

# Improving Local Food Access in Rural Communities

## Prioritizing Farmers' Markets to Best Combat Food Insecurity in Essex County, New York

### Overview

Farmers' markets play an important role in enhancing access to locally sourced and healthy agricultural products among food insecure residents.<sup>1,2</sup> On average, food insecure residents infrequently attend these markets.<sup>3,4</sup> However, acceptance of the Supplemental Nutrition Assistance Program (SNAP) could promote affordability and accessibility among this population through the reduction in prices for select nutrient-dense food items.<sup>4</sup> According to the Dietary Guidelines for Americans, nourishing food include fruits and vegetables, lean protein, dairy products and whole grains.<sup>5</sup> Farmers' markets offer a variety of these products, and research confirms attendance is frequently correlated to improved consumption of fruits and vegetables.<sup>6</sup>

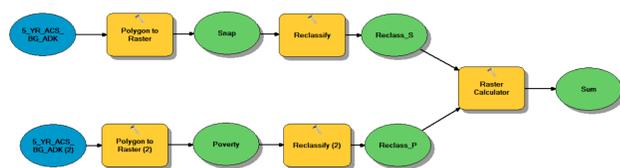
Essex County in New York recently started mobilizing to establish a SNAP Electronic Benefit Transfer (EBT) system that allows farmers to accept food assistance benefits at select markets. Feeding America *Map the Meal Gap* study estimated approximately 9.9 percent of the Essex County population as food insecure.<sup>7</sup> This county particularly celebrates local agriculture. Reducing barriers to attend farmers' markets will encourage more participation among low-income and food insecure populations – This helps reduce healthy food accessibility issues and encourages a stronger sense of community.

This analysis identifies priority markets in Essex County that serve the most residents who are impoverished and / or enrolled in SNAP. With better knowledge of where these residents are located, the first SNAP EBT interventions can be placed strategically to generate the biggest impact on increased local food accessibility.

### Methodology

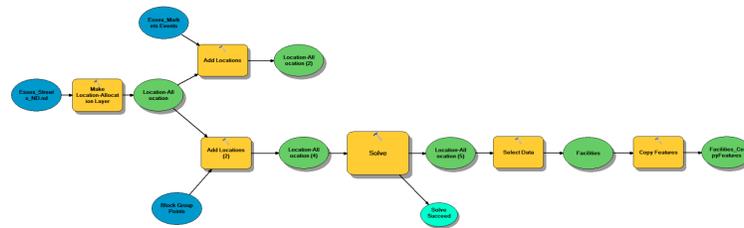
#### Part A: Creating a Map of Potential Food Insecure Residents

The following model was created to identify areas of Essex County with high densities of residents who are considered impoverished by the federal standard and residents who are enrolled in SNAP. This model assumes these two populations likely struggle with the greatest rates of food insecurity. American Community Survey 2012–2016 (ACS) data for the total number of residents in poverty and enrolled in SNAP was normalized by hectares. These rasters were reclassified on a scale from 0–5 (0 = Absolute No Priority, 5 = Very High Priority) – Areas dense with poverty or SNAP enrollment areas were prioritized higher. Map algebra was conducted for a summary raster that identifies the high priority areas for SNAP EBT placement based on likely presence of food insecurity. *Note:* SNAP enrollment was weighted double than poverty status since acceptance of EBT benefits most strongly influences these residents.



#### Part B: Location Allocation

Network analysis was done to allocate specific farmers' markets to ACS block group centroids. The cutoff impedance was based on the United States Department of Agriculture (USDA) definition of rural food accessibility (food retailer must be within 10 miles or less). Summary statistics identified the farmers' markets with greatest demand among block groups containing high rates of poverty or SNAP enrollment.



#### Part A

The reclassification of raster maps (Figure 1) identified several block groups with great potential for food insecure residents. Two locations in the South Eastern part of Essex County (Figure 2) contain some of the greatest residents impoverished and / or enrolled in SNAP per hectare. These locations make for notable priorities when selecting a farmers' market for SNAP EBT technology.

Table 1. Results from Location Allocation model describing number of food insecure residents served at each location.

Facility ID	Number of Block Groups Served	Total Enrolled in SNAP	Total Impoverished
1—Ausable Valley Farmers' Market	3	31	139
2—Elizabethtown Farmers' Market	4	69	155
3—Keene Farmers' Market	1	33	24
4—Keeseville Farmers' Market	3	84	200
5—Lake Placid Farmers' Market	3	8	142
6—Lake Placid Farmers' Market	3	61	141
7—Port Henry Farmers' Market	6	132	426
8—Saranac Lake Farmers' Market	2	20	104
9—Ticonderoga Farmers' Market	6	194	278
10—Willsboro Farmers' Market	3	29	156

### Results

Figure 2. Identified Priority Locations with Location Allocation Model

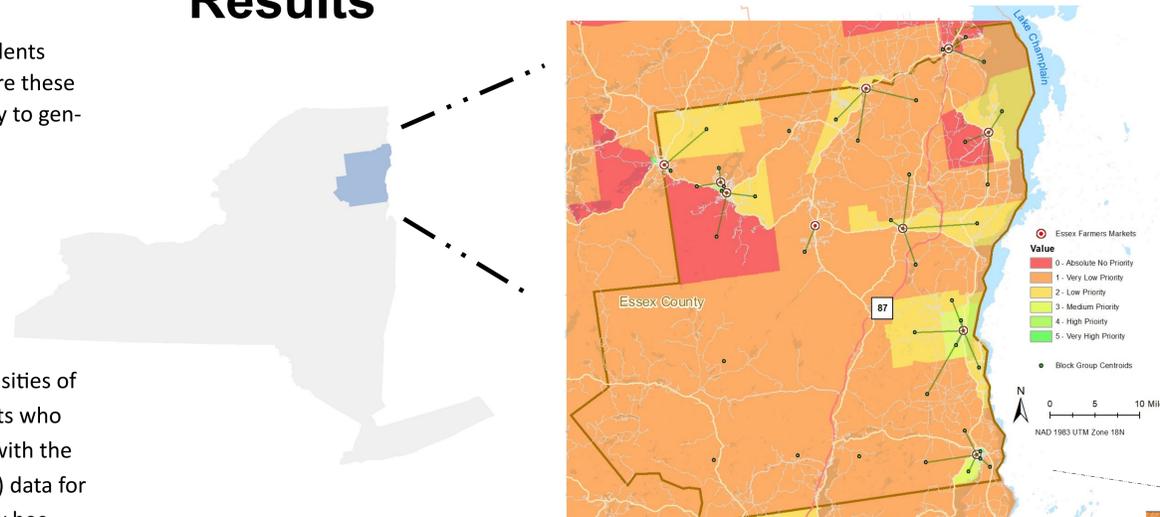
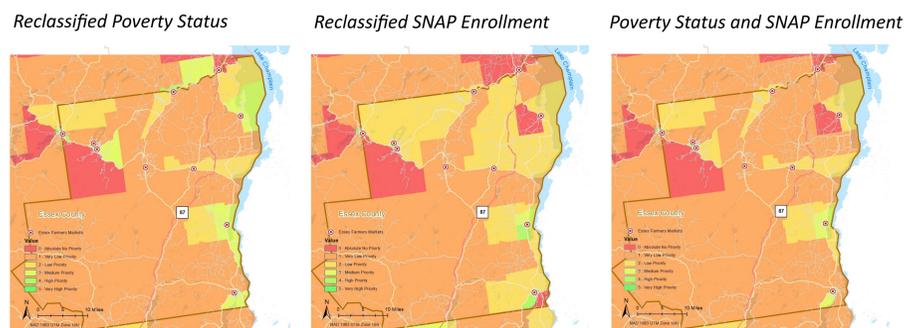


Figure 1. Reclassification of Raster Maps



#### Part B

The location allocation model indicated two farmers' markets that serve ACS block group regions with high levels of poverty and SNAP enrollment. Table 1 describes how many block groups were allocated to each market and the associated total number of residents vulnerable to food insecurity.

### Conclusion and Limitations

The Port Henry and Ticonderoga Farmers' Markets appear to serve the most vulnerable populations to food insecurity and should be prioritized for the placement of SNAP EBT technologies. However, there are severe limitations with this evaluation and recommendations should be taken with caution. First, the granularity of ACS block group data is not exceptional, and this likely homogenizes population characteristics to broader areas than what is reflected in reality. Additionally, this data

is not current and likely does not reflect the current SNAP enrollment and poverty status among Essex residents. Second, the location allocation was conducted with tight and specific limitations. Any block groups that fell outside of the Essex County boarder were not considered in the allocation. Additionally, the 10 mile impedance cutoff left several block groups unaccounted for in the final analysis. The assumption that residents leave from the centroid is inaccurate, and skews the final conclusion.

Last, this analysis does not account for shopping behaviors that might encourage consumers to attend other markets than the one closest in distance.

#### References

- Lowery B, Skaine D, Paylin D, Blum J, Lewis L. Do Farmers' Markets Increase Access to Healthy Foods for All Communities? Comparing Markets in 24 Neighborhoods in Los Angeles. *J Am Plan Assoc.* 2016;82(3):252-266. doi:10.1080/01944963.2016.1181000
- Wang K, Qiu F, Swallow B. Can community gardens and farmers' markets relieve food desert problems? A study of Edmonton, Canada. *Appl Geogr.* 2014;55:1273-1377. doi:https://doi.org/10.1016/j.apgeog.2014.09.010
- Cole K, McNeese M, Kinney K, Fisher K, Krueger JW. Increasing access to farmers markets for beneficiaries of nutrition assistance: evaluation of the farmers market access project. *Prev Chronic Dis.* 2013;10:E168-E168. doi:10.5888/pcd10.130121
- Freedman DA, Hoek S, Shon L, et al. Farmers' Market Use Patterns Among Supplemental Nutrition Assistance Program Recipients With High Access to Farmers' Markets. *J Nutr Educ Behav.* 2017;51:397-404.e1. doi:https://doi.org/10.1016/j.jneb.2017.01.007
- United States Department of Agriculture. Dietary Guidelines for Americans. <https://www.choosemyplate.gov/dietary-guidelines>. Published 2016.
- Jilcott Pitts SB, Gustafson A, Wu D, et al. Farmers' market use is associated with fruit and vegetable consumption in diverse southern rural communities. *Nutr J.* 2014;13:1. doi:10.1186/1475-2875-13-1
- Feeding America. *Map the Meal Gap 2018*. 2018. [https://www.feedingamerica.org/sites/default/files/research/map-the-meal-gap-2018/overall/NY\\_allCounties\\_CDS\\_MMIS\\_2016.pdf](https://www.feedingamerica.org/sites/default/files/research/map-the-meal-gap-2018/overall/NY_allCounties_CDS_MMIS_2016.pdf).