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.1-3 On average, food insecure residents infrequently attend these markets.4,5 However, acceptance of the Supplementary Nutrition Assistance Program (SNAP) could promote affordability and accessibility among this population through the reduction in prices for select nutrient-dense food items.6 According to the Dietary Guidelines for Americans, nourishing food include fruits and vegetables, lean protein, dairy products and whole grains.7 Farmers’ markets offer a variety of these products, and research confirms attendance is frequently correlated to improved consumption of fruits and vegetables.8

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.9 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 SNAP enrollment. 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 influence 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.

Results

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.