

# Community Based Solutions to Spatial Inequity and Food Insecurity in Rural Frazeysburg, Ohio

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## Introduction

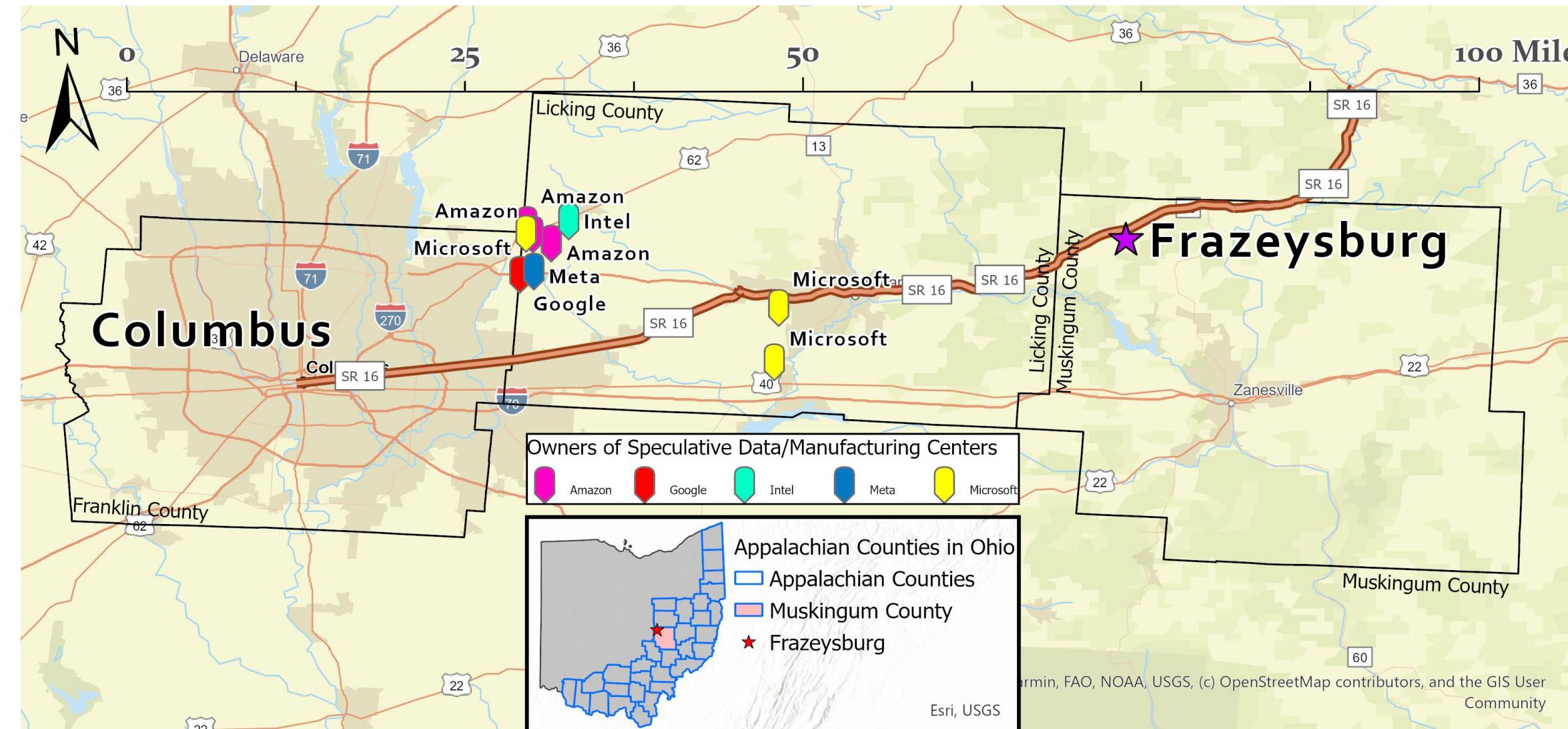
Rural Appalachian communities experience some of the highest rates of poverty and food insecurity in the US. These challenges are rooted in decades of deindustrialization, geographic isolation, and struggling local markets. In the case of Frazeysburg, Ohio, these structural vulnerabilities were deepened in 2024, when an EF-2 tornado (Figure 1) destroyed the village's last remaining source of healthy groceries, isolating households from walkable access to fresh food.



## Study Area & Problem

Frazeysburg, Ohio is a rural village of 1,377 residents in northwest Muskingum County. Roughly 14.2% of the population lives below the poverty line, above both the state average (13%) and the national average (11.5%). Nearly 29% of households rely on SNAP benefits, and 24% of residents are over the age of 65.

We chose this town due to its unique positioning, situated at the intersection of Appalachian post-industrial poverty and the rapidly expanding tech-driven development often referred to as Ohio's "New Silicon Valley". This new wave of investment has dramatically altered regional market dynamics, skyrocketing electricity prices, speculative property consolidation, and the overall cost of goods and services. These factors are ultimately eroding affordability within the region for homeowners and renters alike.



Given these challenges, affordability, and in particular, groceries, have become a central concern. With this in mind, and with an emphasis on fresh local produce, we chose to focus this study on healthy food access as a pathway to improving community nutrition, strengthening local economic development, and addressing both the immediate impacts of poverty and its deeper structural causes.

## Methodology

To examine access to healthy food and identify potential solutions, we conducted a Social Network Analysis (SNA) of Frazeysburg's food system. This allowed us to map the relationships among residents, producers, retailers, institutions, and external supply chains to identify key leakages and leverage points for improving local food security. We used this analysis to answer the following questions:

- What are the barriers to local food production and consumption?
- What vulnerabilities exist within the food system?
- What community driven solutions could be feasibly implemented to address the above findings, ultimately helping to promote local food sovereignty in Frazeysburg?

### 1. Baseline Observational Local Food System Assessment

We conducted site visits to Frazeysburg's local food establishments to document the availability and quality of healthier food options within the village. National chains (Subway, Dairy Queen) were excluded, and Olde Village Meats was reviewed online. These observations established a baseline understanding of the limited and predominantly high-sugar/high-oil food landscape.

### 2. Publicly Administered Food Access and Experience Survey (n = 64) with follow-up conversations (n = 7)

An anonymous survey, made in Google Forms, was distributed at the Frazeysburg Homecoming Festival via paper copies and Facebook outreach. The survey captured household food practices, travel times, transportation access, retailer preferences, dietary needs, desired local products and visions for an improved food network. Responses were cleaned, summarized and geocoded in ArcGIS Pro to visualize travel distances and spatial accessibility.

### 3. Semi-Structured Interviews (n = 6)

Six key informants (local farmer, market operator, food pantry operator, mayor, retired veteran and mother of two) participated in anonymized interviews exploring lived experiences, historical turning points, barriers for producers and consumers, and aspirations for the future food systems.

### 4. Review of Federal, State, and Local Food Regulations with Land Use and Zoning Analysis

Using 30m USGS land cover data for Jackson Township, which contains Frazeysburg, we quantified agricultural, forested, and developed land. This analysis helped assess local production capacity, competition, and potential partnerships for scaling up local food supply. We then examined the zoning maps and parcel information from the Muskingum County auditor to understand the local ownership patterns and land use restrictions.

### 5. Literature and Regional Best Practice Studies

To determine possible solutions, we explored local food best practices through available literature as well as a review of similar regional food systems including Community Food Initiatives.

## Key Findings

### Barriers to Healthy Food

- No walkable access to fresh produce and no public transit.
- 97% rely on vehicles for groceries.
- 94% travel 15-40 minutes one way often to Newark or Zanesville.
- High market entry costs for farmers, processors, and retailers; intensified by market dominance of national retail and processing conglomerates.
- USDA funding is often inaccessible to small and medium-scale farmers in the region, as nearby industrial corn and soy monocrop operations disproportionately capture the limited funding.

- Furthermore, USDA discontinuation of funding to the Appalachia Regional Food Business Center has reduced available support.
- Local farmers and local convenience market not set up to accept SNAP electronic benefits transfer.
- Low/lack of digital discoverability for most local farmers and retailers.

### Vulnerabilities

- Dwindling local food economy, low exchange and circulation of value.
- Declining government support has led to the burden of hunger being shifted to the non-profit sector, which has scarce resources. AIM Outreach is the village's only consistent emergency food provider, but capacity is strained by rising need and full reliance on donations.
- The region's farmland is 17% industrial corn and soy operations; high vulnerability to soil degradation, market crash, or crop infestation.
- Dwindling natural resources for local food production. Much of the farmland and water rights are now being purchased by speculative suburb and tech-sector developers.
- Supply chain mapping of Family Dollar shows only 7 of 72 food distributors are in Ohio and 24% of products trace back to just 5 national/international food manufacturing conglomerates.
- Overreliance on globalized supply chains, processed food from non-Ohio manufacturing conglomerates, and 20+ minute commutes to distant big box retailers (Figure 3). Vulnerability to failures in automobile hardware, infrastructure, and fuel industries as well as global supply chain disruptions. Conglomeration of market power creates dangerous potential for monopoly market manipulation and price hikes.



Figure 6: Reported Food Retailers and Markets near Frazeysburg. Proportional count of respondents who travel to each particular retailer.

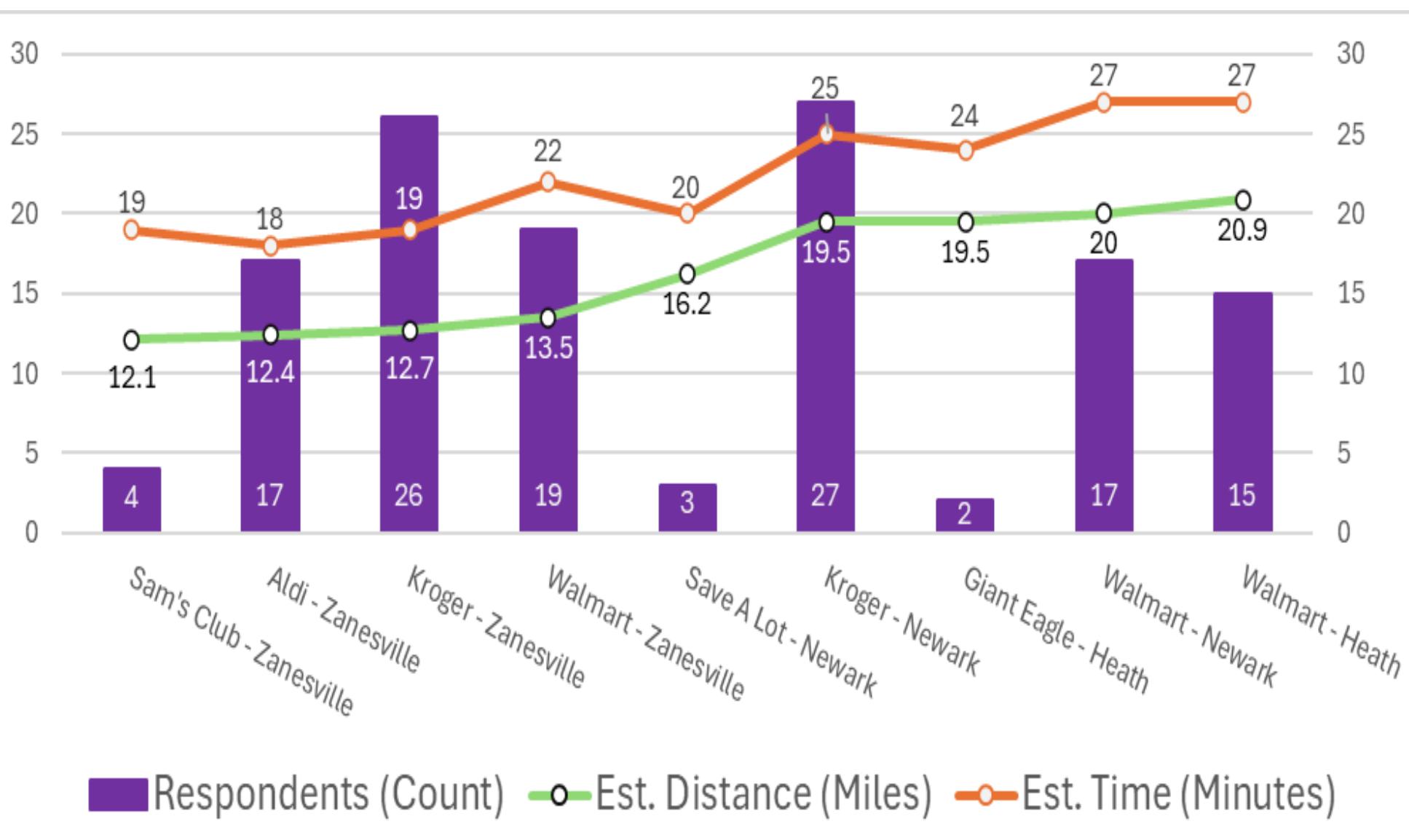


Figure 3: Travel times and distance show food access requires a 15 to 40 minute drive for most residents

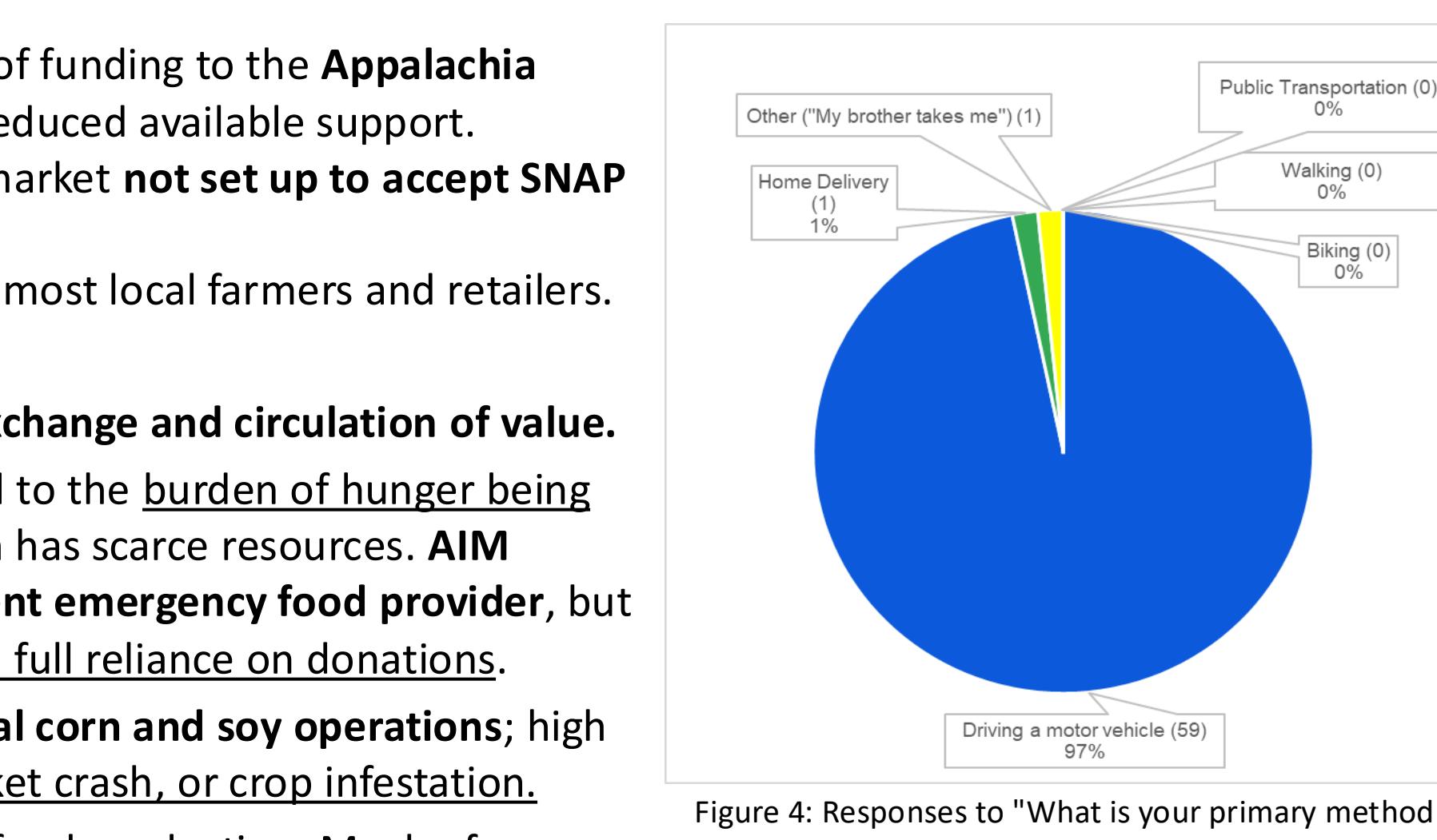


Figure 4: Responses to "What is your primary method of transportation to your main food retailer?"

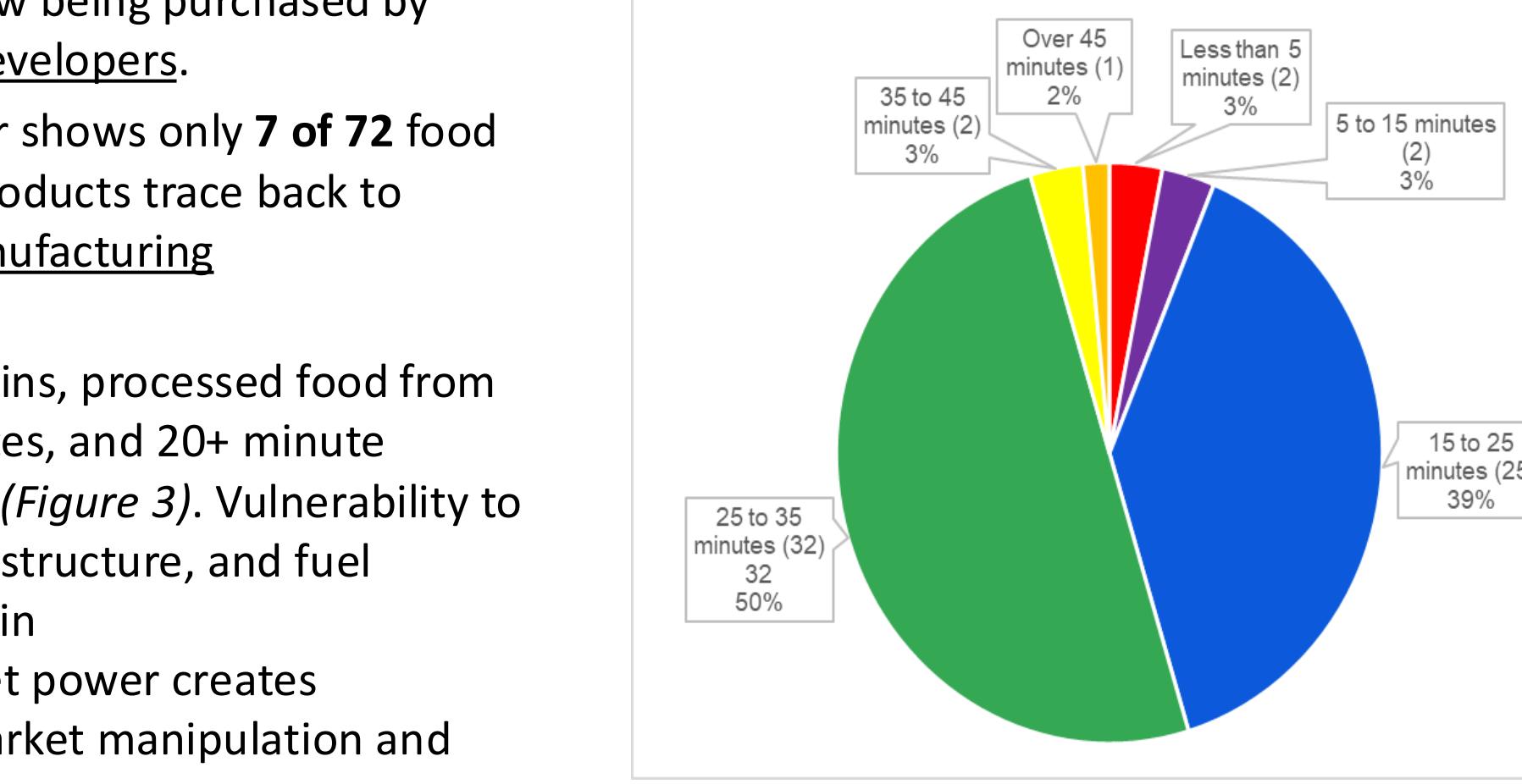


Figure 5: Responses to "How far of a commute (in minutes) is it to your primary food retailer?"

## Local Development Goals

### Community Priorities

- Survey respondents most frequently requested:
  - New grocery store (38 mentions)
  - Farmers market (25 mentions)
  - Hybrid grocery + farmers market model (12 mentions)
- Residents emphasized affordability, fresh produce, soil-grown foods, and walkable access (Figure 7).
- Some residents expressed quality concerns about hydroponic produce.

## Proposed Solutions

### Phase 1: Short Term/Low-Cost Interventions (1 Week to 6 months)

- Create e-commerce platform for Praters Market and local producers to serve as informational resource/hub for online discoverability of local businesses. Includes SNAP electronic benefits transfer (\$10-30/yr custom domain name).
- Prater's Market pick-up & delivery grocery orders to bridge time and transportation access gaps (\$\$ TBD).
- Seek partnership with local dollar store or gas station to distribute some of praters market stock and food from other local producers (\$\$ TBD).
- Assist local farms in USDA grant applications (Cost-free).

### Phase 2: Medium Range Development (6 months to 1 year)

- Reactivate the closed Wolford Market into a farmers' market. This building is an ideal asset for creating a competitive retail cluster leveraging proximity to existing businesses (Fallsbury Pizza, Family Dollar and BP Gas). DK Plastic Manufacturing enables possibility of recycling and fabrication partnership (Free licensing, Wolford Market property valued at \$270,400, final cost depends on rent or land purchase settlement).
- Educational partnerships with local elementary school, Future Farmers of America Chapter, Zane State Technical College, OSU and OU using USDA curriculum and local food system elements for active and applied learning opportunities. Some residents and farmers currently run or expressed interest in leading production and processing workshops (Possibly low to no cost due to existing educational infrastructure and volunteer labor offerings).

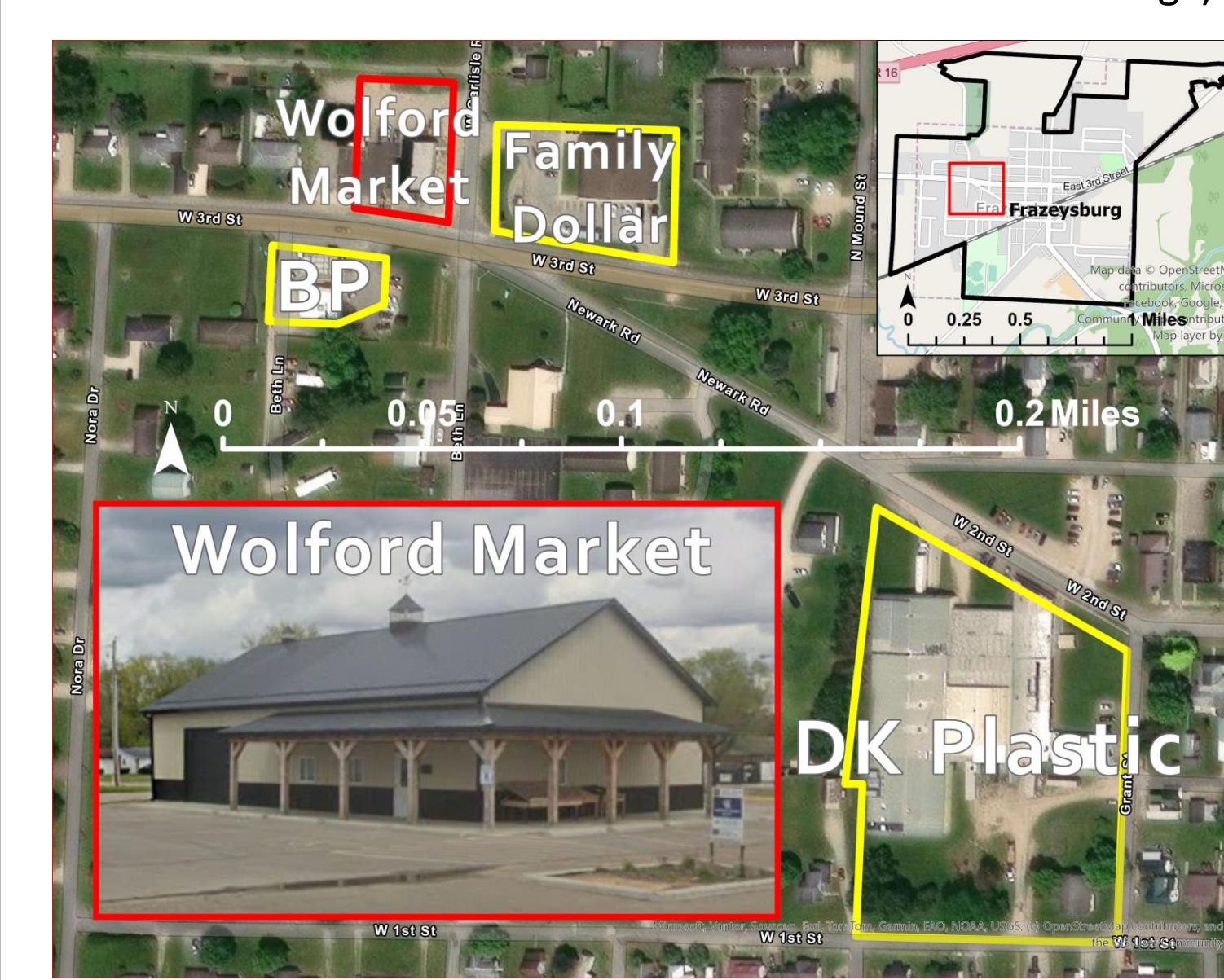


Figure 8: Wolford Market within Prospective Retail Cluster in Frazeysburg

## Acknowledgements

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Figure 7: Word cloud based on highest frequency in answers to survey prompt: "What foods would you like to see made available from local sources in Frazeysburg?"

- Supplement seasonal offerings with year-round indoor/greenhouse production of fruits, vegetables, and mushrooms. Wolford Market has ample exterior and interior space, as well as utility and cold storage infrastructure to support such operations. Use of robotics and AI monitoring/decision support can significantly reduce labor and resource costs while dramatically improving yield. OSU's intelligent Cyberinfrastructure with Computational Learning in the Environment (ICICLE) initiative could be a key partner for hosting data and software operations as well as low-cost tech support and educational collaboration (\$10,000-\$50,000).
- Create a shared-use kitchen out of the Wolford Market or a closed restaurant. This would enable local food entrepreneurs market entry without steep cost barrier of equipment and permitting. This could also serve as a food processing and employment hub, expanding the export capacity of the community. Furthermore, this could assist the farmers market in expansion towards a full-service grocery store, offering more than just raw farm produce. Multiple closed local restaurants could potentially supply discount equipment to cut costs. Community Food Initiatives and ACENetwork's shared use kitchen in Athens can serve as both a model and funding source (~\$300,000 but can be decreased by equipment salvaging and grants).

## Bibliography

