Tennessee Food Desert Relief Act:

A Rapid Health Impact Assessment

Final Report

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PREVENTION RESEARCH CENTER in St. Louis
Promoting Healthy Communities

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Executive summary

Background

A Health Impact Assessment (HIA) was undertaken by the Tennessee Obesity Taskforce and the Prevention Research Center in St. Louis to examine Senate Bill 1176: Tennessee Food Desert Relief Act. HIA is a formal process that undertakes to examine the potential positive and negative impacts on health of a particular proposal or policy. This report describes the process of conducting the HIA, the health issues at stake in Tennessee, and a set of recommendations.

Food deserts are often defined as areas characterized by poor access to healthy and/or affordable food. It is estimated that over one million people in Tennessee (one fifth of whom are children) live in low-income communities with insufficient access to supermarkets.[1] Nationwide, about 2.3 million households live more than a mile from a supermarket and do not have access to a vehicle.[2] Without access to healthy and affordable foods, residents are less likely to consume healthy diets, putting them at risk of developing many chronic diseases, including obesity, diabetes, and cardiovascular disease. According to the Centers for Disease Control and Prevention, in 2014, 36% of Tennessee residents were overweight (Body Mass Index (BMI) of 25.0-29.9) and another 31% were obese (BMI>30).[3] Further, Tennessee spends over 3.6 billion dollars a year in the treatment of obesity-related diseases.[1] Prevention is crucial from an individual, organizational, and policy perspective. The Tennessee Food Desert Relief Act is an important part of the larger battle against chronic disease in Tennessee.

Conclusions

The HIA concludes that while the Tennessee Food Desert Relief Act has potential to benefit health in Tennessee, as it is currently written, it omits some key pieces that are crucial to ensuring positive health impacts. Foremost, the bill would be strengthened by the inclusion of a clear definition of the enterprises it seeks to fund, and a clarification of what will and will not be considered healthy food. Specific recommendations follow.

Recommendations

The following recommendations were made as a result of the HIA:

1. Consider adding a definition of “food desert” to the bill.

2. Consider redefining “food desert relief enterprise” (FDRE). Under the current recommendation, an FDRE could be an entity that sells merely cupcakes and alcohol or hot dogs and soda.
    a. Consider establishing nutritional guidelines or a definition of healthy food.

    b. Decide what percentage of *“healthy food” is required to be sold in order for an entity to be considered an FDRE.

3. When developing scoring and ranking procedures for loan grant applications:
    a. Consider ensuring that geographic areas and populations most impacted by lack of access to food will receive higher priority.

    b. Consider giving preference to those entities which locate near an already established public transportation route or provide a means of transportation to and from their location of business.

    c. Consider utilization of empty, available commercial spaces in inner cities and rural areas for food retail spaces.

    d. Consider incentives for existing food retail establishments to increase the amount of healthy food* sold.

    e. Consider ways to ensure that rural areas have equal opportunity to compete for loans.

4. Consider the proportion of food and products that will be sourced locally.

5. Consider creating an assessment tool that will provide ongoing analysis of the

effectiveness of an FDRE. Local or regional health departments should be engaged to conduct assessment and analysis.

6. Consider monitoring and evaluating the health metrics of the populations living where FDREs are established. Local or regional health departments should be engaged to perform monitoring and evaluation.

7. Consider creating a second category of applications for mini-grants requiring reduced fiscal notes, to be awarded as a trial program.

8. Consider a broader food policy that would include other areas influencing food and nutrition (e.g., schools, state institutions, agricultural zoning, farm incentives, etc.) or language in the preamble to SB 1176 recognizing that this program is part of a wider effort needed to address the problem of food deserts.

*“Healthy foods” must be low in fat, saturated fat, cholesterol and sodium. They must also contain at least 10% of the recommended daily value of Vitamin A, Vitamin C, iron, calcium, protein or fiber.

What is Health Impact Assessment (HIA)?

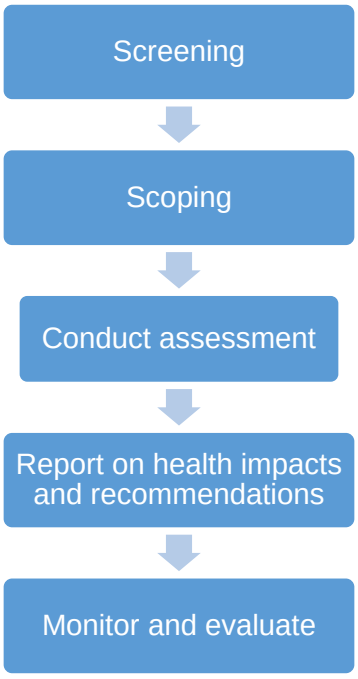
According to the World Health Organization, HIA is "a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population."[4] In general, an HIA is designed to enhance positive potential outcomes of a policy and reduce negative potential impacts.

An HIA can serve many purposes, including aiding in the creation of healthy public policies, building partnerships, and improving health advocacy.

There are several types of HIA:

1. Desktop (which provides a broad overview of possible health impacts and is often completed within 2-6 weeks)
2. Rapid (which provides more detail than a desktop HIA and often lasts 2-3 months)
3. Comprehensive (which provides a comprehensive assessment of potential health impacts, utilizes primary data collection, and can last at least 6 months).

HIA often involves the following basic steps:



Many comprehensive HIAs also involve additional steps during the assessment phase, in which primary qualitative or quantitative data are collected.

The Tennessee Food Desert Relief Act HIA was a rapid HIA designed to impact the 2012 Tennessee State legislative session. The work was carried out between December 2011 and April 2012 by two part-time assessors and a diverse steering committee comprised of representatives from all over the state of Tennessee and representing multiple disciplines. After the relevant legislative session ended and to enhance understanding of quantitative data, qualitative data were collected from key informants between August 2012 and May 2013.

Specific objectives

This is a health impact assessment of SB1176 to review the potential impacts of the implementation of the" Tennessee Food Desert Relief Act" and to make recommendations that may improve the health impacts of the bill.

Specific objectives of this HIA were:

1. To identify potential health impacts of the proposed Tennessee Food Desert Relief Act

2. To develop a set of recommendations to enhance positive impacts and reduce potential negative impacts of the Food Desert Relief Act on the health of Tennesseans

Background

Tennessee covers a geographic area of 41,234 square miles divided into 95 counties, three main divisions (i.e., Eastern, Middle, and Western) and 10 metropolitan areas. According to the 2010 U.S. Census, approximately 6,346,105 people live in Tennessee.[5] The median household income from 2010-2014 was $44,621.[5] Nearly 85% of residents over age 25 have at least a high school degree; 24% have a bachelor's degree or higher.[5] About 75% of the state population is White, almost 17% is Black and 4.6% is Hispanic or Latino.[5]

What is a food desert?

- Areas characterized by poor access to healthy and/or affordable food are considered food deserts.[6]

- The 2008 Farm Bill defines a food desert as "an area in the United States with limited access to affordable and nutritious food, particularly such an area composed of predominantly lower-income neighborhoods and communities."[7]

- The designation can refer to the literal absence of retail food in a specific area, but food desert studies often assess disparities in accessibility to healthy and affordable foods.[6]

- Food deserts can be in rural or urban areas. They are places where the nearest supermarket is too far away for residents to shop often, either because of the distance involved or due to lack of transportation.

How have food deserts developed?

- Some suggest that food deserts are the result of growth in large supermarket chains on the outer edges of inner-cities that offer better quality, variety, and price; the expansion of these has led to closures of smaller neighborhood groceries, resulting in areas where the only food shopping must be accessed by car or public transportation.[8]

- Others suggest that between 1970 and 1988, economic segregation became more prominent as many households left the cities for the suburbs, causing the median income in the inner-cities to decrease and forcing a huge number of supermarkets in U.S. cities to close.[8]

- Other factors, such as negative perceptions of inner-cities, theft, zoning laws, etc., make the establishment of new businesses in inner-cities less desirable.[8]

- In rural areas, food deserts are often the result of growth in more populated areas with superstores, insufficient population to support local supermarkets, and changes in food distribution channels that tend to favor larger retailers.[9]

Who lives in food deserts?

- In the U.S., 803 counties are considered low food-access areas. Of all U.S. counties, 418 are food deserts, with close to 98% located in nonmetropolitan areas, mostly in towns with fewer than 10,000 residents.[9]

- It is estimated that 11.5 million people, or 4.1% of the total U.S. population, live in low-income areas more than one mile from a supermarket.[10]

- Areas with a higher proportion of low-income or African American residents tend to be underserved by food retailers, compared with more advantaged areas.[6,8]

- These areas also have fewer supermarkets or chain stores per capita, as well as fewer midsized or large stores.[6]

- The lowest income neighborhoods have nearly 30% fewer supermarkets than the highest income neighborhoods.[8]

- Residents of food deserts tend to be older, poorer, and less educated.[9]

- Counties that lie in food deserts tend to have larger percentages of individuals without a high school diploma or GED, higher individual and family poverty rates, lower median incomes, and larger shares of older people.[9]

What are some consequences of living in food deserts?

- Children living in food deserts and no safe places to be active are more likely to be overweight and obese.[11]

- Living in a food desert may contribute to social and spatial disparities in diet and health outcomes, including cardiovascular disease and obesity.[6]

- One study suggests "a process of deprivation amplification," whereby structural problems that create food deserts further disadvantage low-income and minority populations who are already limited in their ability to buy healthy, affordable foods.[6]

- Many residents of food deserts do not consume adequate amounts of fruits and vegetables, dairy, or protein.[9]

- For those who lack access to transportation, there may be additional barriers to accessing healthy food: in 2001, 26.5% of Americans with incomes below $20,000 did not own a car, which may limit their access to larger supermarkets.[6]

- Ease or difficulty of accessing a food retailer depends on a variety of factors, including the location of the store in relation to the consumer, the consumer's travel patterns, individual characteristics such as car ownership or disability status, and neighborhood characteristics such as the presence of sidewalks, public transportation, or crime patterns.[10]

- People living in low-income areas with limited access to food spend significantly more time (19.5 minutes) traveling to a grocery store than the national average of 15 minutes.[10]

- Residents of food deserts have greater exposure to heavily-processed, energy-dense foods (e.g., chips, baked goods) at convenience stores and fast-food restaurants. Further, diets comprised of processed foods often lead to poorer health outcomes.[8,10]

- In some inner-cities and rural areas, convenience stores and gas stations fill the void for many seeking to buy food close to home. Such establishments often charge higher prices for a very limited selection of foods, usually with lower nutritional value.[9]

- Rural areas have less store selling space than urban areas, meaning they are limited in the selection they can offer.[6]

Potential solutions to food deserts: What other states are trying

Two national initiatives proposed by government entities to address issues pertaining to food deserts are found in the United States Department of Agriculture (USDA) Report to Congress to reform the Food, Conservation, and Energy Act of 2008, proposed in 2009, and the Healthy Food Financing Initiative (HFFI) proposed by the Obama administration in 2010. The USDA study recommends reviewing issues of transportation especially in rural areas.[2] The Healthy Food Financing Initiative provides funding to bring food retailers to low-income communities in urban and rural areas in order to increase access to nutritious food.[12]

In addition to federal initiatives, states and local communities have been working to address the issue of food deserts. Some examples of ways other states have addressed the issue of lack of access to food include the following. Additional information about each can be found by following the links provided.

1. **New York's Healthy Bodegas Initiative**

This initiative provides funding for refrigeration or shelving for small stores as well as marketing advice if they agree to stock healthy food in the store.

http://www.nyc.gov/html/doh/downloads/pdf/cdp/healthy-bodegas-rpt2010.pdf

2. **Philadelphia's Healthy Corner Store Initiative**

This initiative provides nutrition education to youth as well as incentives to stock healthy food in corner stores.

http://thefoodtrust.org/what-we-do/corner-store

3. **New York Green Markets and Healthy Bucks**

This program provides financing to establish farmer's markets in areas with low access to healthy foods as well as coupons and vouchers for Supplemental Nutrition Assistance Program (SNAP) recipients to procure fresh produce.

http://www.grownyc.org/ourmarkets

http://www.grownyc.org/greenmarket/ebt/healthbucks

4. **Pennsylvania's Fresh Food Financing Initiative**

This is a program to provide funding to finance the construction of new grocery stores in areas without the presence of grocers to increase the access of healthy food.

https://www.reinvestment.com/success-story/pennsylvania-fresh-food-financing-initiative/

Specific Steps of the HIA

Screening

Screening was conducted in December 2011 by the assessors. They considered such questions as:

1. Has a project, plan, or policy been proposed?
2. Does the decision have potential to affect social determinants that impact health?
3. Would health inequities be affected? Would the project, plan, or policy affect different groups of people differently?
4. If applied, would HIA recommendations potentially improve the proposal's impact on health?

It was speculated that implementing the Tennessee Food Desert Relief Act (Appendix A) could improve access to food and may provide access to healthy foods for those living in areas classified as food deserts. It was thought that conducting an HIA might also bring awareness to issues of disparities in and between urban and rural areas. Conducting an HIA of state legislation would also provide the opportunity to make health a factor in the decision-making process of state policy. Having determined that it was appropriate to conduct an HIA, a research team and diverse group of stakeholders was assembled to form a steering committee and a timeline was established for the rapid HIA (Appendices C and D).

Scoping

In the scoping stage, potential health outcomes and the health determinant pathways of SB 1176 were identified. The geographic area affected by SB 1176 is the State of Tennessee. Sources of research were identified and a key group of stakeholders to vet the process was convened. Vulnerable populations were also considered and identified.

The primary health determinants identified were:

1. Presence of obesity and chronic disease
2. Employment
3. Stress
4. Environmental Impact

Vulnerable Populations included:

1. Minorities
2. Those living in poverty
3. Rural residents
4. Elderly
5. Disabled

Policy Analysis

A Potential Solution to Food Deserts in Tennessee

Senate Bill 1176 (SB 1176), the "Tennessee Food Desert Relief Act," seeks to provide a potential solution to food deserts. The bill states that "many communities in urban areas and rural areas across the state are underserved by grocery stores" and that "the lack of nutritious, affordable fresh food in these neighborhoods and communities has been linked to higher rates of diet-related diseases, including heart disease, diabetes and obesity."

It also speculates that "the family farm, once a backbone of the state's economy, is facing growing difficulties due to a predisposition for Tennesseans to choose prepackaged food over wholesome fresh food" and that "the high cost and limited availability of financing for development to cure such ills in Tennessee threatens to halt needed development and expansion in certain areas in Tennessee."

This bill seeks to alleviate the problems mentioned in the four previous statements by authorizing the use of revenue bonds and loans to develop property food desert relief enterprises (FDREs) that "private industry alone would be otherwise unable to serve, at interest rates lower than would otherwise be obtainable."

This bill defines such "food desert relief enterprises" as "a supermarket or grocery retailer that operates on a self-service basis, having at least fifty percent (50%) of revenue derived from the sale of groceries, produce, meat, baked goods or dairy products, or a farmers market, in an underserved area."

The bill defines "underserved area" as "a low or moderate income census tract, an area of below average supermarket density or an area having a supermarket customer base with more than fifty percent (50%) living in a low-income census tract."

The bill defines low-income census tract for metropolitan and non-metropolitan areas as follows:

> For metropolitan areas, "an area having an unemployment rate greater than 1.5 times the national average, a poverty rate greater than twenty percent (20%), a median family

income less than eighty percent (80%) of the area's median income, and a population greater than one thousand five hundred (1,500).

For non-metropolitan areas, “an area having an unemployment rate greater than one and 1.5 times the national average, a poverty rate greater than twenty percent (20%), a median family income less than eighty percent (80%) of the state's or national non-metropolitan median family income, and a population greater than five hundred (500).

The bill authorizes commitments to make loans or deposits up to $500,000 with a governmental entity under the food desert relief development loan program.

Limitations of the bill

In its definition of “food desert relief enterprise,” SB 1176 does not state how the groceries, produce, meat, baked goods or dairy products should be distributed or what should be the content of the other 50% of items sold. As written, this could lead to the creation and funding of such enterprises as those who sold primarily baked goods and high-calorie sugary drinks or processed foods and alcohol. The bill also fails to state whether preference would be given to a farmer’s market or a grocery store.

This bill does not give preference to the sale of fresh food or foods that are typically considered “healthy.” It also does not provide limitations on the “processed foods” mentioned in one of the four primary statements nor other items which may be considered detrimental to health.

The bill does not state whether or not the food supplied by FDREs would be locally produced or produced in a manner that would have no or limited harm to the environment or the population living near the source of food production.

Though the family farm is mentioned in one of the first four statements of the bill, there is no mention of the relationship of farmers to FDREs.

The bill does not state whether preference would be given to metropolitan or rural underserved areas or how the loan applications would be prioritized.

This bill does not state whether preference would be given to existing establishments in underserved areas to provide a more adequate supply of food or to new establishments seeking to create a place for those living in underserved areas to procure food.

The bill provides no incentive for FDREs to locate near already established public transportation routes or ensure that such transportation is provided.

The bill provides no follow up or monitoring of FDREs to show that they are actually functioning as an FDRE in the underserved area.

The bill does not explicitly state whether or not the loans could be used for other sources of food, such as corner stores, community supported agriculture, community gardens, or farm to school initiatives.

Assessment

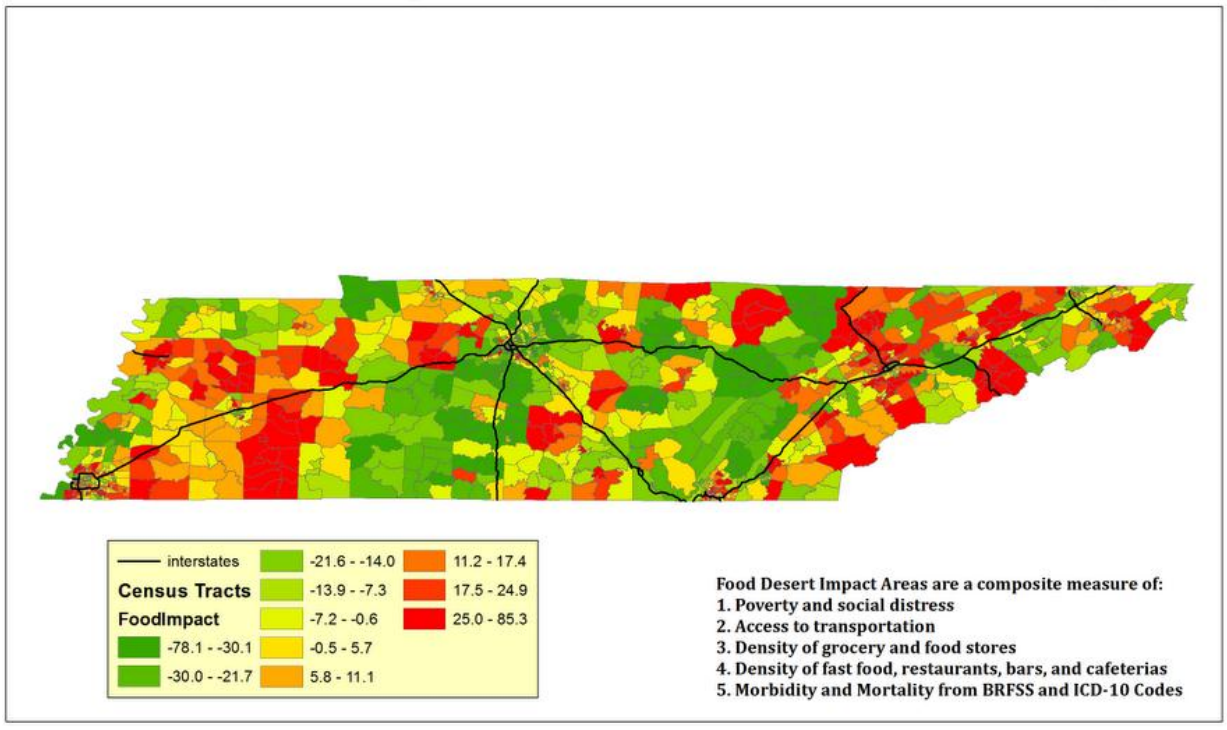
The HIA research team utilized a combination of research methods to assess the potential impacts of SB 1176. Methods used included:

- Literature review of health determinant pathways and outcomes
- Review of existing data regarding Tennessee as it relates to health outcomes
- Comparison of SB 1176 to existing data
- Key informant interviews with Tennesseans currently residing in food deserts

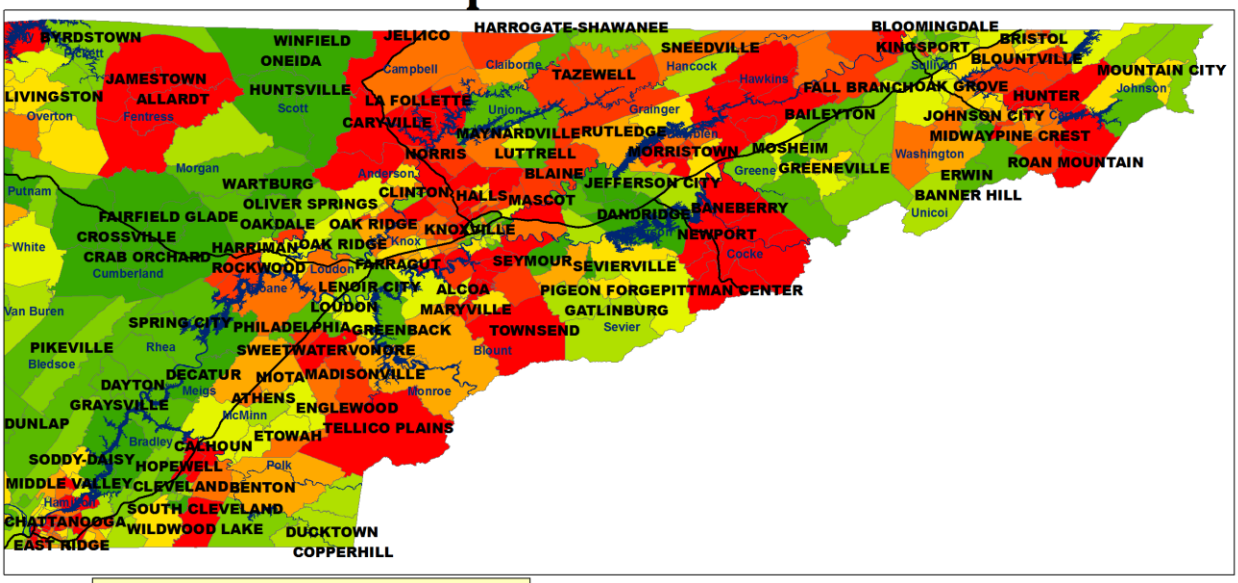
Presence of Food Deserts

In Tennessee, about half a million people live in food deserts.[2] Further, a million Tennessee residents are estimated to live in low-income areas that are underserved by supermarkets.[1] In a recent study, researchers at Vanderbilt University used U.S. Census Data to show the geographic distribution of food deserts and their impact across the State of Tennessee.[13] According to this research, in some census tracts, over 20% of inhabitants live in an area classified as a food desert. Maps of Tennessee food deserts across the state and in the three main divisions can be seen in the figures below.

Food Desert Impact Areas are in red and orange

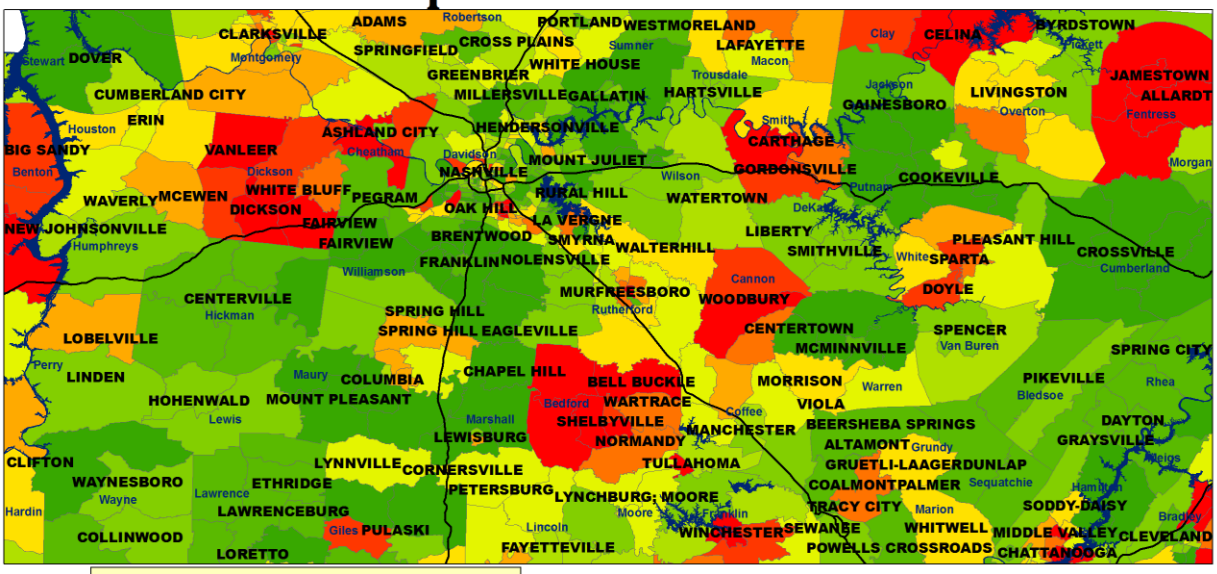


Food Desert Impact Areas in East Tennessee



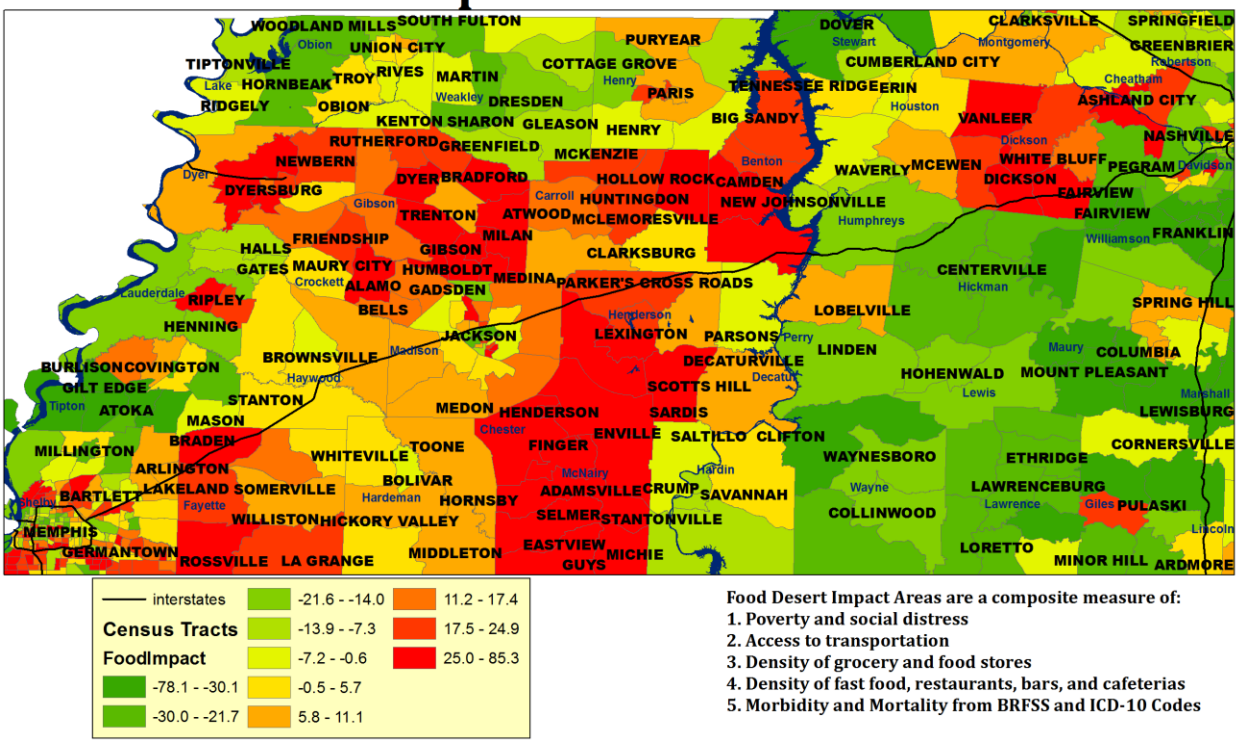
Food Desert Impact Areas are a composite measure of:
1. Poverty and social distress
2. Access to transportation
3. Density of grocery and food stores
4. Density of fast food, restaurants, bars, and cafeterias
5. Morbidity and Mortality from BRFSS and ICD-10 Codes

Food Desert Impact Areas in Middle Tennessee



Food Desert Impact Areas are a composite measure of:
1. Poverty and social distress
2. Access to transportation
3. Density of grocery and food stores
4. Density of fast food, restaurants, bars, and cafeterias
5. Morbidity and Mortality from BRFSS and ICD-10 Codes

Food Desert Impact Areas in West Tennessee



Food Desert Impact Areas are a composite measure of:

1. **Poverty and social distress**
2. **Access to transportation**
3. **Density of grocery and food stores**
4. **Density of fast food, restaurants, bars, and cafeterias**
5. **Morbidity and Mortality from BRFSS and ICD-10 Codes**

Only 61% of census tracts in Tennessee have at least one healthier food retailer within one-half mile of the tract boundary. Perhaps due partly to this limited access to healthier food, 46% of Tennessee adults report eating fruit less than one time per day, and 25% report eating vegetables less than one time per day.[14]

Potential Health Impacts of SB 1176

Health and Tennessee Food Deserts: The Urban Rural Divide

Of the 6,346,000 people that live in Tennessee, an estimated 1,494,873 live in rural areas.[15] Those living in rural areas, where many food deserts exist, often experience greater health and economic impacts than those living in urban areas. The following sections demonstrate the differences between urban and rural areas in relation to health determinants associated with SB 1176.

Chronic Disease and Obesity

In the past 20 years, obesity rates have reached epidemic proportions in the United States. Obesity often contributes to other diseases, such as heart disease, diabetes, and hypertension. The State of Tennessee is no exception. According to the Centers for Disease Control and Prevention, in 2014, 36% of Tennessee residents were overweight (Body Mass Index (BMI) of 25.0-29.9) and another 31% were obese (BMI>30).[3] Tennessee spends over 3.6 billion dollars a year in the treatment of obesity-related diseases.[1] Further, the percentage of Tennesseans suffering from heart disease is 5.6%, diabetes 13%, and hypertension, 38.8%.[3] Consuming fruits and vegetables has been shown to decrease risk of chronic disease and the likelihood that one will become obese; however, only 23% of Tennesseans report consuming an adequate amount of fruits and vegetables.[3]

Effect of SB 1176 on Chronic Disease and Obesity

Due to the lack of specificity regarding the types and quantities of foods sold in the bill's proposed food desert relief enterprises, it is unknown what impact SB 1176 may have on obesity and chronic disease. If more farmer's markets are constructed as a result of funding by SB 1176, it is speculated that those living in food deserts will have increased access to fruits and vegetables. It is unclear what effect SB 1176 would have on decreasing chronic disease disparities between urban and rural areas as well as vulnerable populations.

Employment

Employment has been shown to be associated with health outcomes, and being unemployed is associated with poorer health.[16] In Tennessee in 2014, the unemployment rate was 6.3% for urban areas and 8% for rural areas. Those living in rural areas of Tennessee also earn less than

those living in urban areas and report lower levels of income. The average per capita income for urban areas of Tennessee is $42,895; for rural areas this drops to $32,212.[15]

Effect of SB 1176 on Employment

It is speculated that SB 1176 would have a positive effect on employment and generate new jobs. It is unclear what effect SB 1176 would have on decreasing employment disparities between urban and rural areas as well as in vulnerable populations.

Stress

Stress from not having enough to eat, living in poverty, and other factors can also have a negative effect on health. According to the 2010 Census, 16.5% of Tennesseans live below the poverty level.[17] Estimates state that in rural areas, this number may exceed 20%. Not having enough food or going hungry because of lack of food is also a cause of stress. According to recent statistics, 15% of Tennesseans suffer from food insecurity and 6% suffer from very low food security.[18]

Effect of SB 1176 on Stress

It is speculated that SB 1176 could have a positive impact on stress by increasing access to food. It is unclear what effect SB 1176 would have on decreasing disparities in stress between urban and rural areas as well as vulnerable populations.

Environment

Air pollution can have negative impacts on health and lead to increased rates of chronic respiratory disease, asthma, etc. Pollution comes from many sources, including vehicles.[19] The amount of air pollution in Tennessee is 11.2 (micrograms of fine particles per cubic meter), which is more than double that of the state with the least amount of air pollution and higher than the national average of 10.0.[20] In 2010, 8,700,000 vehicle miles were logged on Tennessee's rural roads and interstates and 17,3600,00 miles were logged on roads and interstates located in the urban areas. Twenty-seven percent of Tennessee retail sales in 2012 were related to food, meaning that less than 11% of Tennessee's Gross Domestic Product comes from agricultural production. Given that most produce travels over 1,000 miles to reach its destination, some of these miles were logged due to the importation of food from other states.[21,22]

Effect of SB 1176 on Environment

Since the sourcing of neither food nor location of food desert relief enterprises proposed in the bill is specified, the effect of SB 1176 on the environment is unknown. It is unclear what effect SB 1176 would have on decreasing environmental disparities between urban and rural areas as well as vulnerable populations.

Health impacts and pathways are represented in Table 1 below.

Table 1. Potential Health Impacts of Tennessee Food Desert Relief Act

Policy Component	Proximal Impact	Intermediate Impact 1	Intermediate Impact 2	Health Outcome	Population Group Affected	Direction of change and measurability (qualitative, estimable, calculable)	Risk of Impact (Definite, Probable, Speculative)
Funding for more food desert relief enterprises: Supermarkets Grocery stores Farmers' Markets	Increased access to food: fruits and vegetables (F&V)	Increased consumption of F&V	Improved healthy eating habits	• Decreased rate/risk of chronic disease • Decreased absenteeism and improved performance in school and work • Decreased costs associated with disease	Urban and rural, lower SES residents of Tennessee	Change is positive; qualitative in short term, calculable over years	Probable
		Decreased mileage traveled and time spent to procure food	• Increased disposable time • Decreased stress • Increased physical activity	• Improved mental health • BMI		Change is positive; qualitative	Probable
	Increased access to food; unhealthy options	Increased consumption of high fat/calorie foods and drinks	Increased poor nutrition	• Increase or maintenance of chronic disease risk		Change is negative; qualitative in short term, calculable over years	Speculative-Probable
	Increased employment opportunities (in stores and markets)	• Increased income • Decreased unemployment	• More income to spend on food, health care, etc.	• Better nutrition • Better access to health care		Change is positive; qualitative	Speculative

			• Decreased stress	• Improved mental and physical health			
	Decreased vehicle miles traveled	Decreased air pollution		Improved respiratory health		Change is positive; calculable over time	Speculative
	Increased tax revenue from grocery sales			Increased community thriving	Local communities	Change is positive; calculable	Probable
	Increased need for delivery trucks	Increased air pollution		Decreased respiratory health	Local communities	Change is negative; calculable over time	Speculative

Qualitative Data Collection with Key Informants*

In order to better understand the stories behind the quantitative data available about food deserts in the state of Tennessee, a series of qualitative interviews were conducted with residents from around the state who lived in food deserts. Participants were identified through the HIA Steering Committee and via key contacts at local and regional public health departments and community-based organizations.

To participate in the survey, residents had to be:

- 18 years old or older
- The primary shopper for food in the household or able to answer questions about household shopping behaviors

The survey instrument included both new measures and others adapted from existing measures. It was created and revised by the HIA Steering Committee. It included 18 open-ended and 10 closed-ended questions and was generally completed in 20-25 minutes. The full survey is available in Appendix B.

Interviews were conducted by telephone and participation was completely voluntary. The research team from the Prevention Research Center in St. Louis recorded and transcribed the interviews and coded them using qualitative data analysis techniques.

In total, 31 individuals completed interviews (61% response rate). Findings were organized into the following main categories:

- Food environment and shopping behaviors
- Food insecurity
- Access to food

General findings included the following:

- Most respondents had to travel between 1-10 miles to purchase food and were dependent on cars for transportation to grocery stores or markets.

- Those without reliable access to cars had to pay for a cab, ride several busses, or depend on others for a ride.

- Respondents who lived in areas with neighborhood grocery stores reported they were unable to shop there because the prices were unaffordable, especially for fresh fruits and vegetables.

- Many respondents experienced food insecurity and described anxieties they experienced as well as strategies used to cope or supplement their food supply.

- Respondents also reported reducing their shopping frequency to approximately once a month and worried the types of food they could afford (e.g., food from discount bins) were negatively impacting their health.

*****A manuscript detailing this additional research and its full findings is under consideration for publication in a peer-reviewed journal. As such, findings that may be reported here are currently limited. Upon publication of the manuscript, complete findings will be available.

Recommendations

Based on the rapid health impact assessment conducted of SB 1176, the following recommendations were made.

1. Consider adding a definition of “food desert” to the bill.

2. Consider redefining “food desert relief enterprise” (FDRE). Under the current recommendation, an FDRE could be an entity that sells merely cupcakes and alcohol or hot dogs and soda.
    a. Consider establishing nutritional guidelines or a definition of healthy food.

    b. Decide what percentage of *“healthy food” is required to be sold in order for an entity to be considered an FDRE.

3. When developing scoring and ranking procedures for loan grant applications:
    a. Consider ensuring that geographic areas and populations most impacted by lack of access to food will receive higher priority.

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5. Consider creating an assessment tool that will provide ongoing analysis of the effectiveness of an FDRE. Local or regional health departments should be engaged to conduct assessment

and analysis.

6. Consider monitoring and evaluating the health metrics of the populations living where FDREs are established. Local or regional health departments should be engaged to perform monitoring and evaluation.

7. Consider creating a second category of applications for mini-grants requiring reduced fiscal notes, to be awarded as a trial program.

8. Consider a broader food policy that would include other areas influencing food and nutrition (schools, state institutions, agricultural zoning, farm incentives, etc.) or language in the preamble to SB 1176 recognizing that this program is part of a wider effort needed to address the problem of food deserts.

*“Healthy foods” must be low in fat, saturated fat, cholesterol and sodium. They must also contain at least 10% of the recommended daily value of Vitamin A, Vitamin C, iron, calcium, protein or fiber.

Conclusion

Food deserts are a tremendous burden and contributor to costly chronic diseases. Efforts like the proposed SB 1176 have potential to address food deserts by increasing access to healthy and affordable foods, thereby improving population health and wellbeing.

This health impact assessment concludes that while the Tennessee Food Desert Relief Act has potential to benefit health in Tennessee, as it is currently written, it omits some key pieces that are crucial to ensuring positive health impacts. Foremost, the bill would be strengthened by the inclusion of a clear definition of the enterprises it seeks to fund, and a clarification of what will and will not be considered healthy food. Additional recommendations address potential economic impacts, such as whether foods are sourced locally, and the possibility that food retail establishments could be placed in existing, vacant buildings.

Further study on this topic has been undertaken by The Tennessee Grocery Access Task Force, with help from The Food Trust and funding from The Robert Wood Johnson Foundation. The resulting report offers ten recommendations for increasing access to healthy and affordable foods for Tennessee residents, including strategies suggested by SB 1176 and recommended in this HIA report.[1]

The assessors and steering committee are hopeful that the consideration and adoption of these recommendations will strengthen existing efforts to address food deserts in the state of Tennessee.

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Appendix A.

SB 1176 “Tennessee Food Desert Relief Act”

1176 introduced by Berke. (Companion bill: HB 1385 by Fitzhugh, Gilmore, Camper, Cooper)

Public Funds and Financing - As introduced, enacts the "Tennessee Food Desert Relief Act." - Amends TCA Title 4; Title 5; Title 6; Title 7; Title 9; Title 13; Title 67, Chapter 5 and Title 68.

Fiscal Summary

Increase State Revenue - $589,200/Over-Time $3,184,500/First Year Loan Repayments $48,019,800 Over life of the loans $29,460,000 Principal $18,559,800 Interest Increase State Expenditures - $589,200/Over-Time $14,100/Recurring/Incarceration* $3,300,000/First Year Debt Service on Bonds $48,900,000 Over life of the bonds $30,000,000 Principal $18,900,000 Interest

Bill Summary

This bill authorizes the Tennessee local development authority to issue revenue bonds and to make the proceeds available for loans to develop property for food desert relief enterprises that private industry alone would be otherwise unable to serve, at interest rates lower than would otherwise be obtainable. "Food desert relief enterprise" means a supermarket or grocery retailer that operates on a self-service basis, having at least 50 percent of revenue derived from the sale of groceries, produce, meat, baked goods or dairy products, or a farmers market, in an underserved area.

This bill authorizes the authority to:

(1) Make and undertake commitments to make loans to or deposits with a governmental entity under the food desert relief development loan program for the financing of certain enterprises under terms and conditions that:
(A) Require the proceeds thereof to be used by such governmental entity to make loans for food desert relief enterprises; and
(B) Require that no loans made by such governmental entity to finance a single food desert relief enterprise exceed the aggregate principal amount of $500,000; and
(2) Invest in, purchase or make commitments to invest in or purchase, and take assignments of loans made by a governmental entity for the construction, rehabilitation or purchase of food desert relief enterprises. No loan would be eligible for investment in, purchase or assignment by the authority:
(A) If the loan was initially made more than six months prior to the date of investment, purchase or assignment; or
(B) If the aggregate principal amount of the loan received by a person exceeds $500,000, and in computing that amount a loan received by an individual will be aggregated with those loans received by such individual's spouse and children, and a loan received by a firm, partnership or corporation will be aggregated with those loans received by each owner, partner or stockholder thereof.

Prior to an exercise of powers conferred by (2) above, the authority must:

(1) Require the lender to certify that the loan at the time of making was, is or will be in all respects a prudent investment;
(2) Require the lender to certify that it would not have made the loan if the authority had not agreed to

purchase the loan pursuant to (2) above;
(3) Require the lender to certify, if the principal amount of the loan is $200,000 or more, that the borrower has obtained at least one written declination of credit from a lender in or near the borrower's local community; and
(4) Require that the loan involved be insured by a loan insurer or be guaranteed by a loan guarantor or that the payment of principal and interest on the notes or bonds be insured or guaranteed.

Prior to the exercise of powers conferred by this bill, for all loans to be made pursuant to the food desert relief development program for food desert relief enterprises, the authority must:

(1) Require any type of security that it deems reasonable and necessary;
(2) Authorize the reservation of funds by lenders in such amounts and subject to such conditions as the authority considers reasonable and necessary; and
(3) Require that all food desert relief enterprises for which funds are advanced, loaned or otherwise provided by the authority be in compliance with any state or local land use, zoning, subdivision and other laws applicable to the land upon which such enterprise is located or is to be constructed.

Generally in regard to this bill's authorization for the authority to issue bonds, the authority may not issue bonds and notes in an aggregate principal amount at any one time outstanding exceeding $30 million.

Under this bill, it is a Class E felony for any person to knowingly make, utter or publish a false statement of substance or aid or abet another person in making, uttering or publishing a false statement of substance for the purpose of influencing the authority to make a loan or deposit to finance a food desert relief enterprise or to purchase a loan that finances a food desert relief enterprise.

Appendix B.

Key Informant Survey Instrument

Food Deserts in Tennessee

Thank you for agreeing to speak with me today about some food availability and grocery shopping issues. As you know, we are interested in learning about what foods are available near where you live, as well as some things about where you grocery shop and how you get there.

Before we get started, I just have a few questions to determine if you are eligible to participate in this interview.

- Are you 18 years old or older?
- Who typically shops for food in your household?
- If you are not the one who shops for food, can you answer questions about when, where, and how often that person shops for food?
- How far from your home is the nearest place to purchase food?

Thank you. Now we can proceed with the survey questions.

To assist with my note-taking, I would like to have your permission to tape this interview. Any information we gather will be kept confidential and will not be attributed to any individual. Do I have your permission to record this interview? [Note: if they refuse, proceed with interview unrecorded.]

Okay, let's get started with some questions about shopping for food.

1. Where do you usually shop for food?
   Probe for purchase of groceries, not meals out.
   Probe for multiple places (are there other places where you usually shop?)
   Probe to learn about type of store, not just name of specific store.

2. How far away is this place (where you usually shop) from your home?
   Probe: Is it in their neighborhood, several miles away, or many miles away?

3. On average how long does it take you to travel from your home to the place where you usually shop for food?

4. How often do you shop for food?

5. How do you get to where you shop for food?

6. Are there any places to buy food near your house that you could walk or bike to (including grocery stores, convenience stores, farmers markets, etc.)?

7. Are there any fast food restaurants near your house that you could walk or bike to?

8. What kinds of foods are available where you shop for food?

9. What problems do you face when you are buying foods?

10. Are there any foods that you want to buy that are not available where you usually shop?

11. What makes you shop at your usual place? For example, is it lower cost, or does it have better quality food or more choices?

12. When you shop, how long do you intend the food supply to last? For example, do you shop for a few days or a few weeks?

13. Do you think it's easy to find healthy foods? Why or why not?

Note: healthy food examples = fresh fruits and vegetables, low-fat dairy and milk, whole wheat bread

14. Are you able to buy healthy foods at corner stores, gas stations, or convenience stores near where you live?

15. Do people sell produce at stands or markets in the area where you live?

16. Are there ever times when you worry that you don't or won't have enough food to feed yourself or your family?

17. Are there ever times when you worry that you can't afford the food you need to buy to feed yourself or your family?

18. Do you believe that everyone in your county has the same access to food as you do?

19. To what extent do you agree with this statement: I would eat healthier food if the community stores offered more healthy options? Would you say you strongly agree, agree, disagree, or strongly disagree?

20. How likely would you be to buy produce from a mobile produce bus that would drive through your neighborhood? Would you say very likely, likely, unlikely, or not at all likely?

Now I have just a few final questions about you:

21. Do you own or have access to a car?

22. What is your zip code?

23. Are you employed for wages?
    If yes, are you employed full time or part time?

24. What is your gender? *(Don't ask if this is already evident.)*

25. Of the following, which age group are you in?

- ☐ Under 18
- ☐ 18-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59
- ☐ 60 or over

26. Of the following choices, what is the highest level of education you have completed?

- ☐ Some high school or less
- ☐ High school graduate
- ☐ Trade, technical, or vocational education beyond high school
- ☐ Some college
- ☐ College graduate
- ☐ Postgraduate degree

27. What is your race/ethnicity?

- ☐ Non-Hispanic Black
- ☐ Non-Hispanic White
- ☐ Hispanic or Latino
- ☐ Asian
- ☐ Pacific Islander
- ☐ Native American
- ☐ Other

Conclusion:
I don't have any more questions for you. Is there anything else you would like to share with me?

Thank you very much for your time and willingness to talk with me today. If you are interested in the findings from our project, we are glad to provide this information to you when it is available. *(Get contact information if interested.)*

Appendix C.

Health Impact Assessment Steering Committee Members

Name	Location/Affiliation
Beth Dodson	Prevention Research Center in St. Louis (PRC), Washington University in St. Louis
Joan Randall	Tennessee Obesity Taskforce – Nashville
Michele Gourley	State of TN – Nashville
Sarge Audisho	Meharry Medical College - Nashville
Tony Delucia	East TN State University – Johnson City
Stephanie Welch	Knox County – Knoxville
John Bilderback	Hamilton County – Chattanooga
David Schlundt	Vanderbilt University – Nashville
Brian Zralek	Local food expert - Nashville
David Mirvis	University of Tennessee - Memphis
Kathryn Hicks	University of Memphis - Memphis
Courtney Towner	Vanderbilt University - Nashville
Al Iannacone	Knox County – Knoxville
Jamye French	Knox County – Knoxville

Appendix D.

Terms of Reference (TOR) for Tennessee Food Deserts HIA

1. Steering group membership and members' roles
    - The steering group's role is to define the TOR, identify the assessors, and project manage the HIA
2. Nature and frequency of feedback to the steering group
    - The assessors will provide feedback to the steering group twice a month via email and telephone conference calls.
3. Nature and frequency of meetings of the steering group
    - The steering committee will meet twice a month between February 21 and April 30, 2012, via telephone conference call. Other business will be conducted intermittently via email (e.g., document review).
4. Aim, purpose, scope of work should be outlined –what is to be included and excluded and boundaries of HIA in time and space
    a. Aim/Purpose – To conduct a rapid HIA of SB 1176
    b. Scope of Work
        i. Geographical boundaries of HIA
5. Methods to be used in the assessment
    a. Policy analysis
    b. GIS mapping of food deserts statewide
    c. Use of secondary data from CDC and/or State Dept. of Health. Use of data from Food Trust.
6. Form and content of project's outputs and conditions associated with their production and publication (e.g., ownership, confidentiality, copyright)
    a. Assessors will produce a final report including specific recommendations
    b. Report will be produced in hard copy and electronically, and posted online by TN Obesity Taskforce, PRC, HIA Gateway and others, as appropriate
    c. Shorter summaries/policy briefs will be created for various audiences
    d. Ownership, copyright, confidentiality - report will be disseminated widely. Assessors and funders retain the right to publish findings.
7. Timeline
    a. Project to be completed April 30, 2012.
    b. See Appendix E
8. Budget and sources of funding

a. Source of funding is grant from the National Cancer Institute awarded to Ross Brownson at the Prevention Research Center in St. Louis
b. Budget:
    i. Consultant time (one consultant at 10 hours/week)
    ii. Staff time at PRC – in kind
    iii. Data collection
    iv. Travel
    v. Production of final report and dissemination of findings

Appendix E.

Rapid HIA Timeline

Methods and Procedures		Deadline
Screening		January 1
Establish a Steering Committee and agree on Terms of Reference	• Determine who should be part of group • Approach/invite • Schedule conference call with full group	February
Scoping		February 15
Conduct Assessment		
	Policy analysis	February 24
	Profiling of communities	March 2
	Quantitative data collection (collect evidence from additional/previous reports, etc.)	March 30
	Impact analysis (Identify health determinants affected and assess evidence)	April 6
	Establish priority impacts	April 13
	Recommendations developed	April 20
	Process evaluation	Ongoing
Report on health impacts and policy options		April 30, 2012
Collect additional qualitative data	Conduct key-informant interviews	May, 2013
Monitor and conduct impact and outcome evaluation		Ongoing