



## Food System Research Collaborative

at the University of Vermont Center for Rural Studies

### *Regional Food Systems Planning: A Case Study from Vermont's Northeast Kingdom*

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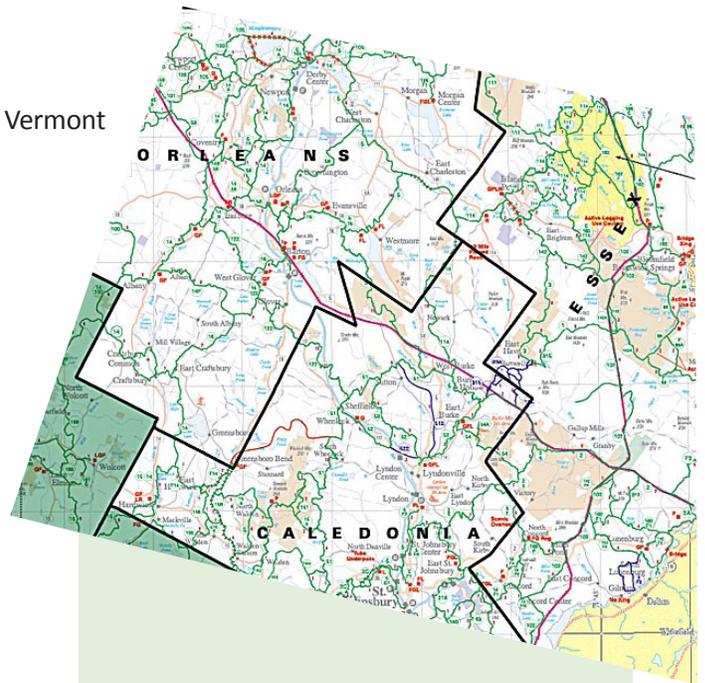
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#### ABSTRACT

The number of food systems plans being developed across the United States and Canada are growing. These plans have been undertaken by states, regions, counties and municipalities and share a common focus on advancing the capacity of the food system. This paper provides an overview of how one rural, three-county region, the Northeast Kingdom (NEK) of Vermont, has undertaken a regional food system planning and assessment process. The project is led by a regional planning commission and economic development corporation, Northeastern Vermont Development Association (NVDA). Working with the region's leading local food hub organization, the Center for an Agricultural Economy (CAE), the year-long planning process has led to the creation of a strategic plan that includes asset maps; goals, targets, and measures; a governance network analysis for support-system actors; recommended strategies and action items; and a proposed implementation framework. We compare the NEK planning process to other previous efforts and draw some conclusions about rural regional food systems planning more generally.



#### KEY FINDINGS

Using all the research and public engagement findings, the Center for an Agricultural Economy developed goals, targets and measures. Ten overarching goals were selected that are in alignment with the Vermont Farm to Plate Strategic Plan goals, yet are broader and more regionally applicable than the 33 state-wide goals. Each goal has a number of immediate, near-, mid-, and long-term targets with appropriate measures and available data sources.

## Food systems planning and development

The development of food system plans and assessments by localities, regions and states has been a relatively recent phenomena in the United States (Pothukuchi and Kaufman, 1999). This is despite the fact that prior to the proliferation of cheap modes of transportation and industrial farming and processing, all food systems were regionally based, constrained by the limits of the land, climate and local farmers. With the growing awareness of climate change, the draw backs of globalization, and the increased desire and sensitivity toward sourcing food more locally or regionally, a conceptualization of the “local” or “regional” food system has taken root in the imaginations of planners, environmental advocates, researchers, local and regional agriculturally-based businesses, and governments sensitive to the health and economic benefits of resilient food systems. The extent to which these actors can undertake effective, coordinated strategic action to support the growth and resilience of local communities remains to be seen.

It was not until the late 1990s that planning scholars (Pothukuchi and Kaufman 1999, 2000) began writing about the lack of food systems planning by planning professionals (Raja et al. 2007). This is despite the fact that food systems and access to food are highly impacted by traditional planning realms including transportation, land use and zoning, and economic development (Pothukuchi and Kaufman 2000, Raja et al. 2007). In the 1990s, community food security assessments were undertaken that laid the foundation for the development of food systems plans at the local, regional and state levels. These early efforts hinged on addressing questions of food access and who had the ability to obtain food (Eckert 2010).

While community food security is still an important issue, food systems planners are increasingly focusing on economic development, transportation,

the environment, and land use issues. Food system planning generally involves the, “integration of food system issues into policies, plans, and programming at all levels of government work” (DVRPC 2010, p. 3). The American Planning Association began offering food systems planning at their annual conference in 2005, and has since adopted a policy guide on food systems planning and published a planners’ guide to community and food systems planning (Raja et al. 2007).

Different states, regions or localities will sometimes articulate their goals along the lines similar to those articulated in a plan written by the Delaware Valley Regional Planning Commission (DVRPC), which lists the following goals that can be achieved through their food systems planning efforts:

- Inform the decision-making process (e.g., conduct needs assessment, food production inventory, etc.)
- Encourage sustainable food production (e.g., zoning, farm land preservation, etc.)
- Improve healthy food access (e.g., connect healthy food outlets and farmers’ markets to SNAP benefits, etc.)
- Support the local food economy (e.g., local food procurement policies, education, farm to school programs, etc.)
- Minimize or reuse food waste (e.g., assess zoning and regulations for composting, etc.) (DVRPC 2010, p. 3)

Food systems plans are, essentially, blueprints for harnessing this complexity to achieve desired outcomes. To effectively develop food systems, planners, policy makers and other stakeholders need to consider how the parts of the food system interact, how the parts add up to the development of the food system as a whole, and how emergent behaviors and actions evolve from this complexity. Food systems plans may suggest that efforts be made to alter food consumers’ behaviors or make policy recommendations—focusing on needed changes to the regulatory structure, the offering of incentives and supports, and other policy tools that are thought to aid in the development of a food system.

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If done effectively, food systems planning processes can build a region's capacity and focus attention and resources on the critical leverage points in the system that yield the most desirable outcomes.

In the next section, we describe how one region of Vermont has structured its food system plan. We describe the processes used to collect data and garner community input, discuss major elements of the plan, including a summary of the goals and actions being recommended. We conclude the case by looking at how the plan may, ultimately, be implemented and how progress may be tracked over time.

## Case study: Food systems planning in Vermont's Northeast Kingdom

The Hardwick region of Vermont's "Northeast Kingdom" has become internationally recognized as a leader in rural food systems planning and development. Over the past decade the Hardwick region has seen growth in the number of value-added food producers. The history of the growth of the area's food systems is captured in Ben Hewitt's book "The Town that Food Saved." The Northeast Kingdom Food Systems Strategic Plan (NEKP) came about in 2010 through the desire of the regional planning commission (RPC) to assess the current regional food system and choose strategies that will further develop the food system and enhance economic development for the region. Seeing the success of food systems business in the Hardwick area, the RPC, the Northeastern Vermont Development Association (NVDA), hoped to better understand the potential for developing successful food system clusters in other communities in the Northeast Kingdom (NEK). The Center for an Agricultural Economy (CAE) was selected in a competitive RFP process to undertake the effort. The CAE promised to develop an NEK Food Systems Strategic Plan over a twelve month period.

Building upon the Hardwick food system model as well as from the research

and planning literature, (including food systems plans from throughout the US and Canada), the CAE developed a conceptual working model to assess and plan for the regional food system (see figure 1 below). The model contains seven core elements: Production Inputs, Production, Processing, Wholesale Distribution, Retail Distribution, Consumption and Consumer Demand, and Waste Management (also referred to as nutrient or organics management). Support system, such as financing, technical assistance, and education, impact each component of the food system and provide critical external support. Although it is a very typical process-oriented, food cycle model (Sabel et al., 1998), its also includes how the elements of the cycle are influenced by internal and external feedback loops.

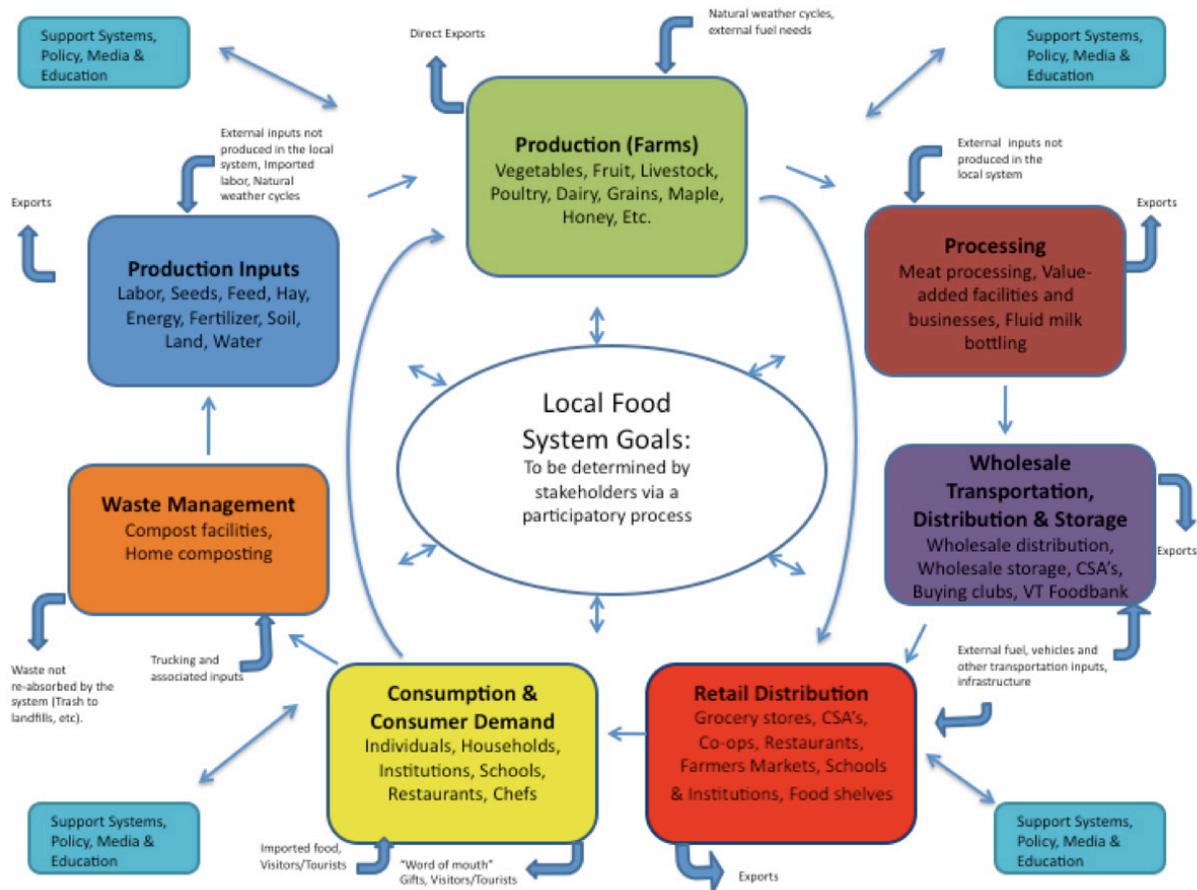
## Elements of the planning process

The CAE formed an advisory committee at the onset of the planning process. This diverse committee included individuals representing farms, value added food production, farm-to-school programs, higher education, local food groups, retail distribution, and economic development. This committee met bi-monthly to provide input on the planning process and to help develop goals, strategies, and action items.

The planning process included 40 interviews with various stakeholders within the NEK, including farmers, value-added producers, food processors, compost and seed company owners, wholesale and retail distributors, farmers' market managers, institutional purchasers, and a variety of support-system organization personnel, including farm to school, business assistance, and economic development. An additional 15 people were interviewed outside of the NEK, including individuals from the University of Vermont, the Vermont Sustainable Jobs Fund, and the Vermont Agency of Agriculture, Food and Markets.

A great deal of regional data was collected from numerous sources to provide a current snapshot of the NEK food system, including: U.S. 2007 Census of Agriculture, USDA Food

Figure 1. Model of food cycles and feedback loop



Environment Atlas, Bureau of Labor Statistics, Leopold Center for Sustainable Agriculture, Vermont Department of Labor, Vermont Department of Health, NOFA-VT, and the Vermont Agency of Natural Resources.

An extensive asset inventory was also developed, including NEK farms by type, food processors and specialty businesses, food consumption locations, food access sites, distribution networks, and producers by type with direct sales (e.g., CSAs, farm stands, farmers' markets, etc.). With assistance from regional planners from NVDA, GIS maps were developed from the asset data. These maps are presented in the final plan and will be used by NVDA to conduct future regional food systems planning. They will be available to individual towns seeking resources to help update or create food system and agricultural components to town plans.

This extensive outreach and data collection effort contributed to the development of a SWOT analysis. SWOT analysis is a tool for strategic planning that includes assessments of gaps and opportunities. SWOT stands for Strengths, Weaknesses, Opportunities, and Threats. The CAE developed SWOT tables for each of the key elements of the food system model: Production Inputs, Farming & Food Production; Food Processing; Distribution & Storage; Retail and Consumption; and Waste Management. The SWOT analysis was used as a tool to assist project staff and the advisory committee to formulate goals, targets, and action items.

To gain feedback on the draft goals, targets, measures, and recommended action items, three public food system summits were held throughout the region. Plan

findings were presented and the public engaged in a “World Café” discussion forum where they reviewed the goals and recommendations and provided feedback. The discussion forum allowed for inclusive discussion and cross-pollination of ideas, resulting in thoughtful critique of the goals and recommendations.

## Alignment with the state’s Farm to Plate plan

Using all the research and public engagement findings, the CAE developed goals, targets and measures. Ten overarching goals were selected that are in alignment with the Vermont Farm to Plate (F2P) Strategic Plan goals (VSJF, 2011), yet are broader and more regionally applicable than the 33 state-wide goals. Each goal has a number of immediate, near-, mid-, and long-term targets with appropriate measures and available data sources. The draft recommendations were also closely compared with Vermont’s F2P strategies to ensure coordination.

As with the F2P goals, the NEK plan supports all sixty F2P strategies. To help coordinate F2P Strategies with NEK Strategies and Action Items, we coded F2P strategies into three categories:

- State-level applicable (NEK will support strategy but it is relevant on the state-wide level)
- Sub-state/regionally applicable and NEK-relevant (Strategy is relevant to the NEK and can be implemented on a sub-state/regional level)
- Sub-state/regionally applicable but not a priority strategy in the NEK

As noted, the NEK plan strategies and action items are intended to be applicable at the regional-level and are tailored to the unique qualities of the region. With an understanding of which F2P strategies are relevant to the NEK, recommendations were developed with consideration to the current state of the regions’ food system, as well as emerging trends and potential opportunities.

## Final report format and Recommendations

Recommendations are organized by goals. Each goal has between two and seven recommendations to help reach that goal. Some recommendations are broader strategies and others are very concrete action items. Each recommendation is accompanied by an evaluation system that includes: Priority Level; Implementation Target; Ease of Implementation; and Potential Implementing Actors and/or Funding Sources. This evaluation system was developed using interview findings and especially with feedback from participants at the public planning sessions.

Table 1 lays out the list of goals and recommended strategies and action items has been substantially revised: there are only select recommendations presented, the recommendations are condensed, and they do not contain the evaluation system. For a full version of the NEK plan goals and recommendations, please see: [www.hardwickagriculture.org](http://www.hardwickagriculture.org) or [www.nvda.net](http://www.nvda.net)

Another central feature of the NEKFSP is a set of food systems performance measures and a plan for how to track them over time. The performance measurement framework consists of a logical model approach that ties the broad ten goals (impacts) to targets (outcomes) with corresponding measures (outputs). In the final chapter of the plan, specific measures and data sources are listed that correspond with each goal and target. Taking a participatory approach, there was a concerted effort to get as much input as possible from various stakeholders, including local experts, farmers, CAE board members, and staff. Measures were also chosen by the standard of being simple, valid, clearly defined, reliable, measurable, and quantifiable (Levinson et al., 1999). Some of the data needed for the indicators are available from readily obtained sources, while other critical data are unknown and will need to be collected via surveys or other data collection methods.

The NEK plan strategies and action items are intended to be applicable at the regional-level and are tailored to the unique qualities of the region.

To successfully implement the plan, there needs to be a strong understanding of which actors can work together to carry out the recommendations and provide governance for the regional food systems development. The CAE, with the help of UVM researchers has developed a governance network map

of who these actors are, what are their roles and activities, and how they may go about implementing the plan in a coordinated manner. Although this map will likely evolve over time, the map presents one possible way to implement the extensive action items listed below.

Figure 1. Summary goals and select recommendations

NEK Goals	Select Recommendations
GOAL 1. The Northeast Kingdom will have increasingly localized, affordable, and sustainable farming and production inputs including energy, fertilizer, seeds, forage, and feed.	1.1. Invest in renewable energy for food production and energy efficiency programs, and increase the amount of on-farm power generation.
GOAL 2. More food will be produced in the Northeast Kingdom for local and regional markets; production will continue to diversify, and farmers and food producers will be able to be profitable.	2.1 Study the challenges (e.g., safety, etc.), activities, and profitability of diversified farms and assist farms transitioning to diversified farming 2.2 Promote the production of niche markets (e.g., aquaculture, dairy beef, hogs, etc.) if there is evidence of demand.
GOAL 3. The NEK food processing and manufacturing sector will grow, increasing value-added food production and providing farmers and producers with additional local and regional markets.	3.1. Lightly process locally grown fruits and vegetables at processing facilities 3.2. Increase meat processing capacity and assist farmers to stagger their slaughter dates throughout the year.
GOAL 4. There will be a sufficient supply of storage, aggregation, distribution, telecommunications, and other forms of on-farm and commercial infrastructure to meet increasing year-round consumer demand.	4.1. Increase food distribution by coordinating with wholesale distributors and trucking companies. 4.2. Support Food Hub models of distribution and build new aggregation facilities.
GOAL 5. The demand for local food will increase, local food consumption will rise, and appropriate marketing channels will help drive the demand for local food up, including agritourism, regional marketing, buy local campaigns, matchmaking and brokerage services, and education and awareness.	5.1. Assist food producers interested in scaling up to sell to larger markets. 5.2. Market local foods to residents and tourists and educate the public about the benefits of eating local food.
GOAL 6. Farm and food wastes will be recycled to produce compost and energy that will be used as production inputs.	6.1. Support existing and develop new programs and facilities that support nutrient/waste management.
GOAL 7. NEK residents will increasingly become more food secure; will have economic access to fresh, healthy, and local foods; and food-related health outcomes will be improved.	7.1. Develop a comprehensive gleaning program in the NEK. 7.2. Expand the use of EBT machines to all farmers' markets. 7.3. Form a NEK Food Security Coalition to address food insecurity.
GOAL 8. Agricultural land will remain open and available to future generations of farmers and the food system will have increasingly positive impacts on environmental quality.	8.1. Develop new and support existing programs to increase access to farm land. 8.2. Encourage sustainable production and waste management methods that reduce negative environmental impact.
GOAL 9. Food systems and agriculture education, training, and workforce development will continue to be developed and offered in primary, middle, secondary, and post secondary schools and training programs, and the labor force will meet the needs of the food system sector.	9.1. Expand and develop food systems and agriculture education and training programs. 9.2. Coordinate and/or expand internship and apprentice programs.
GOAL 10. Support and leadership for food systems (e.g., economic development, workforce development, financing, research, marketing, business planning, technical support, etc.) in the Northeast Kingdom will be adequately coordinated to provide maximize support and these support organizations will work to meet the needs of producers and to provide healthy, fresh, local food for all residents.	10.1. Economic development organizations continue to fund food systems development as an economic development tool. 10.2. Develop a "how-to" food systems planning guidebook to support the inclusion of food systems in local town plans/local zoning. 10.3. Collaborate with Vermont Farm to Plate Network to coordinate implementation of the NEK Plan and the F2P Strategic Plan.

## References

- American Planning Association. (2007). *Policy guide on community and regional food planning*. <http://www.planning.org/policy/guides/adopted/food.htm>
- Delaware Valley Regional Planning Commission (2010). *Food System Planning Municipal Implementation Tool #18*, April 2010. [http://www.ruaf.org/ruaf\\_bieb/upload/3304.pdf](http://www.ruaf.org/ruaf_bieb/upload/3304.pdf)
- Eckert, J. (2010). *Food Systems, Planning and Quantifying Access: How Urban Planning Can Strengthen Toledo's Local Food System*. Toledo, Ohio: The University of Toledo.
- Feenstra, G. (2005). *Proposed indicators for sustainable food systems*. Davis, CA: Ecotrust.
- Hanish, R., Hanson, G., Kelly, B., Meltzer, N., Noss, A., and Reilly, M. (2011). Assessment of food systems plans from across the United States and Canada. Working paper produced from PA 317: *Systems Analysis and Strategic Management* course. University of Vermont.
- Koliba, C., Meek, J., and Zia, A. (2010). *Governance networks in public administration and public policy*. New York: CRC Press/Taylor & Francis.
- Levinson, F. J., Rogers, B.L., Hicks, K.M., Schaetzel, T., Troy, L. and Young, C. (1999). *Monitoring and evaluation: A guidebook for nutrition project managers in developing countries*. Washington DC: The World Bank.
- McEntee, J., and Agyeman, J. (2009) Towards the development of a GIS method for identifying rural food deserts: Geographic access in Vermont, USA. *Applied Geography*. doi:10.1016/j.apgeog.2009.05.004
- Papas, M., Alberg, A., Ewing, R., Helzlouer, K., Gary, T., and Klassen, A. (2007). The built environment and obesity. *Epidemiologic Reviews*. 29:129-143.
- Pothukuchi, K., Joseph, H., Burton, H., and Fischer, A. (2002). *What's Cooking in our Food System? A Guide to Community Food Assessment*. Venice, CA: Community Food Security Coalition.
- Pothukuchi, K. and Kaufman, J.L. (2000). *The Food System: A Stranger to the Planning Field*. *Journal of the American Planning Association*. 66(2):203-219.
- Pothukuchi, K., and Kaufman, J. L. (1999). Placing the food system on the urban agenda: The role of municipal institutions in food system planning. *Agriculture and Human Values*. 16(2): 213-224.
- Raja, S., Born, B., and Kozlowski R. J. (2007). *A Planner's Guide to Community and Regional Food Planning: Transforming Environments, Facilitating Healthy Eating*. *American Planning Association*. Planning Advisory Service Report Number 554.
- Sabel, J., Kettle Kahn, L., and Bisogni, C. (1998). A conceptual model of the food and nutrition system. *Soc.Sci.Med*. 47(7): 853-863.
- Vermont Sustainable Jobs Fund. (2011). *Farm to Plate Strategic Plan*. <http://www.vsjf.org/project-details/5/farm-to-plate-initiative>

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