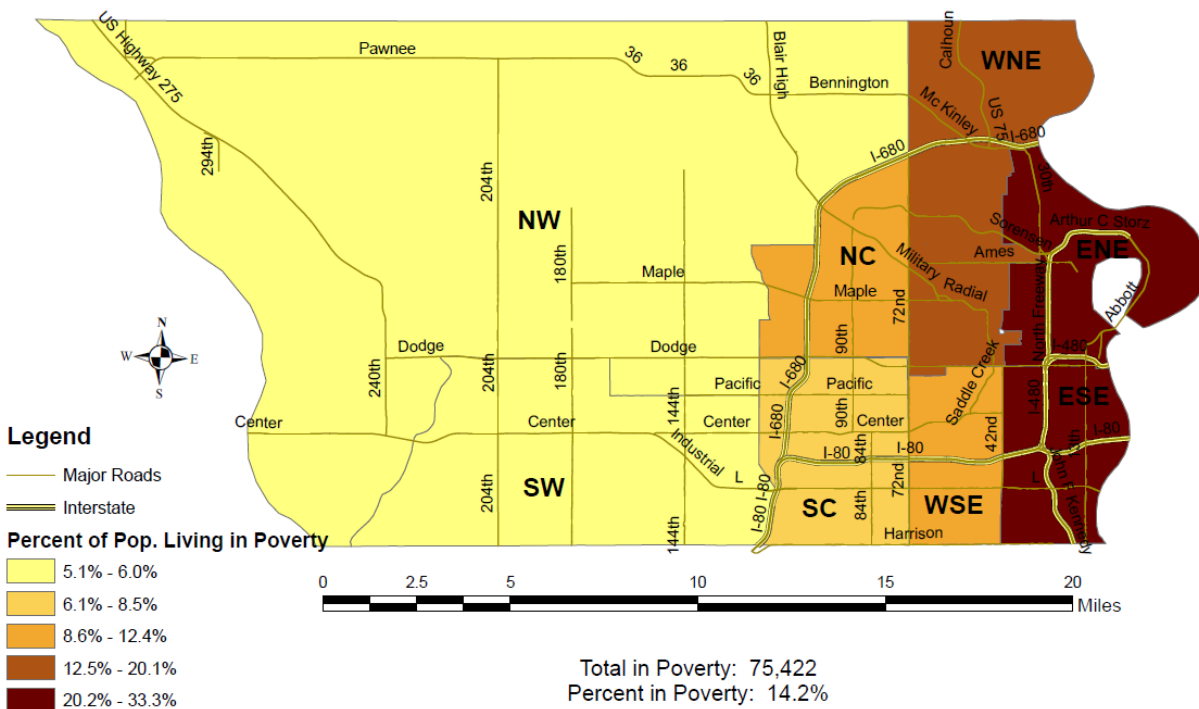
Figure 6. DCHD's measurement process and utilization of results



When consumer nutrition environments vary by socioeconomic factors and regions, data/result from NEMS can be used to identify priority areas for underserved populations. Higher prices in smaller stores mean people may buy less food due to their limited resources. It is worth noting that price differences for items in food categories (milk, grains, etc.) are assessed (rater records how a healthy item price compares to the less healthy counterpart) as part of the AVAQ total score. The price sub-score is not analyzed as a standalone measure (see Appendix E for broad overview of AVAQ scoring criteria). From a public health perspective, the relevance of any price differences for healthy foods is noteworthy. This cost barrier pertains particularly to regions with a higher proportion of low income residents, as it makes them more price sensitive. Figure 7 demonstrates the percentage of Douglas County's population living in poverty by region. Additionally, residents without vehicle access are either limited to small local food stores

for grocery shopping and/or rely on alternate transportation, which adds both travel costs and time.

Figure 7. Percent of Population Living in Poverty by Region, Douglas County, 2012-2016



Poverty Source: American Community Survey 5-Yr Ave. (2012-2016)
* The federal poverty level is \$24,300 for a family of four in 2016

Douglas County Health Department 12/28/2017

With such a large team of observers, quality assurance posed a considerable challenge. Standardized training of field staff including quality assurance procedures were developed to ensure adherence to data collection protocols, and to monitor the validity of the collected data. Differences in the observation process may be minimized in future NEMS projects by decreasing the number of raters, increasing rater training efforts and shortening the data collection period. Other limitations of NEMS include: no single environment covers a population or person's complete food access; food environments are complex, variable, and far from static; only addresses three food environment variables; availability, price, and quality of fresh produce changes across seasons; assessing quality of produce items are subjective, based on appearance, and arguably insensitive to consumer impressions; results in aggregate form do not allow assessment of individual store scores over time.

Despite these limitations, NEMS is the best currently available assessment tool to measure consumer food environments in retail food outlets. Using such a tool to support healthy food environments is a worthy objective. It can be used to facilitate opportunities for residents to maintain a healthy diet via food purchasing behaviors in retail environments based on modifications made as a result of NEMS data. Such assessments also highlight the need for interventions and policies that ensure equitable access to healthy foods across all regions.

CONCLUSION

In the county overall, the number of stores meeting “healthy access” criteria per 10,000 population has increased each year assessed. From 2009 through 2018, there has been a meaningful shift from the percentage of stores scoring “limited healthy access” to stores scoring “moderate limited healthy access” (the percentage of “1’s” decreased and the percentage of “2’s” increased). “Adequate Healthy Food Access” increased from 119 sq miles in 2009 to 130 sq miles in 2015 and decreased to 128 sq miles in 2018.

Performing a food environment assessment equips community partners and stakeholders with the data to facilitate the improvement of retail food outlets thus increasing the reach of healthy environments and practices. Fostering a healthy food environment involves a dedicated and sustainable collaboration among area businesses, community organizations, and the Health Department. Even as progress is being made to improve access in Douglas County, a large number of community members still struggle to put healthy food on the table, making efforts to address gaps in access as essential and ongoing. Action must be taken across all levels—local, state, regional, and federal—to leverage resources and target efforts to the places with the greatest need. Improving access to healthy food remains a pivotal catalyst to revitalize neighborhoods and improve community health and vitality for all.

NEXT STEPS

Recommendations Informed by NEMS Results

DCHD has identified opportunities and actions that can be taken to strengthen the community food system and provide all community members with improved access to enjoy healthy diets.

- Increase availability of healthy foods through targeted offerings of more healthy foods (and offer fewer unhealthy/less healthy food items, if possible) with a greater variety of healthy foods made available more frequently.
- Increase visibility of healthy foods and make them easy to locate.
- Reduce prices and/or offer vouchers to reduce price/provide discount coupons for purchase of healthier foods.
- Utilize point-of-purchase information with signage to identify healthy foods.
- Communicate store promotion of healthy foods through various media channels.

Additionally, environmental and policy initiatives can improve conditions for large numbers of individuals. Retail food outlets are able to change without governmental intervention as proprietors and corporations can opt to change the foods sold, the information offered to consumers, and in-store displays. The involvement of community residents is essential to advocating for, and implementing, changes to create more healthful environments and policies. Food policy councils, comprised of interested representatives from regional and local food systems, can be one effective way for communities to make policy changes related to healthy food access. Any policy explored that requires small food stores to stock minimum amounts and

varieties of healthy staple foods, should also include a reference to prices. Programs, such as SNAP and WIC, can benefit the broader community when policies are put in place by producing specific economic benefits for individual stores and creating broader economic stimulus across regions.

Recommendations for Future Food Environment Assessments

- If NEMS is the continued method of food environment assessment:
 - Incorporate the Iowa State University's Latino NEMS survey (Baier, 2017)
 - Consider adding NEMS modified "Farmer's Market Audit Tool"
 - Incorporate NEMS-P (Perceived Nutrition Environment)
 - Revise NebNEMS using updated markers
 - Use NEMS- R (restaurant) in identified food desert areas and/or a subset sample for each region
- Use a mixed methods approach (i.e. NEMS AVAQ score, intercept surveys, and other environmental assessments) to provide a nuanced and detailed picture of the food environment within Douglas County that more accurately represents what is enabling and/or hindering healthy food purchasing behaviors.
 - Provide measures on how easy or difficult it is to get to a subset of stores that are defined as accessible solely based on distance (i.e. whether the surrounding area is pedestrian-friendly).
 - Assess the utilization of food stores by area residents to measure how much grocery shopping residents do outside of their own neighborhood. This can help identify gaps between potential access and realized access as perception-based methods have a unique advantage in that they are able to ascertain residents' intentions to utilize nearby food stores.
 - Include assessment of residents' perceived food availability and accessibility and food insecurity as well as concepts such as cultural relevance and food familiarity (i.e. explore whether the range of neighborhood food products appeals to residents or makes it easy to cook meals).
 - Assess neighborhood store characteristics and location including residents' perception of personal safety.
- In lieu of NEMS, consider utilizing the USDA Food Access Research Atlas (<https://www.ers.usda.gov/data-products/food-access-research-atlas/>) and the USDA Food Environment Atlas (<https://www.ers.usda.gov/data-products/food-environment-atlas/>).
 - This free resource enables entities to:
 - Create maps showing food access indicators by census tract using different measures and indicators of supermarket accessibility
 - Compare food access measures based on data with the measures
 - View indicators of food access for selected subpopulations

- Download census-tract-level data on food access measures
- Provide a wide set of statistics on food choices, health and well-being, and community characteristics for all communities in the United State
- See Appendix F for map example specific to Douglas County

REFERENCES

- Baier, J.L. (2017). *Development of an assessment tool to measure the Latino market nutrition environment*. (Graduate Theses and Dissertations). Retrieved from Iowa State University Capstones, Thesis and Dissertations at Iowa State University Digital Repository (15255).
- University of Nebraska-Lincoln Bureau of Sociological Research. (2018). *Douglas County, Nebraska Nutrition Environment Measures Survey: Executive summary & data report*. Lincoln, NE: Author
- Caspi, C.E., Pelletier, J.E., Harnack, L.J., Erickson, D.J., Lenk, K., & Laska, M.N. (2017). Pricing of staple foods at supermarkets versus small food stores. *Int J Environ Res Public Health* 14, 915.
- Caspi, C.E., Sorensen, G., Subramanian, S.V., & Kawachi, I. (2012). The local food environment and diet: A systematic review. *Health Place*. 18, 1172–1187.
- Cheadle, A., Psaty, B.M., Curry, S., Wagner, E., Diehr, P., Koepsell, T., & Kristal, A. (1991). Community-level comparisons between the grocery store environment and individual dietary practices. *Prev Med*, 20(2), 250–261.
- Douglas County Health Department. (2009). *Outcome of Nutrition Environment Measures Survey in Douglas and Sarpy County grocery and convenience stores*. Omaha, NE: Author
- Douglas County Health Department. (2012). *Outcome of Nutrition Environment Measures Survey in Douglas County, Nebraska grocery and convenience stores*. Omaha, NE: Balluff, M.A., & Schram, S.M.
- Douglas County Health Department. (2015). *Nutrition Environment Measures Survey. Findings in Douglas County, Nebraska*. Omaha, NE: Balluff, M.A., & Schram, S.M.
- Drewnowski, A. (2004). Obesity and the food environment: dietary energy density and diet costs. *Am J Prev Med*, 27(3), 154-162.
- Fisher, B.D., & Strogatz, D.S. (1999). Community measures of low-fat milk consumption: comparing store shelves with households. *Am J Public Health*, 89(2), 235–237.
- Glanz, K., & Yaroch, A.L. (2004). Strategies for increasing fruit and vegetable intake in grocery stores and communities: policy, pricing, and environmental change. *Prev. Med.* 39(Suppl. 2), S75–80.

- Glanz, K., Sallis J.F., Saelens B.E., & Frank L.D. (2005). Healthy nutrition environments: Concepts and measures. *Am J Health Promotion*, 19(5), 330-333.
- Glanz K., Sallis J.F., Saelens B.E., & Frank L.D. (2007). Nutrition Environment Measures Survey in Stores (NEMS-S). Development and evaluation. *Am J Prev Med*, 32(4), 282–289.
- Kaufman, P., MacDonald, J.M., Lutz, S.M., & Smallwood, D. (1997). *Do the poor pay more for food? Item selection and price differences affect low-income household food costs, agricultural economic*. Report 759. Washington, DC: USDA Economic Research Service
- Keener, D., Goodman, K., Lowry, A., Zaro, S., & Kettel Khan, L. (2009). *Recommended community strategies and measurements to prevent obesity in the United States: Implementation and measurement guide*. Atlanta, GA: DHHS CDC
- Moore, L.V., Diez Roux, A.V., Nettleton, J.A., & Jacobs, D.R, Jr. (2008). Associations of the local food environment with diet quality—a comparison of assessments based on surveys and geographic information systems: the multi-ethnic study of atherosclerosis. *Am J Epidemiol*, 167(8), 917–924.
- Powell, L.M., Slater, S., Mirtcheva, D., Bao, Y., & Chaloupka, F.J. (2007). Food store availability and neighborhood characteristics in the United States. *Preventative Medicine*, 44, 189-195.
- Story, M., Kaphingst, K.M., Robinson-O'Brien, R., & Glanz, K. (2008). Creating healthy food and eating environments: policy and environmental approaches. *Annu Rev Public Health*, 29, 253-272.
- U.S. Census Bureau (2010). *Profile of general population and housing characteristics: 2010*. Retrieved July 2018 from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC10_DP_DPDP1&prodType=table.
- U.S. News and World Report (2018). *Healthiest communities rankings: Overview of Douglas County, NE*. Retrieved July 2018 from <https://www.usnews.com/news/healthiest-communities/nebraska/douglas-county>

APPENDICES

Appendix A: Store List

Store Name	Address	City	St	Zip
99 Cent Grocery & Variety	4205 Redman AVE	Omaha	NE	68111
A.B.'s Dundee 66	4926 Underwood AVE	Omaha	NE	68132
AFOMA CORNER STORE	5522 S 30th ST	Omaha	NE	68107
African Farms	2339 N 90th ST	Omaha	NE	68134
African Foods	223 S 25th AVE	Omaha	NE	68131
Akins Natural Foods	8409 W Center RD	Omaha	NE	68124
Aldi #46	17240 EVANS ST	Omaha	NE	68116
Aldi Foods #75	3433 N 90th	Omaha	NE	68134
Aldi Inc. #41	4525 Dahlman AVE	Omaha	NE	68107
Aldi Inc. #42	2502 S 133rd Plaza	Omaha	NE	68144
Aldi Inc. #43	4801 N 30th ST	Omaha	NE	68111
All Nations Grocery Liquor & Tobacco	715 S 24th ST	Omaha	NE	68102
Ames Ave Convenience Store	4145 Ames AVE	Omaha	NE	68111
Amigo's Market	2102 Q ST	Omaha	NE	68107
Anderson Amoco Food Shop	11955 Pacific	Omaha	NE	68144
Anderson Amoco Food Shop	15635 W Dodge RD	Omaha	NE	68154

Anderson Amoco Food Shops	17915 Arbor ST	Omaha	NE	68130
Anderson Amoco Food Shops	16727 Q ST	Omaha	NE	68135
Anderson Food Shops	123 N 114th ST	Omaha	NE	68154
Anderson Standard Service	2630 S 140th St	Omaha	NE	68144
Asian Family Market	1510 NW Radial HWY	Omaha	NE	68104
Asian Family Market	5916 AMES AVE	Omaha	NE	68104
Asian Market	321 N 76th ST	Omaha	NE	68114
B & T Convenient & Liquor Store	2704 Florence BLVD	Omaha	NE	68110
B J's	4122 Ames AVE	Omaha	NE	68111
Baker's #302	12025 W Center RD	Omaha	NE	68144
Baker's #311	5555 N 90th	Omaha	NE	68134
Baker's #315	13250 W Maple	Omaha	NE	68164
Baker's #316	7312 N 30th	Omaha	NE	68112
Baker's #319	888 S Saddle Creek	Omaha	NE	68106
Baker's #320	17370 Lakeside Hill	Omaha	NE	68130
Baker's #321	505 N 155th Plz	Omaha	NE	68154
Baker's Store #301	4405 N 72nd ST	Omaha	NE	68134

Basket Food	4518 S 24th	Omaha	NE	68107
Big Bear Sinclair	5822 Maple ST	Omaha	NE	68104
Big Jim's Plus	3024 Ames AVE	Omaha	NE	68111
Big Lots #4544	6516 N 72nd ST	Omaha	NE	68134
Big Lots #4624	717 S 72ND ST	Omaha	NE	68114
Bill's Convenience Store	3928 Maple ST	Omaha	NE	68131
Blondo Convenient Food Mart	6606 BLONDO ST	Omaha	NE	68104
BP Petromart	5203 NW RADIAL HWY	Omaha	NE	68104
Bucks	4420 L ST	Omaha	NE	68107
Bucky's	13736 Q ST	Omaha	NE	68069
Bucky's #70	3529 So 72nd ST	Omaha	NE	68124
Bucky's 58	5718 NW RADIAL HWY	Omaha	NE	68104
Bucky's Amoco	2223 S 24th	Omaha	NE	68108
Bucky's Amoco	101 N 30th	Omaha	NE	68131
Bucky's Amoco #32	3909 N 132nd	Omaha	NE	68164
Bucky's Express	6003 Center ST	Omaha	NE	68106
Bucky's Express	4805 S 108th ST	Omaha	NE	68127

Bucky's Express	9405 S 144th St	Omaha	NE	68138
Bucky's Express #12134	10202 Maple ST	Omaha	NE	68134
Bucky's Express #13	2765 S 13th CT	Omaha	NE	68108
Bucky's Express #20	2510 S 132nd ST	Omaha	NE	68144
Bucky's Express #21	20402 Veterans DR	Elkhorn	NE	68022
Bucky's Express #40	107 S 40th ST	Omaha	NE	68131
Bucky's Express #42	3435 S 42nd ST	Omaha	NE	68105
Bucky's Express #61	2635 S 160th ST	Omaha	NE	68130
Bucky's Express #72	2901 N 72nd ST	Omaha	NE	68134
Bucky's Express #76	7660 DODGE ST	Omaha	NE	68114
Bucky's Express #831	4414 N 30th ST	Omaha	NE	68111
Bucky's Express #84	3052 S 84th ST	Omaha	NE	68124
Bucky's Express #96	9645 Ida ST	Omaha	NE	68122
Carniceria La Hidalguense	3302 Q ST	Omaha	NE	68108
Carniceria Mexico	3912-3914 Q ST	Omaha	NE	68108
Casey's General Store #2886	1202 S 13th ST	Omaha	NE	68108
Casey's General Store #2985	5120 S 118th ST	Omaha	NE	68137
Casey's General Store #2986	9905 Q ST	Omaha	NE	68127

Casey's General Store #2987	15275 Weir Plaza	Omaha	NE	68137
Casey's General Store #3206	210 E REICHMUTH RD	Valley	NE	68064
Casey's General Store #3334	5920 F ST	Omaha	NE	68117
Chubb Foods	2905 N 16th	Omaha	NE	68110
Convenient World	2302 S 20th ST	Omaha	NE	68108
Costco Wholesale	12300 W Dodge RD	Omaha	NE	68154
Cubby's Inc	15625 Cw Hadan DR	Bennington	NE	68007
Cubby's Mormon Bridge	9220 Mormon Bridge RD	Omaha	NE	68152
Cubby's Old Market	601 S 13th ST	Omaha	NE	68102
Cubby's Redman	4232 Redman	Omaha	NE	68111
Cuming Food Mart	4002 Cuming ST	Omaha	NE	68131
CVS Pharmacy #5714	4840 Dodge ST	Omaha	NE	68132
CVS/Pharmacy #3478	2609 S 132nd ST	Omaha	NE	68144
CVS/Pharmacy #4929	10770 Fort ST	Omaha	NE	68134
CVS/Pharmacy #5634	8315 W Center RD	Omaha	NE	68124
CVS/Pharmacy #5863	14460 W Maple RD	Omaha	NE	68116
CVS/Pharmacy #6733	1919 N 90th ST	Omaha	NE	68114

CVS/Pharmavy #2931	14303 U ST	Omaha	NE	68137
Dick's Valley Market	111 E Gardiner ST	Valley	NE	68064
Dinah Mart 3	4854 Q ST	Omaha	NE	68117
Doha Grocery LLC	1130 NW 12	Omaha	NE	68132
Dollar General #10825	8520 Park DR	Omaha	NE	68127
Dollar General #19184	5033 S 24th	Omaha	NE	68127
Dollar General #4570	5470 N 90th	Omaha	NE	68134
Dollar General #4858	2929 N 108th	Omaha	NE	68134
Dollar General #7382	3110 N 90th ST	Omaha	NE	68134
Dollar General #7383	5636 Ames AVE	Omaha	NE	68104
Dollar General #7871	4869 L ST	Omaha	NE	68117
Dollar General Store #16149	27800 IDA ST	Valley	NE	68064
Dollar General Store #7630	13905 S Plaza	Omaha	NE	68137
Dollar Tree	2930 K ST	Omaha	NE	68107
Dollar Tree # 7122	9955 REDICK CIR	Omaha	NE	68122
Dollar Tree #5577	5230 S 136th ST	Omaha	NE	68137
Dollar Tree #5873	3120 S 24 ST	Omaha	NE	68108
Dollar Tree #6142	14615 W MAPLE RD STE 5	Omaha	NE	68116

Dollar Tree #6186	7415 DODGE ST	Omaha	NE	68114
Dollar Tree Store #2308	3066 N 90TH ST	Omaha	NE	68134
Dollar Tree Store #2525	7402 N 30th ST	Omaha	NE	68112
Dollar Tree Store #2806	12303 W Center RD	Omaha	NE	68108
Downtown Food Mart	318 S 16th ST	Omaha	NE	68102
Eagle Food Mart Inc.	3707 Center ST	Omaha	NE	68105
East Africa Grocery Store	2555 Leavenworth ST	Omaha	NE	68108
El Caribe LLC	7711 L ST	Ralston	NE	68127
El Finito	3205 Leavenworth	Omaha	NE	68105
El Quetzal	1941 Vinton ST	Omaha	NE	68108
Everest Gasmart	5188 Leavenworth	Omaha	NE	68106
Every Day	2302 S 13th ST	Omaha	NE	68108
EZ Mart	6818 S 13th ST	Omaha	NE	68108
Fair Deal Market	2118 N 24TH ST STE 100	Omaha	NE	68110
Family Dollar #4476	2930 Sprague ST	Omaha	NE	68111
Family Dollar #5194	1516 NW Radial HWY	Omaha	NE	68104
Family Dollar #5376	1725 S 13th ST	Omaha	NE	68108

Family Dollar #5542	834 S 24th ST	Omaha	NE	68108
Family Dollar #5677	4412 Dodge ST	Omaha	NE	68131
Family Dollar Inc #2254	3552 Leavenworth	Omaha	NE	68105
Family Dollar Inc #4926	5135 S 36th ST	Omaha	NE	68107
Family Dollar Inc. #6879	1500 N 24th ST	Omaha	NE	68102
Family Dollar Store #10197	1901 N 72nd ST	Omaha	NE	68114
Family Dollar Store #10693	9930 Maple ST	Omaha	NE	68134
Family Dollar Store #2311	6618 N 30th	Omaha	NE	68112
Family Dollar Store #9369	2601 N 16 ST	Omaha	NE	68110
Family Dollar Stores of NE #8409	5080 S 108th ST	Omaha	NE	68137
Family Fare	5025 Grover ST	Omaha	NE	68106
Family Fare #3811	1221 S 203rd ST	Omaha	NE	68130
Family Fare #784	14444 W Center RD	Omaha	NE	68144
FAMILY FARE #785	3003 N 108th ST	Omaha	NE	68134
FAMILY FARE #795	7402 N 30th ST	Omaha	NE	68112
Family Fare #797	820 N Saddle Creek RD	Omaha	NE	68132
FAMILY FARE #800	3026 S 24th ST	Omaha	NE	68108
Family Fare# 774	5110 S 108th ST	Omaha	NE	68137

Family Fare#780	2650 N 90TH ST	Omaha	NE	68134
Fantasy Food & Fuel	16960 Evans Plz	Omaha	NE	68116
Fantasy's	14330 Hillsdale	Omaha	NE	68137
Fantasy's Food & Fuel	2540 N 90th ST	Omaha	NE	68134
Fantasy's Food & Fuel #11	250 N 168 CIR	Omaha	NE	68116
FAREWAY MEAT MARKET	8900 W CENTER RD	Omaha	NE	68124
Fareway Stores, Inc #132	3070 N 90th ST	Omaha	NE	68134
Farm Fresh Market	1113 S 119th ST	Omaha	NE	68154
FAS Mart #550	11919 Fort ST	Omaha	NE	68164
Florence Food Mart	9516 Calhoun RD	Omaha	NE	68112
Food Mart	8204 HARRISON	Ralston	NE	68127
Four Aces Kwik Stop	6602 N 30th	Omaha	NE	68112
Four Aces Snacks & Tobacco	2408 N Leavenworth	Omaha	NE	68138
Fresh Thyme Farmers Market	14949 EVANS PLZ	Omaha	NE	68116
Fresh Thyme Farmers Market	17550 GOLD PLZ	Omaha	NE	68130
Fresh Thyme Farmers Market	13215 W Center RD	Omaha	NE	68144
FRUTERIA Y VERDULERIA NELLY	1616 Vinton ST	Omaha	NE	68108

Global Foods	1533 N Saddle Creek	Omaha	NE	68104
Greatwall Discount & Wholesale	4425 S 84TH ST	Omaha	NE	68127
Green Land Market Grocery & Bakery	4087 S 84th ST	Omaha	NE	68127
Gurung Brothers LLC	822 N 40th ST	Omaha	NE	68131
Hamilton Food Mart	4901 Hamilton ST	Omaha	NE	68132
Howell's Amoco	7166 N 30th ST	Omaha	NE	68112
Husker Food Store	4201 S 24th ST	Omaha	NE	68107
Hutti	2430 S 24th ST	Omaha	NE	68108
Hy Vee #10	3410 N 156th	Omaha	NE	68116
Hy Vee #10 (gas)	3404 N 156th ST	Omaha	NE	68116
Hy Vee #3	8809 W Center RD	Omaha	NE	68124
Hy Vee #9	17810 Welch Plaza	Omaha	NE	68135
Hy Vee Drugstore	8404 N 30th ST	Omaha	NE	68112
Hy Vee Food	7910 Cass	Omaha	NE	68114
Hy Vee Food Store	9707 Q ST	Omaha	NE	68127
Hy Vee Food Store #1	5150 Center	Omaha	NE	68106
Hy Vee Food Store #4	10808 Fort ST	Omaha	NE	68134

Hy Vee Food Store #8	747 N 132nd	Omaha	NE	68154
Hy Vee Gas	909 S 180th ST	Omaha	NE	68022
Hy Vee Gas	5102 Center ST	Omaha	NE	68106
Hy Vee Gas	8829 W Center RD	Omaha	NE	68124
Hy Vee Gas	9601 Q ST	Omaha	NE	68127
Hy Vee Gas	17901 Welch Plaza	Omaha	NE	68135
Hy Vee Gas #8	749 N 132nd ST	Omaha	NE	68154
HyVee Food Stores	1000 S 178th ST	Omaha	NE	68118
Hy-Vee Gas #5	7930 CASS ST	Omaha	NE	68114
Hy-Vee Inc.	14591 Stony Brook BLVD	Omaha	NE	68137
Hy-Vee Inc. Gas	14405 STONY BROOK BLVD	Omaha	NE	68137
I 80 Fuel	5318 L ST	Omaha	NE	68117
India Mart (Meat N Spice)	3720 S 132ND ST	Omaha	NE	68144
J N D Grocery	6341 N 24th	Omaha	NE	68110
Jack's Discount Tobacco & Liquor	721 N 120TH ST	Omaha	NE	68154
Jacobo Grocery	4621 S 24th	Omaha	NE	68107
Jake's Mini Mart	8320 Blondo	Omaha	NE	68134

Jalali Mart	2604 S 13th ST	Omaha	NE	68108
Juba Grocery	1138 NW Radial HWY	Omaha	NE	68132
Jump Start	5920 SORENSEN PKWY	Omaha	NE	68152
Karen Grocery LLC	6155 Ames AVE	Omaha	NE	68104
Keith's Amoco #1 Inc	5220 N 90th	Omaha	NE	68134
Kelcey's	2529 River Road DR	Waterloo	NE	68069
Kick's 66	2505 Abbott Dr. Plaza	Omaha	NE	68110
KNJ Express	3009 Parker ST	Omaha	NE	68111
K-N-J Grocery	3301 California ST	Omaha	NE	68131
Kum & Go	1819 N 72nd ST	Omaha	NE	68104
Kum & Go	13149 Fort ST	Omaha	NE	68164
Kum & Go #348	12011 Blondo	Omaha	NE	68164
Kum & Go #351	720 N 108th AVE	Omaha	NE	68154
Kum & Go #352	1010 S 154th	Omaha	NE	68154
Kum & Go #361	1010 S 189th ST	Omaha	NE	68130
Kum & Go #367	18908 Q ST	Omaha	NE	68135
Kum & Go #368	4041 N 168th ST	Omaha	NE	68116

Kum & Go #369	11111 EMMET ST	Omaha	NE	68164
Kum & Go #372	7152 Pacific	Omaha	NE	68106
Kum & Go #377	8242 Maple ST	Omaha	NE	68134
Kum & Go #378	14353 Q ST	Omaha	NE	68137
Kum & Go LC	2627 S HWS Cleveland BLVD	Omaha	NE	68130
Kum & Go Store 364	8990 Boyd ST	Omaha	NE	68134
Kum & Go Store 366	4443 S 84th ST	Omaha	NE	68108
Kwik Shop #622	9545 Q ST	Omaha	NE	68127
Kwik Shop #623	3103 N 204th ST	Omaha	NE	68022
Kwik Shop #640	3606 Leavenworth	Omaha	NE	68105
Kwik Shop #652	3222 Q ST	Omaha	NE	68107
Kwik Shop #653	5929 N 72nd	Omaha	NE	68134
Kwik Shop #657	7525 Cass	Omaha	NE	68114
Kwik Shop #660	9606 F ST	Omaha	NE	68127
Kwik Shop #665	15556 Blondo	Omaha	NE	68116
Kwik Shop #667	4855 L ST	Omaha	NE	68114
Kwik Shop #668	6845 S 167th ST	Omaha	NE	68135
Kwik Shop #672	5208 S 72nd	Ralston	NE	68127

Kwik Shop #693	5306 N 103rd	Omaha	NE	68134
La Economica	5520 S 36th ST	Omaha	NE	68105
La Mexicana Y Mas	1603 Vinton ST	Omaha	NE	68107
Landing Zone, The	7170 Bennington RD	Omaha	NE	68152
LayLay Asian Market	4236 REDMAN AVE	Omaha	NE	68111
Love's Travel Stop #631	26120 E MEIGS ST	Valley	NE	68064
Maresco Italian Market	2821 S 108TH ST	Omaha	NE	68144
Mari's Fruit & Vegetables	2410 S 13th ST	Omaha	NE	68108
May Flower Asian Market	3040 AMES AVE	Omaha	NE	68111
Mediterranean & European Grocery	8601 Blondo ST	Omaha	NE	68134
Mega Saver	5101 S 24th ST	Omaha	NE	68107
Mega Saver	1357 NW Radial HWY	Omaha	NE	68132
Mega Saver	10707 Blondo ST	Omaha	NE	68134
Mega Saver	3223 N 108th ST	Omaha	NE	68164
Mega Saver Mart	8540 Blondo ST	Omaha	NE	68134
Mega Saver Mart	1910 N 144th ST	Omaha	NE	68154
Mekong Market	3068 Q ST	Omaha	NE	68107
Menards	7337 L ST	Omaha	NE	68127

Menards	708 N 120th ST	Omaha	NE	68154
Menards-Elkhorn	750 N 205th AVE	Elkhorn	NE	68022
Midtown Gas & Grocery	1349 Park AVE	Omaha	NE	68105
Midtown Gas & Grocery	1222 S 24th ST	Omaha	NE	68108
Midwest Oriental Foods & Gifts	2920 S 84th ST	Omaha	NE	68124
Mint Masala	17857 PIERCE ST	Omaha	NE	68130
M-P MARKET	5921 AMES AVE STE C	Omaha	NE	68104
Mr. Butts Tobacco & Snacks	5702 S 36th ST	Omaha	NE	68107
MS Petroleum	5608 AMES AVE	Omaha	NE	68104
Murphy Express #8774	9810 REDICK AVE	Omaha	NE	68122
Murphy Express #8811	4111 S 132ND ST	Omaha	NE	68137
Muya's Supermarket	5110 S 33RD ST STE F2	Omaha	NE	68107
N & K Supermarket LLC	4644 DODGE ST	Omaha	NE	68132
Namaste Bazaar, LLC	5474 N 90TH ST	Omaha	NE	68134
Namaste Foods LLC	617 N 114TH ST	Omaha	NE	68154
Natural Grocers by Vitamin Cottage	7831 Dodge ST	Omaha	NE	68114
Natural Grocers by Vitamin Cottage	17602 Wright ST	Omaha	NE	68130

New Asia Supermarket	4615 S 26th	Omaha	NE	68107
Novedades Ventura	3173 Leavenworth ST	Omaha	NE	68105
Nuestra Familia Supermercado	3548 Q ST	Omaha	NE	68107
Nuestra Familia Supermercado	1826 Vinton	Omaha	NE	68108
Nuestra Familia Supermercado #733	2900 Leavenworth	Omaha	NE	68105
Omaha Oriental Food & Gifts	10737 Mockingbird DR	Omaha	NE	68127
Omaha Tropical Market	2322 N 72nd ST	Omaha	NE	68134
Omaha Tropical Market	4113 S 84TH ST	Omaha	NE	68134
Patel Grocers	14128 Arbor ST	Omaha	NE	68144
Pescaderia Costera Acalpulco	3167 Leavenworth	Omaha	NE	68105
Petro Mart	6508 Pershing DR	Omaha	NE	68112
Phillips 66	7530 Pacific ST	Omaha	NE	68114
Phil's Foodway Ames	3030 Ames	Omaha	NE	68111
Pitstop Inc	4015 S 42nd	Omaha	NE	68107
Q Market LLC	140 S 40	Omaha	NE	68131
Q Street Express	8410 Q ST	Omaha	NE	68127
Quik Pik	5421 S 96th ST	Omaha	NE	68127

Quik Spot, The	1941 S 42 ST STE 300	Omaha	NE	68105
Quik Trip #580	6045 L ST	Omaha	NE	68117
Quik Trip #587	4404 N 72nd ST	Omaha	NE	68134
Quik Trip #588	4212 S 84th ST	Omaha	NE	68127
Quik Trip #589	5305 N 103rd ST	Omaha	NE	68134
Quik Trip #594	715 S Saddle Creek	Omaha	NE	68106
Quik Trip #596	5005 S 108th	Omaha	NE	68137
Quik Trip #597	8727 Maple ST	Omaha	NE	68134
Quik Trip Corp	1704 S 72ND ST	Omaha	NE	68124
Quik-Pik	230 E HWY 275	Valley	NE	68064
Quiktrip Convenience and Gas	4720 Hamilton ST	Omaha	NE	68104
Quiktrip Corporation	13007 Q ST	Omaha	NE	68137
R L's Liquor & Food Store	5825 N 30th	Omaha	NE	68111
Ralston Fuel & Service	7701 Main ST	Ralston	NE	68127
Regis Food Mart	7202 F ST	Omaha	NE	68127
Regis Food Mart	6828 S 143rd Plz	Omaha	NE	68138
Regis Ford Mart #3	2810 S 108th ST	Omaha	NE	68144
Ridgeview Fantasy's	18280 Wright ST	Omaha	NE	68130

Russell Speeders Car Wash	11212 Wright CIR	Omaha	NE	68144
Salaam Namaste	13826 P ST	Omaha	NE	68137
Salween Thai Grocery	1106 NW Radial HWY	Omaha	NE	68132
Sam's Club #8146	13130 L ST	Omaha	NE	68137
Select Mart	2401 Leavenworth	Omaha	NE	68105
Select Mart	2411 N 30th ST	Omaha	NE	68111
Selena's Market, Inc.	3228 California ST	Omaha	NE	68131
Shopko #056	14445 W Center RD	Omaha	NE	68114
Sinclair	5215 N 16th ST	Omaha	NE	68110
Speedee Mart #2725	13235 Grover ST	Omaha	NE	68144
Speedee Mart #2730	4334 S 84th	Omaha	NE	68127
Speedee Mart #2732	8724 N 30th ST	Omaha	NE	68104
Speedee Mart #2745	2920 S 120th ST	Omaha	NE	68144
Speedee Mart #2761	5205 S 72nd	Omaha	NE	68127
Speedee Mart #2762	13804 MANDERSON CIR	Omaha	NE	68164
Speedy Gas N Shop	503 N 33rd ST	Omaha	NE	68108
Steve's Place	2202 N 16TH ST	Omaha	NE	68110

Subzi Mundi	2320 N 72nd ST	Omaha	NE	68134
Sudanese African Foods	628 N Saddle Creek RD	Omaha	NE	68132
Super Carniceria El Pueblito	5116 S 24th ST	Omaha	NE	68107
Super Mercadito	1052 Park AVE	Omaha	NE	68105
Super Saver #20	5710 S 144th ST	Omaha	NE	68137
Super Target	17810 W Center RD	Omaha	NE	68130
Super Target	12500 K Plz	Omaha	NE	68137
Super Target Store T-530	4001 N 132nd	Omaha	NE	68164
Super Target T-2326	16959 Evans Plz	Omaha	NE	68116
Super T's	3805 Lake ST	Omaha	NE	68111
T & A Groceries	3247 N 42nd ST	Omaha	NE	68111
Target	7200 Dodge	Omaha	NE	68114
Target Store T2010	6636 N 73rd Plaza	Omaha	NE	68112
Tobacco & Phones 4 Less	5444 Center ST	Omaha	NE	68106
Tobacco & Phones 4 Less	6000 Grover ST	Omaha	NE	68106
Tobacco & Phones 4 Less	2014 L ST	Omaha	NE	68107
Tobacco & Phones 4 Less	4420 S 24th ST	Omaha	NE	68107
Tobacco & Phones 4 Less	4725 S 77th AVE	Ralston	NE	68127

Tobacco & Phones 4 less	7210 Harrison ST	La Vista	NE	68128
Tobacco & Phones 4 Less	4429 California ST	Omaha	NE	68131
Tobacco & Phones 4 Less	7204 Blondo ST	Omaha	NE	68134
Tobacco & Phones 4 Less	7205 LAWNDALDE DR	Omaha	NE	68134
Tobacco 4 Less	3402 S 42nd ST	Omaha	NE	68105
Tobacco 4 Less	8928 Maple ST	Omaha	NE	68134
Tobacco 4 Less	4108 Dodge ST	Omaha	NE	68164
Tobacco Hut #1	5826 Maple ST	Omaha	NE	68104
Tobacco Hut #10	4865 CENTER ST # 6	Omaha	NE	68106
Tobacco Hut #15	5434 N 103rd	Omaha	NE	68134
Tobacco Hut #19	6206 AMES AVE	Omaha	NE	68104
Tobacco Phones for Less	10780 Q ST	Omaha	NE	68127
Tobacco Road Discount	1414 S Saddle Creek RD	Omaha	NE	68106
Trader Joe's #719	10305 Pacific ST	Omaha	NE	68114
Travis Merchants of Venice	26402 W Center RD	Waterloo	NE	68069
Walgreens	5038 Center	Omaha	NE	68106
Walgreens # 04754	8380 HARRISON ST	La Vista	NE	68128
Walgreens #02472	18040 R Plaza	Omaha	NE	68135

Walgreens #03186	3701 N 132nd	Omaha	NE	68164
Walgreens #03202	7202 N 30th	Omaha	NE	68112
Walgreens #03621	9001 Blondo	Omaha	NE	68114
Walgreens #04443	9001 W Center RD	Omaha	NE	68124
Walgreens #04772	3005 Lake ST	Omaha	NE	68111
Walgreens #05143	7151 Cass ST	Omaha	NE	68132
Walgreens #05190	2323 L ST	Omaha	NE	68107
Walgreens #05741	3001 Dodge ST	Omaha	NE	68131
Walgreens #05966	2605 S 171st ST	Omaha	NE	68130
Walgreens #06802	15525 Spaulding Plaza	Omaha	NE	68116
Walgreens #06936	4310 Ames AVE	Omaha	NE	68111
Walgreens #06962	3121 S 24th ST	Omaha	NE	68108
Walgreens #07272	13155 W Center RD	Omaha	NE	68144
Walgreens #07563	8989 W Dodge ST	Omaha	NE	68114
Walgreens #07693	225 N Saddle Creek RD	Omaha	NE	68144
Walgreens #10437	5225 N 90th ST	Omaha	NE	68134
Walgreens #11203	17909 Burke ST	Omaha	NE	68022
Walgreens #11204	20201 Maderson ST	Elkhorn	NE	68022

Walgreens #11205	6005 N 72nd ST	Omaha	NE	68134
Walgreens #13137	13510 Q ST	Omaha	NE	68137
Walgreens #5360	5062 S 155th ST	Omaha	NE	68137
Walgreens 05059	10725 Fort ST	Omaha	NE	68134
Walgreens 15237	2929 N 60th ST	Omaha	NE	68106
Walmart #3172	5051 L ST	Omaha	NE	68117
Walmart #4358	1606 S 72nd ST	Omaha	NE	68124
Walmart Market #3153	6710 S 167th ST	Omaha	NE	68135
Walmart Neighborhood Market	2451 N 90th ST	Omaha	NE	68134
Wal-Mart Neighborhood Market #4139	360 N Saddle Creek RD	Omaha	NE	68131
Walmart Supercenter #1637	6304 N 99th ST	Omaha	NE	68122
Walmart SuperCenter #3151	5018 Ames DR	Omaha	NE	68104
Walmart Supercenter #3267	18201 Wright ST	Omaha	NE	68130
Walmart Supercenter #5141	16960 W Maple RD	Omaha	NE	68116
Walmart Supercenter #5361	12850 L ST	Omaha	NE	68137
West Maple Fantasy's	3725 N 147th ST	Omaha	NE	68116
Whole Foods Market	10020 Regency CIR	Omaha	NE	68114

Wohlner's Midtown	3253 Dodge ST	Omaha	NE	68131
Zamora Market Inc.	4901 S 24th ST	Omaha	NE	68107
Zoo Mart	4023 S 13TH ST	Omaha	NE	68107

Appendix B: Assessment Tool

NUTRITION ENVIRONMENT MEASURES SURVEY (NEMS)

State of Nebraska - Observation of Food Outlets

STORE & OBSERVER INFORMATION

Store Name:

Location:

Observer ID:

What is today's date?
 / /
MM DD YY

Did you talk to a store manager?

☐ Yes

☐ No

How many cash registers are in this store?

☐ 1

☐ 2 - 4

☐ 5 or more

What type of store is being rated?

MARK ALL THAT APPLY

☐ Convenience store

☐ Grocery store

☐ Chain superstore

☐ Ethnic store

☐ Health food store

☐ Other (specify in box)

Start time:

:

☐ a.m.
☐ p.m.

HOUR MINUTE


End time:

:

☐ a.m.
☐ p.m.

HOUR MINUTE

Record below any comments that will help us understand your rating of any item or section in the survey or of this store overall.



Page 1 of 5

☐ Page Complete?

FRESH FRUITS & VEGETABLES

Are fresh fruits available?

☐ Yes ☐ No

→ If no, move to fresh vegetables.

	Available	Quality	Price	Per
Bananas	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA	\$ <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="radio"/> pc <input type="radio"/> lb
Apples	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA	<i>Preferred pricing for Red Delicious</i> \$ <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="radio"/> pc <input type="radio"/> lb
Oranges	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA		
Grapes	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA		
Cantaloupe	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA		

Total kinds (not varieties) of fresh fruits available: ☐ 1 - 4 ☐ 5 - 9 ☐ 10 or more

Are fresh vegetables available?

☐ Yes ☐ No

→ If no, move to section on next page.

	Available	Quality	Price	Per
Carrots	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA	<i>Preferred pricing for 1-lb whole carrots</i> \$ <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="radio"/> lb
Broccoli	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA	\$ <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="radio"/> bunch/each <input type="radio"/> lb
Cauliflower	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA		
Tomatoes	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA		
Lettuce (Green Leaf)	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA		

Total kinds (not varieties) of fresh vegetables available: ☐ 1 - 4 ☐ 5 - 9 ☐ 10 or more



FROZEN FRUITS & VEGETABLES

Are frozen fruits available? ☐ Yes ☐ No → If no, move to frozen vegetables.

Total kinds of frozen fruits (without added sugar) available: ☐ 0 ☐ 1-2 ☐ 3 or more

Are frozen vegetables available? ☐ Yes ☐ No → If no, move to canned fruits.

Total kinds of frozen vegetables (without sauce) available: ☐ 0 ☐ 1-2 ☐ 3 or more

CANNED FRUITS & VEGETABLES

Are canned fruits available? ☐ Yes ☐ No → If no, move to canned vegetables.

Total kinds of canned fruits (in 100% juice or water) available: ☐ 0 ☐ 1-2 ☐ 3 or more

Price: canned fruit in 100% juice vs. canned fruit in heavy syrup? ☐ More ☐ Less ☐ Equal ☐ NC

Are canned vegetables available? ☐ Yes ☐ No → If no, move to next section.

Total kinds of canned vegetables (without sauce) available: ☐ 0 ☐ 1-2 ☐ 3 or more

MEAT & MEAT ALTERNATIVES

Is ground beef available? ☐ Yes ☐ No → If no, move to tuna.

Is lean (at least 90/10) ground beef available? ☐ Yes ☐ No

Price: lean (at least 90/10) ground beef vs. less lean (85/15, 80/20) ground beef? ☐ More ☐ Less ☐ Equal ☐ NC

Is canned tuna available? ☐ Yes ☐ No → If no, move to beans.

Is canned tuna packed in water available? ☐ Yes ☐ No

Price: canned tuna packed in water vs. canned tuna packed in oil? ☐ More ☐ Less ☐ Equal ☐ NC

Are canned refried beans available? ☐ Yes ☐ No

Are dried beans (legumes) available? ☐ Yes ☐ No

Are canned beans available (legumes not green beans)? ☐ Yes ☐ No



GRAINS

Is loaf bread available?

☐ Yes ☐ No

→ If no, move to tortillas.

Is 100% whole wheat/grain bread available?

☐ Yes ☐ No

Price: 100% whole wheat/grain bread vs. white bread?

☐ More ☐ Less ☐ Equal ☐ NC

Total # of different 100% whole wheat/grain loaf breads:

☐ 0 ☐ 1-2 ☐ 3 or more

Are tortillas available?

☐ Yes ☐ No

→ If no, move to cereals.

Are whole wheat tortillas (3 g or more of fiber per serving) available?

☐ Yes ☐ No

Price: whole wheat tortillas vs. refined tortillas?

☐ More ☐ Less ☐ Equal ☐ NC

Is boxed cereal available?

☐ Yes ☐ No

→ If no, move to rice.

"Healthy" cereal examples: Cheerios, Grape Nuts, Total, Shredded Wheat, Wheaties, Bran Flakes

Are "healthy" (100% whole grain with less than 7g of sugar per serving) boxed cereals available?

☐ Yes ☐ No

Total # of "healthy" (100% whole grain with less than 7g of sugar per serving) boxed cereals available:

☐ 0 ☐ 1-2 ☐ 3 or more

Is (uncooked) rice available?

☐ Yes ☐ No

→ If no, move to pasta.

Is brown whole grain rice available?

☐ Yes ☐ No

Price: brown rice vs. refined rice?

☐ More ☐ Less ☐ Equal ☐ NC

Is (uncooked) pasta available?

☐ Yes ☐ No

→ If no, move to section on next page.

Is 100% whole wheat pasta available?

☐ Yes ☐ No

Price: 100% whole wheat pasta vs. enriched pasta?

☐ More ☐ Less ☐ Equal ☐ NC



Page 4 of 5

☐ Page Complete?

MILK

Is milk available? ☐ Yes ☐ No → If no, move to next section.

	Pint	Quart	Half Gallon	Gallon	Price Per Gallon <small>Compare within same brand (cheapest, store brand).</small>
Skim	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	\$ <input type="text"/> . <input type="text"/> <input type="text"/>
1%	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	\$ <input type="text"/> . <input type="text"/> <input type="text"/>
2%	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	\$ <input type="text"/> . <input type="text"/> <input type="text"/>
Whole	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	\$ <input type="text"/> . <input type="text"/> <input type="text"/>

Shelf Space for Milk: Measure only if skim and/or 1% milk is available.

How much shelf space is dedicated to skim / 1% milk compared to 2% / whole milk?

- ☐ 50% or more of shelved milk is skim / 1%
- ☐ Less than 50% of shelved milk is skim / 1%

SNACK FOODS

Are chips available? ☐ Yes ☐ No

Are baked chips (with less than 3 g of fat per 1 oz serving) available? ☐ Yes ☐ No

Are hard pretzels (with less than 3 g of fat per 1 oz serving) available? ☐ Yes ☐ No

Please review this questionnaire to make sure all items are complete. Once each page has been verified as complete, return to Page 1 to record any comments and enter your end time. Please return your finished assessment to the Bureau of Sociological Research using the postage-paid envelope in your assessment packet.



Page 5 of 5

☐ Page Complete?

Appendix C: Store Manager Letter



Dear Store Manager,

In the spring of 2009, the Nebraska Healthy Food Coalition, a group of state and local public health professionals, conducted a Nutrition Environment Measures Survey (NEMS) assessment of retail food outlets to observe access to healthy foods in Douglas County. The NEMS assessment was replicated in 2012 and then repeated in 2015 in an effort to continue to monitor access to foods in Douglas County. The Douglas County Health Department will be completing a fourth NEMS assessment in the spring of 2018.

The focus of this assessment is to determine the availability of healthy foods, such as fruits and vegetables, whole grains, low-fat and/or non-fat dairy and lean meats. The objective is to gather information that can be used by public health professionals to help public officials understand the needs within specific areas of our community.

Trained observers will visit all food outlets in Douglas County during the month of March, to verify healthy foods that are available across the community. A report, outlining the findings of the assessment, will be generated and will not highlight individual stores, but will provide a summary of all retailers and recommendations for future public health work.

The project outcome is to:

1. Provide information to Public Health Officials that can be used to inform community leaders of health issues that positively and negatively contribute to obesity and chronic disease rates.
2. Describe the nutrition environment to decision makers so that they can discuss possible policies, changes, improvements, and incentives that can ensure access to healthy foods in neighborhoods.
3. Inform and support nutrition education professionals in crafting appropriate education messages that encourage consumers to eat healthy foods that are available to them.

Your participation is voluntary. The Nebraska Grocery Industry Association does encourage you to work with the Douglas County Health Department in their goal to gather this information. If you have questions regarding this project, please feel free to contact either one of us.

Sincerely,


Kerry Kernen, MPA, MSN, RN
Chief, Community Health & Nutrition Services
Douglas County Health Department
Kerry.kernen@douglascounty-ne.gov
(402) 444-1773


Kathy Siefken
Executive Director
Nebraska Grocery Industry Association
ksiefken@nebgrocery.com
(402) 423-5533

Appendix D: Rater Training Points

NEMS Observation Points

Fresh Fruits and Vegetables:

- Are Fresh fruits and vegetables available?
 - Mark yes – if they are for sale with or without dip (on the side).
 - Mark no – if sauce is mixed in (ex: coleslaw), not available
- Single fruits and vegetables (the ten listed: bananas, apples, carrots, cauliflower, etc): check available if they are fresh, sold singly (not in a mix) and do not have added sauce or dip (see example 1 and 2 below).
- Counting types i.e. mixed fresh fruits and vegetables **without** dip or sauce – count as 1 kind of fresh fruit/vegetables.
- Pricing: always choose the non-sale, cheapest price

Example 1– Only sells sliced apples with caramel sauce

Are fresh fruits available? ☒ Yes ☐ No → If no, move to fresh vegetables.

	Available	Quality	Price	Per
Bananas	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA	\$ <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="radio"/> pc <input type="radio"/> lb
Apples	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA	<i>Preferred pricing for Red Delicious</i> \$ <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="radio"/> pc <input type="radio"/> lb
Oranges	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA		
Grapes	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA		
Cantaloupe	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> A <input type="radio"/> UA		

Total kinds (not varieties) of fresh fruits available: ☐ 1 - 4 ☐ 5 - 9 ☐ 10 or more

This is NO – because the apples are packaged with caramel sauce.

Example 2 (similar to above) – Only carrots with ranch dip (packed with dip on the side)

- Are fresh vegetables available: Yes
- Are Carrots available: No (because not sold singly – have a dip)
- Total kinds (not varieties) of fresh vegetables available: because only carrots with dip are sold you would not mark anything as none are available without sauce or dip

Frozen Fruits and Vegetables:

- Are Frozen Fruits/Vegetables available?
 - Mark YES if they are sold with or without sauce/sugar.
- Total kinds of frozen F/V **without** added sugar or sauce → check ingredient label and do not count if they have added sauce, sugar, or artificial sweetener
- Price comparison – compare same brand – look for the cheapest brand.

Meat & Meat Alternatives:

- Is ground beef available?
 - Mark Yes – if ground beef is sold
- Price compare the cheapest lean (90/10 or 93/7) vs. less (85/15 or 80/20) lean ground beef

Canned Beans (legumes not green beans):

- Mark Yes only if a canned bean with **no added sauce or sugar** is available
- Chili beans and Baked Beans do **NOT** count

Loaf bread:

- Is loaf bread available?
 - Mark Yes – if any loaf bread is sold
- Is 100% whole wheat/grain bread available?
 - Be sure it is 100% Whole Wheat and not just "Made With" whole grains
 - 100% All Natural Wheat Bread does **NOT** count– It's not 100% Whole Wheat!
- Number of 100% whole wheat/grain bread? → count both within and across brands
 - Example – if these four bread are available, mark 3 or more total # of whole wheat/grain loaf breads available:
 - Wonder: 100% whole wheat
 - Wonder: 100% multi-grain
 - Wonder: 100% multi-grain + flax
 - Sara Lee: 100% whole grain

Whole wheat tortillas:

- Likely labeled "whole wheat" or "whole grain blend" – must read labels
 - Ingredient list: first grain ingredient must be whole wheat
 - Nutrition label: 3g fiber per tortilla

Pasta:

- Likely labeled "whole wheat" or "whole grain blend" – must read labels
 - Ingredient list: first grain ingredient must be whole wheat
 - Nutrition label: 5g fiber per 2 oz (56g) serving

Milk:

- Is Milk Available? → mark yes if white and/or flavored milk is sold
- On the chart and pricing - observe **WHITE** milk only
- How much self space is dedicated to skim/1%? → look at all brands and all sizes (white milk **only**)

Snack foods:

- Baked chips – with **less than 3g** of fat per serving. Those with 3g fat per 1 oz serving do not count.
- Hard pretzels (not flavored) – with less than 3 g of fat per 1 oz serving

Appendix E. Overview of AVAQ Scoring Criteria

Food Categories	Sub-Scored Items	Availability/Variety Sub-Score	Affordability Sub-Score	Quality Sub-Score
Milk	Skim Milk	Points for availability of 1%/skim milk. Additional points based on variety of sizes. Additional points for 1%/skim milk having more dedicated shelf space than 2%/Whole milk.	Points added or subtracted when no/low-fat was more, less or equal in price to the high-fat.	Not Assessed
	1% Milk			
Fruit	Fresh Fruit	Points for availability. Additional points based on variety. Additional points based on frozen and canned without sugar added.	Points added or subtracted when canned no sugar added fruit was more, less or equal in price to canned fruit with sugar.	Points based on bananas, apples, oranges, grapes, cantaloupe being of acceptable quality.
	Frozen Fruit			
	Canned Fruit			
Vegetables	Fresh Vegetables	Points for availability. Additional points based on variety. Additional points based on frozen and canned without sauce.	Not Assessed	Points based on broccoli, cauliflower, tomatoes, green leaf lettuce being of acceptable quality.
	Frozen Vegetables			
	Canned Vegetables			
Meat/Meat Alternatives	Lean Beef	Points for availability.	Points added or subtracted when lean beef/water canned tuna was more, less or equal in price to the higher-fat version.	Not Assessed
	Water Canned Tuna			
	Refried Beans			
	Dried Beans			
	Canned Beans			
Grains	Bread	Points for availability in a whole grain form. Additional points based on variety.	Points added or subtracted when whole grain was more, less or equal in price to refined grain (excluding boxed cereal).	Not Assessed
	Tortillas			
	Pasta			
	Rice			
	Boxed Cereal			
Snacks	Baked Chips	Points for availability.	Not Assessed	Not Assessed
	Hard Pretzels			

Appendix F. USDA Food Access Map Example for Douglas County

