RDPO
REGIONAL DISASTER
PREPAREDNESS ORGANIZATION

Food System Assessment for the Portland Metropolitan Region

May 2025

The Feeding Cities Group

FEEDING CITIES

A Disaster Management Perspective

Providing food for local residents has always been part of disaster planning, but the increasing severity and frequency of natural disasters—not to mention the COVID-19 pandemic—has caused emergency management to reconsider their approach. Ensuring that food is available, accessible, and acceptable (e.g., meeting dietary or cultural needs) after a disruptive event is a multi-faceted problem. It is also a growing challenge for local emergency management in the Portland Metro region, which has historically experienced few disasters. Today, state and local emergency management offices mobilize responses for wildfires and extreme weather events on a regular basis, often in areas already in a socio-economic crisis, and without a commensurate increase in resources. This report recommends strategies to strengthen emergency management plans around food provision after disasters, to ensure an efficient and equitable response, and strategies for minimizing the impact of disasters on local food systems.

This report is primarily intended for emergency management professionals and policymakers, but it should also be of interest to anyone looking at food system resilience. To ensure the findings are accessible to all audiences, the Appendix includes a glossary of key terms.

REFRAMING FOOD SYSTEM RESILIENCE

The food system in its entirety encompasses all aspects of growing, transforming, and moving food—from those who produce it to those who consume it—as well as managing food waste. It is also an interconnected system; its functioning depends upon the performance of numerous other systems and infrastructure. The most critical interdependencies include the road network, the electrical power system, telecommunications, and fuel supplies. Food systems encompass public, private, and non-profit sectors. In the U.S., local food systems are actually national and global—nearly all food consumed by households is produced in and imported from other regions and countries.

The four phases of emergency management

Comprehensive food system resilience involves long-term interventions across the entire food system globally, with many advocating for more local food production and distribution, with the goal of both mitigating climate risks and addressing food inequities.[1] However, emergency

[1] Community Food Assessments (CFAs) (also called food plans) often adopt broad goals of food system resilience, including food sovereignty, food justice and local food supply chains. CFAs are not mandated, but they have been gaining in popularity as part of local planning processes and may be required for some funding. All five counties in the RDPO region have completed a CFA.

management requires a narrower purview of food system resilience. Preparing for both the provision of food during disasters, and the recovery of food retail stores and food assistance after disasters, requires more immediate food system interventions and a focus on local food distribution and access instead of food production and supply chains. In other words, a different set of priorities emerge across the four phases of emergency management.

In recent years, the Portland Metro region has conducted planning efforts to address water, fuel, and shelter in disasters, but there has not yet been any form of comprehensive planning for food system disaster preparedness, recovery, or resilience. The region lags behind its peers in terms of having a basic understanding of the vulnerability of its food system. Given the increasing frequency of hazards in the region, the Regional Disaster Preparedness Organization (RDPO) prioritized conducting a food system assessment to help local emergency management better understand the hazard risks and potential impact on local food availability and access to strengthen their preparedness planning. This assessment looked at the five counties that make up the RDPO service area: Multnomah, Clackamas, Washington, and Columbia counties in Oregon and Clark County in Washington ("the RDPO region").

In 2024, following the initial Scoping Study, the RDPO re-engaged The Feeding Cities Group (FCG) —a consulting team dedicated to improving disaster response and recovery planning around food systems—to identify the priorities for strengthening regional food system resilience from an emergency management perspective.[2] The goal of the FCG approach is to provide emergency managers with actionable, strategic, and geographic planning priorities to lessen the impact of even minor disasters and make the most of their limited resources. Equipping local emergency managers with the right priorities, strategies, and actions is critical since they must be prepared to respond to non-catastrophic events that may not justify national or even state support. This report shares high-level findings and cross-jurisdictional recommendations. County-level findings and localized recommendations were shared respectively with each of the five counties in the RDPO region.

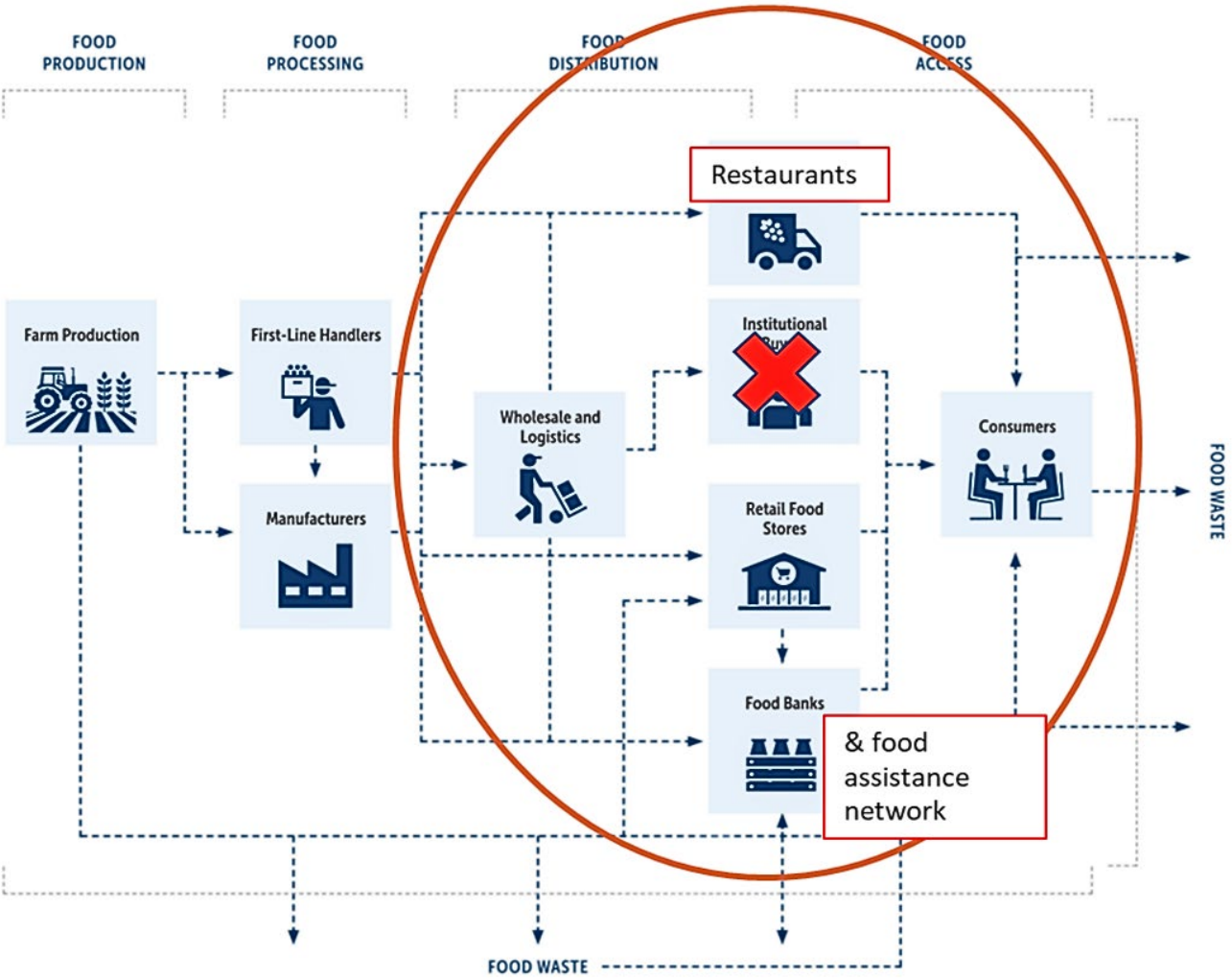
Applying an emergency management lens to the concept of food system resilience emphasizes a distinct set of vulnerabilities, interventions, and timelines for disaster planning.

MEASURING WHAT MATTERS

Where will the food system break and what does emergency management need to do to respond quickly, efficiently, and equitably and to speed local food system recovery? Guided by these questions, the FCG applies a disaster planning perspective to its food system vulnerability

[2] The project contributes to the RDPO's work to advance a regional food system that is resilient to hazards and builds on earlier RDPO regional food system assessment project as well as other regional initiatives.

assessments. The findings tie directly to local response, recovery, and mitigation plans to shorten the response and recovery period (i.e., the food system stabilization and rebuilding period) to ensure a faster bounce-back of the food system (i.e., resilience) after a disaster. The FCG framework focuses on vulnerabilities in food distribution *and* equitable food access, making it broader than a typical supply chain analysis focused solely on distribution. The framework also includes some food processing (i.e., manufacturing), but only for the sectors that account for a significant share of local consumption; in the RDPO region this is dairy, bakeries, and eggs (see figure below). Farm production, institutions (e.g., correctional institutions, care facilities, and schools), in-home food preparation and storage, and food waste were considered out of scope for this project. The project also did not delve into alternative forms of food benefits post-disaster (i.e., cash-based assistance such as prepaid debit cards or gift cards versus food distributions) since that level of detail was considered beyond the scope for this regional assessment.[3]



The Feeding Cities Group framework © FCG, 2025

[3] Cash-based food benefits are often considered more efficient and effective following a disaster and are a critical component to support the recovery of local food retail stores.

The analysis for the RDPO considered major food system disruption scenarios and six priority hazards: wildfires, flooding, landslides, ice storms, terrorism to food subsystems, and global food supply chain disruptions. The priority hazards were identified in an earlier Scoping Study and validated in this assessment through community interviews.[4]

The FCG's methodology also includes a thorough review of local emergency planning around food—mass care feeding plans as well as planning for different food system disruptions. Research included comprehensive data analysis and over 75 local interviews (see Table 3 in Appendix for list).

A SUSTAINABLE MODEL FOR LOCAL EMERGENCY MANAGEMENT

After Hurricane Katrina, FEMA recognized that government acting alone is not sufficient in the face of the increased severity and frequency of natural disasters and began advocating for greater community engagement in emergency management. But there is little guidance on best practices and effective models for making that happen. Because food systems encompass such a wide variety of organizations across public and private sectors, this assessment not only leaves the RDPO and local emergency managers with critical insights, but also with a working model for whole community engagement. The mission and structure of the RDPO—a collaboration of cross-sector regional partners—makes it uniquely suited to facilitate such a model. The RDPO's mission is to build and strengthen regional disaster preparedness capabilities locally within the five-county region it serves.

The FCG designed a dual community engagement process, first establishing a Project Task Force ("Task Force") comprised of local and state emergency planners and mass care partner organizations. Mid-way through the project, a Public-Private Advisory Group ("Advisory Group") was established that included representatives from across the food system, including both public and private sectors (see Tables 1 and 2 in Appendix for participant lists). This structure was also designed to create momentum and infrastructure for sustained planning and implementation after the project ended.

Engagement for the food system assessment

REPORT CONTENTS

The RDPO food system assessment surfaced five critical priorities to strengthen local emergency planning for food and the resilience of the regional food system. Potential points of failure (i.e., key emergency management gaps), the potential impact of the points of failure, and recommended

[4] Earthquakes pose the greatest catastrophic risk to the region and the greatest threat to its food system. The recent pandemic and wildfires in the region have shown, however, that other hazards can also disrupt the region's food system.

solutions for emergency management are discussed in each priority section. Each section also includes a brief review of policy implications that suggest broader interventions. A roadmap and corresponding action plan for each priority is laid out in the final section.

Local Planning Priorities

The food system in the RDPO region has many characteristics that make it relatively resilient to the current hazard threats assessed for this project. However, rural areas and socially vulnerable populations face a greater risk of accessing food after a disaster. In addition, the level of preparedness required for mobilizing food resources for past emergencies will likely be inadequate for the scale and severity of future events, and the negative impacts of not being fully prepared increase exponentially with the size of the emergency. Because local emergency management has been able to adequately respond to past emergencies, there is a risky sense of security that may hinder planning for escalated emergencies. Five priorities to strengthen disaster preparedness and food system resilience across the region are outlined below.

1. CENTRALIZE COORDINATION FOR FOOD SYSTEM PLANNING

Coordinating structures that organize local emergency response actions across and within departments and agencies already exist (e.g., emergency support functions (ESFs), incident command system).[5] Such structures are critical to efficiently coordinate resources and support and stabilize community lifelines. The coordinating structures group systems or functions (e.g., transportation, communications, and utilities) relevant to each overarching response purpose (e.g., providing public health, and medical service) to easily access subject-matter experts and mobilize resources. The structures also designate a lead agency to streamline decision making and communications.

[5] FEMA's National Preparedness Goal advises grouping actions into 32 Response Core Capabilities, but food system emergency preparedness cuts across several (e.g., Supply Chain Integrity and Security, Community Resilience, Logistics and Supply Chain Management, etc.).

Potential Points of Failure

There is, however, no single coordinating structure for food. Emergency response actions related to food fall under multiple coordination structures. For example, providing food during disasters is typically part of mass care operations (described below), while responding to food system disruptions would involve multiple response actions and cut across multiple ESFs. Likewise, emergency planning for food and the food system is split across local government positions and departments. There is no single position or team assigned to lead all local food disaster planning efforts in any city or county within the RDPO region.

An emergency shelter in Clackamas, Oregon mobilized during the 2020 wildfires. Source: Nathan Howard / Getty Images, BuzzFeed.News.

Historically, emergency management, especially at local levels, has focused primarily on response functions over recovery efforts. In terms of food, this has meant concentrating on mobilizing short-term food resources, which has largely been sufficient. The severity of today's disasters, coupled with chronic food insecurity, however, not only requires emergency management to both expand food provision operations after disasters, but also to prioritize food system recovery. For example, during the 2020 wildfires in Oregon, emergency management provided over three million meals to survivors over several months. Some survivors received meals for up to two years.[6] The State had to contract with food vendors to provide food over this extended period, and the recovery of local food systems became imperative to stabilizing communities.

Potential Impact

Emergency planning efforts and food system knowledge and networks are fragmented across local government, which further complicates food disaster planning. Local emergency management did not have reliable food asset inventories or robust relationships across the food sector. It was also difficult identifying the appropriate person working on food planning within emergency management for the Task Force, and the participants came with very different levels of understanding of the food system.

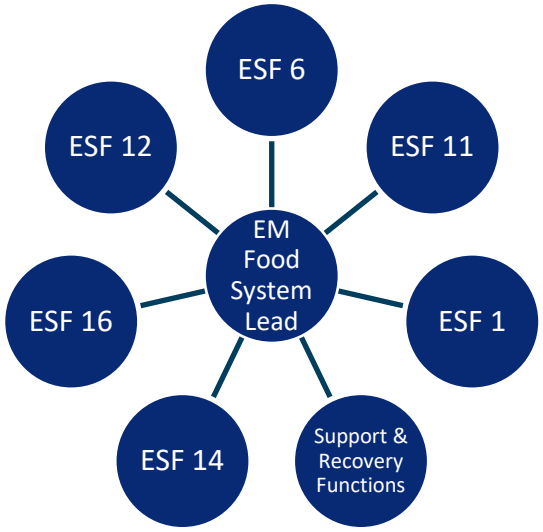
The fragmentation also creates inefficiencies in emergency response efforts. For example, a utility representative shared that they receive multiple requests from local government agencies for power restoration prioritization after disasters, which may create confusion and slow response times. A

[6] The Office of Resilience and Emergency Management (OREM) within Oregon Department of Human Services (ODHS) led the mass care feeding operations during the 2020 wildfires. Data was provided by OREM.

smaller food store (a specialty market) disclosed that they are confused about where to seek support for disaster preparedness and resources to help them return to normal operations after a disaster.

Recommendations for Emergency Management

A central point of coordination for emergency management could more effectively liaise across all food system partners, including other departments within local government (e.g., human services, public health, transportation, small business services). This would make planning and response efforts more efficient. Providing a central point of coordination will also foster stronger relationships across public and private organizations crucial for food system recovery.



Example of food planning coordination with ESFs

While centralized coordination may look different in each county (e.g., a role dedicated to food system work or a group/team), the outcome will be the same: a structure that serves as a respository for food system knowledge and relationships that provides clear leadership and communication across local government to facilitiate faster and better decision-making and actions before, during, and after a disaster.

Policy Implications

At every level, government is organized around parts of the food system instead of the whole. In other words, unlike water, transportation, or public utilities, government does not consider food as a system. As a result, multiple public agencies touch different aspects of the food system (e.g., food benefits, food safety, and food business licensing are commonly under three different departments). Current emergency management structures that address food reflect this partitioned perspective. More coordination and potential restructuring around food as a system is warranted across all government agencies, not just emergency management.

2. MASS CARE FEEDING PLANS

Within emergency management, the term “mass care” is used to refer to response operations that proved congregate sheltering, feeding, and the distribution of emergency supplies and resources to meet basic human needs. (For local emergency management using ESFs, ESF 6 is the mass care function.) For mass care feeding—or mass feeding—emergency management typically only directly provides and stores, at most, snacks. Local governments generally do not have the capacity to store and prepare food for mass feeding operations. They rely on disaster relief organizations, non-profit food assistance organizations (community-based organizations), and contracts with food vendors (e.g., restaurants, caterers, or non-profit organizations) to provide meals.

DISASTER RELIEF PARTNERS FOR LOCAL MASS FEEDING	
Oregon Food Bank (and partners)	Lutheran Disaster Response
Salvation Army	VOADs/COADs
Adventist Community Services	American Red Cross
Ecumenical Ministries of Oregon	United Way
American Baptist Churches of the Central Pacific Coast	Team Rubicon
Catholic Charities	

Potential Points of Failure

Oregon Department of Human Services (ODHS) is the lead agency responsible for statewide mass care. Within ODHS, the Office of Resilience and Emergency Management (OREM) was established in 2020 to provide more focused planning and coordination of mass care operations. However, each county is ultimately responsible for feeding its residents after a disaster.[7] OREM is actively engaged in planning for mass care response statewide for catastrophic events, and they have proactively reached out to local emergency management to establish clear and direct points of contact. OREM sees a critical need for local capacity building to ensure counties can mobilize their own mass feeding response for lesser events. OREM participated in the Task Force and helped shape the priorities and actions outlined in this report.

The FCG analysis found that current county-level mass feeding plans are likely inadequate for a mid-sized event. Counties are in different places with respect to updating their mass care plans, but all acknowledge that their mass feeding sections need refinement or further development. Some said they would need OREM to support any sized event, which may not be feasible for widespread disasters, multiple incidents statewide, or incidents not deemed beyond the capacity of the county to respond. Only one county has mass feeding vendor contracts in place. Establishing memorandum of understandings (MOUs) with disaster relief organizations is a common component of mass feeding plans, but there are currently no MOUs in place between disaster relief organizations and any of the counties. Further, none of the counties have planned for all three phases of mass feeding—immediate through normalization (see table below).

[7] Oregon statute ORS 401.032 states: "It is declared to be the policy and intent of the Legislative Assembly that preparations for emergencies and governmental responsibility for responding to emergencies be placed at the local level. The state shall prepare for emergencies but shall not assume authority or responsibility for responding to an emergency unless the appropriate response is beyond the capability of the city and county in the emergency occurs, the city or county fails to act, or the emergency involves two or more counties."

MASS FEEDING PHASES

Phase	Immediate	Sustenance	Normalization
Objective	Provide calories	Provide healthier, culturally relevant meals and meal kits	Residents are able to purchase food from establishment types normally used (e.g., restaurants, stores)
Timeline*	Up to two weeks	Up to two months	Up to six months
Type of Support	Direct from contracted food providers	Food assistance organizations coordinating with Emergency Management	Recovery support for all businesses and organizations providing food locally pre-emergency Disaster Supplemental Nutrition Assistance Program (D-SNAP) and supplemental food benefits (e.g., cash-based food benefits)
Planning Requirements	MOUs with disaster relief organizations (they have contracts in place) and contracts with food vendors	Assessment of local food assistance organization capacity and build capacity as needed Established coordinating mechanism for local food assistance organizations	Review recovery support plans for inter-related systems (roads, power, etc.) and fill gaps as needed Coordination with other agencies and organizations focused on business recovery (e.g., SBA, Prosper Portland) D-SNAP and other supplemental benefits implementation plans

Developed by and © FCG, 2025. *The estimated timeline depends on the scale of the emergency; a medium-scale, local event is the assumption for this timeline.

Historically, disaster relief organizations such as the American Red Cross (ARC) and Salvation Army have been reliable partners for mass feeding events. This has led to some local emergency management planning complacency. As one disaster relief organization shared, “We should always be asked, but never tasked with responding to an emergency.” ARC is listed as an adjunct agency (a supplementary support organization) in Oregon’s mass care plan, but there is not a shared understanding between ARC and the counties regarding the level of support ARC can provide or how best to engage them in planning. This was also true of the Salvation Army. Staff changes and organizational restructuring within both disaster relief organizations and local emergency management have weakened relationships.

In addition, disaster relief organizations may not be able to provide the same level of support as they have in the past. They are spread thin as they are being asked to respond to an increasing number of disasters, while also managing a shrinking pool of experienced, frontline volunteers (90% of the ARC workforce is volunteers). As a result, these organizations may not be able to fully support some mass feeding events of any size at the local level. They are also not able to support the extended

operations required for the hazards that were analyzed for this project, especially if their help is also needed elsewhere. They may only be able to stay for days or weeks, but not months. Both ARC and local emergency management shared that the blurred lines between chronic homelessness and the need for temporary shelter after a disaster has created confusion over long-term support needs.

Kitchen at Milk Crate Kitchens PDX, courtesy of MCK PDX.

Community-based organizations (CBOs) that provide food assistance on a daily basis generally mobilize independently to support mass feeding as part of community mutual aid efforts. As with disaster relief organizations, this has also created some local emergency planning complacency. The State of Oregon and Multnomah County have mass feeding vendors under contract, but other counties said they will rely on their "go-to" CBO partners, especially those that provided emergency food during the pandemic. However, during a local disaster, local food assistance organizations may not be able to significantly expand operations because of limited staff (who may also be impacted by the disaster), food, equipment, and facilities (e.g., cold storage and kitchen space). All of the food assistance organizations interviewed for this project said they would try to help during any emergency but were already operating at capacity. As one organization said, they would need to be in a much bigger commercial kitchen and have more staff in order to prepare more meals than they were currently producing.

Coordinating effectively with the numerous food assistance organizations that mobilize during even moderate events is challenging for local emergency management. Voluntary Organizations Active in Disaster (VOADs)/Community Organizations Active in Disaster (COADs) can help with this type of coordination, but there are only two in the RDPO region: the Clackamas County VOAD and the Portland COAD.[8] The Portland COAD, which serves Portland and Multnomah County, established a work group of food assistance organizations called Disaster Kitchens, but the group meets infrequently due to limited capacity.

There was also confusion about how best to partner with Oregon Food Bank (OFB), another mass care adjunct agency, to support mass feeding emergencies at the local level.[9] Within the RDPO region, OFB has four regional food banks that support an extensive network of food assistance partners: Metro Services (in Portland, serving Multnomah and Clackamas counties), Washington

[8] Clark County had a COAD, but it ceased functioning. Clark Regional Emergency Services Agency (CRESA) is taking the lead on local volunteer coordination efforts.

[9] OFB serves the entire state of Oregon and Southwest Washington through a network of 21 regional food banks.

County Services (Beaverton), Columbia Pacific Food Bank (St. Helens), and Clark County Food Bank (Vancouver, WA). However, the OFB network does not include all the food assistance organizations that will mobilize to support a mass feeding event. Food assistance organizations outside the OFB network are likely to have less capacity to expand operations, since they can't rely on OFB resources.

FOOD ASSISTANCE ORGANIZATIONS LOCATED IN EACH COUNTY

County	Food assistance organizations
Clackamas	55
Clark	31
Columbia	5
Multnomah	117
Washington	71

Note. Food assistance data is from OFB's Food Finder database and 211info and may not include all food assistance organizations since some asked not to be included in those data sets. The number counts only those located in the county and not others that may serve the county but are located elsewhere.

Potential Impact

All of the hazards considered for this analysis could lead to the need for mass care at the local level. Wildfires—a low probability, high impact risk in the RDPO region—would likely trigger the most extensive mass feeding response. Landslides, flooding, and ice storms can create extensive, but shorter-term, mass feeding incidents. However, landslides and flooding can also create population "islands," where residents may be cut off from normal food sources.

Recommendations for Emergency Management

Each county needs to prioritize developing a robust mass care feeding plan, including establishing food vendor contracts, MOUs with disaster relief organizations, and an effective coordinating mechanism for food assistance organizations. Food vendors will be needed for extended mass feeding events and to bridge any gaps with disaster relief organizations and mutual aid efforts. Cross-jurisdictional coordination will be needed to identify both local and regional food assistance capacity that could be leveraged to cover mass feeding during an emergency. Establishing food vendor contracts is critical, since negotiated contracts prior to events are more cost effective and generally result in more reliable outcomes than finding vendors during an emergency. Counties need to be prepared to mobilize their own mass feeding vendors for non-catastrophic events. OREM may be able to partner or support with locals to achieve this, but more discussion is needed. The Disaster Kitchens group provides a useful coordinating model, but it needs more staff resources to fully develop the model. The Oregon Department of Emergency Management (OEM), which has a dedicated position to support VOAD/COAD development, could be leveraged to scale that model across the region.

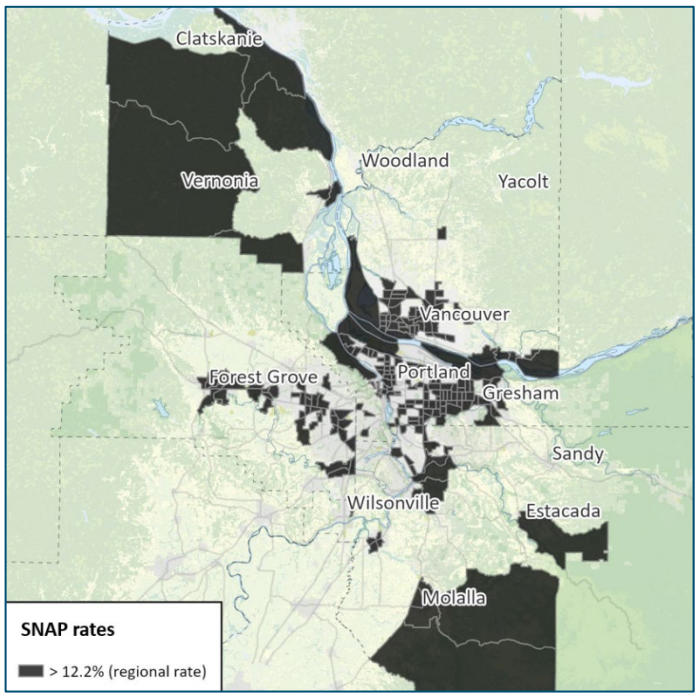
Policy Implications

There are no state mandates in either Oregon or Washington requiring local emergency management agencies to create mass feeding plans. They are only required to develop an Emergency Operations

Plan (in Oregon, every 4 years) or Comprehensive Emergency Management Plan (in Washington, every 5 years). Mass Care plans are usually included as part of the overall plan or as an Annex.

Chronic food insecurity is both made worse by disasters and it makes disasters worse, in terms of requiring more emergency response resources. The food assistance data analyzed by the FCG provides some indication where there are gaps in coverage by organizations (e.g., in Columbia County). Clearly, new partnerships are needed to address the gaps for both emergency response and chronic food insecurity. The project also found that food assistance organizations are limited in their ability to expand operations during disasters.

Increasing the capacity of food assistance organizations (through additional funding, partnering with OFB, non-profit development programs that focus on strategy and efficiency, exploring mergers, etc.) and the capacity of OFB to support more partners, or to help their partners scale up when needed, is needed throughout the region.



Source: Metro, Social Vulnerability Explorer, 2025.

3. MASS CARE FEEDING PLANS FOR AT-RISK COMMUNITIES

There are communities in every county that experience barriers to emergency services and programs before, during, and after any disaster because of socio-economic characteristics such as poverty, food insecurity, language barriers, etc. Research and experience show that these socially vulnerable communities will be disproportionately impacted by any hazard, so it is critical that they are intentionally considered in local emergency plans.

Populations that are not socially vulnerable will be impacted less by local food disruptions than those already in crisis. Socially vulnerable populations in areas with vulnerable food systems face even greater risks for limited food access after a disaster than if they lived in areas with more resilient food systems. For instance, a family that relies on Supplemental Nutrition Assistance Program (SNAP) benefits and lives in a town with only a convenience store will be less likely to be able to buy food after an extreme weather event than if they lived in a town with a supermarket or a Walmart, since these stores are more likely to return to normal operations sooner (discussed in section four).

Potential Points of Failure

The FCG identified several communities in the RDPO region that are most at risk for experiencing a food crisis after a disaster because they have a combination of socially vulnerable populations and vulnerable food systems (i.e., no food retail stores or only specialty markets or convenience stores are less likely to quickly return to normal operations after a hazard event, and/or stores exposed to hazard risk). As a result of this combination of factors, both food availability (i.e., the presence of food) and food access (i.e., the ability to obtain the food) are at risk in these communities and they should be priorities for mass feeding plans (see table below).[10] For example, in Fern Prairie, the SNAP rate is 13%, which is higher than the county average, 17% of the population is elderly, and the town has only one convenience store for groceries. Rhododendron has only one grocery store and one specialty market and both face wildfire threats.

COMMUNITIES AT RISK FOR A DISASTER RELATED FOOD CRISIS

County	SNAP rates	Areas with no food retail stores	Priority communities for mass feeding plans
Clackamas	10%	4	Barlow, Estacada, and Rhododendron
Clark	12%	6*	Vulnerable neighborhoods in Vancouver, Amboy, Fern Prairie, and Yacolt
Columbia	16%	2	Deer Island, Prescott, and Vernonia
Multnomah	15%	2*	Vulnerable neighborhoods in Portland and Gresham, Fairview, Corbett, and Sauvie Island
Washington	10%	5*	Cherry Grove, Durham, Metzger, and Tualatin

Note. Areas are defined as incorporated and unincorporated population centers. *A city is considered one area—e.g., Portland and Gresham are one area. Neighborhoods within cities were not analyzed for this project.

Potential Impact

In the at-risk communities that already have high food insecurity rates and limited food access, especially those in remote areas, a hazard of any degree will exacerbate the food crisis and trigger the need for long-term mass feeding. Spikes in food insecurity rates after disasters are often sustained over long periods, and may require case management services for months or years.

[10] The FCG identified communities at risk as those with high social vulnerability indicators (e.g., SNAP rates, share of elderly, share of infants, language barriers, etc.), a lack of food retail stores and/or a long driving distance to other towns that have at least one larger food store, and stores exposed to hazard risk.

"How and where to obtain healthy food can become a complex puzzle in post-disaster communities, struggling to put back the pieces of their life that were torn apart after physical and emotional devastation. A once active food pantry system can become fractured, and service providers like the Red Cross, Salvation Army, and local churches are often left scrambling to fill in the gap until reliable, consistent food access can be restored."

Source: "Food Insecurity in the Post-Hurricane Harvey Setting: Risks and Resources in the Midst of Uncertainty," Int J Environ Res Public Health. 2020 Nov 13;17(22):8424.

Recommendations for Emergency Management

The at-risk communities identified by the FCG require specific emergency planning measures related to food availability and food access. Partnerships with human services agencies are important to develop effective strategies that provide a bridge from emergency case management services. This may include cash-based assistance programs once food availability has sufficiently recovered (i.e., stores are open and stocked). For small remote towns, mass feeding plans may involve the relocation of residents or cache supplies.

ODHS and Washington State Department of Social and Human Services (DSHS), which manage the SNAP program at the state level, will be an important partner to explore how to expand food benefits in these areas during emergencies. This could include implementing strategies they employed during the pandemic. Given the level of hazards considered for this analysis, it is unlikely that the Disaster Supplemental Nutrition Assistance Program (D-SNAP) would be available. D-SNAP requires a presidential declaration of disaster. Local emergency management should revisit and share effective strategies used during the pandemic to distribute food that could be adapted as models for other hazard events. Departments of Education and county-level Human Services agencies are effective connection points to food insecure families.

The level of analysis completed for this project offers a starting place for emergency planning, pointing to priority locations and thus narrowing the scope for planning. It is not meant to identify all areas that might experience a food crisis post-disaster. A closer analysis at the county level may reveal other areas with critical food-access vulnerabilities. Further, the scope of this project did not allow for identifying neighborhood-level vulnerabilities, particularly in larger cities like Portland, Gresham, or Vancouver. Completing a neighborhood-level analysis is a recommended action in the Roadmap section below. Likewise, homelessness was not considered because of the regional scope of the project and data limitations. Analyzing the needs of homeless populations and the implications for emergency planning is also included as a recommended action in the Roadmap section.

Policy Implications

Local emergency management creates plans for different types of emergencies or disasters but generally does not create plans for specific communities, especially with respect to mass feeding plans. Yet, the spatial analysis completed for this project shows how the overlapping forces of chronic food insecurity, no or vulnerable food availability, and hazard risk create communities at greater risk for experiencing a food crisis after a disaster. This triple-threat is particularly concerning for small, remote towns, and it may pose emergency response challenges. Increases in food insecurity rates in rural areas are outpacing urban areas in Oregon (see table below), but urban and rural food insecurity rates are similar in the state of Washington.[11] Reducing chronic food insecurity is not only a social issue, but also a disaster preparedness one: the fewer food insecure households going into a disaster, the fewer that will need emergency food during disaster response and recovery periods.

RURAL vs URBAN FOOD INSECURITY RATES IN OREGON

	2015-2017	2018-2020	2021-2023
Rural	12.5%	10.6%	20.7%
Urban	13.0%	9.0%	12.0%

Note. Percentages represent the share of the population that is food insecure in areas classified as either rural or urban in the state of Oregon. Source: J. McElhaney and M. Edwards, "Pandemic Increases in Oregon's Food Insecurity (2021-2023)," Nov. 2024, OSU, OPAL.

4. INTERVENTIONS FOR FOOD RETAIL RESILIENCE IN PRIORITY AREAS

Mitigation efforts lessen the impact of disasters and thereby reduce emergency response and recovery resource use. In terms of mitigating a food crisis, one of the most important components to manage is the risk to food retail stores. The faster food retail stores return to normal operations, the shorter the duration of mass feeding operations.

Food retail stores include more than grocery stores and markets. The FCG segments food retail stores into five categories based on size and type of store (see figure below). As noted above, some communities rely primarily on convenience stores for groceries, although many now offer better quality and more fresh food options than they have historically. General merchandise stores such as Walmart and Dollar Tree have also become major food retailers and often provide the only groceries in rural communities.

[11] Source. Otten JJ, Spiker ML, Dai J, Buszkiewicz JH, Beese S, Collier SM, Ismach A. "Food Security and Food Assistance in the Wake of COVID-19: A 5th Survey of Washington State Households"(February 2025). Washington State Food Security Survey.

THE FEEDING CITY GROUP FOOD RETAIL SEGMENTATION

Supermarkets
($2M+ annual revenue)

Grocery stores
(<$2M annual revenue,
e.g., Wellspent Market)

General merchandise
stores (e.g., Walmart)

Specialty markets
(e.g., La Patria Meats)

Convenience stores

The location (i.e., exposure to hazard risk) and mix of different types of food retail stores in a community determines local food system vulnerability to the hazards analyzed for this project. A higher share of "large food retailers" (i.e., supermarkets and general merchandise stores) in a community's food retail mix, the less likely that there is a food crisis after a disaster. Large food retailers are the most likely to have robust business continuity plans in place, including generators, supply chain redundancies, etc. In theory, a supermarket such as Fred Meyer has more capacity to return to normal operations faster than a grocery store like Wellspent Market or a specialty market like a butcher shop.

Potential Points of Failure

The FCG identified several communities within each county that should be priorities for food retail interventions as part of food crisis mitigation efforts (see table below). Multnomah County has the most robust and resilient food retail mix, with several large supermarket chains and less than one percent of its residents living in a town with no large food retailers. However, the county average masks neighborhoods that might be underserved in Portland and other cities.

Clark, Washington, and Clackamas counties have food retail environments that are similar to each other, with a relatively uniform dispersion of large food retailers serving their residents. However, Clark and Clackamas counties have more remote towns that are a farther drive to grocery store destinations. The county average for Clark County also masks vulnerable neighborhoods in Vancouver. The greatest hazard risk for food retail is in Clackamas County. Nearly one-third of all food retail stores in the county, and nearly one-third of those in Oregon City (which serves as the food retail location for smaller, neighboring towns), are located in areas at high risk of impacts from ice storms. For example, 85% of food retail stores in Gladstone are at risk of impacts from an ice storm.

Columbia County is an outlier, with a characteristic rural food system: the few large food retailers in the county are concentrated in a few densely populated towns. People living in small towns may have to drive over an hour for groceries. In Columbia County, the large food retailers, the only food bank, and four out of five food pantries are located in four towns spread across the bending US-30 on the county's eastern border—creating a crescent-shaped area where most food is concentrated. Since portions of US-30 within and outside of Columbia County are exposed to all four hazards, with ice storms being the greatest risk, the "food crescent" is the most important vulnerability for the county.

The FCG also analyzed the vulnerability of specialty markets to hazards because this category of food retail stores includes those providing culturally relevant food and may serve populations beyond their community (e.g., Muslim populations that depend on Halal markets). Clackamas County was the only county with vulnerable specialty markets, located in seven different areas. More granular analysis is needed to show the specific populations that might be impacted within and beyond these areas.

PRIORITY AREAS FOR FOOD RETAIL RESILIENCE INTERVENTIONS

County	Total food retail stores	Total food retail stores per 1,000 capita	Areas with no large food retailers	Areas with no large food retailers population	Priority areas
Clackamas	327	0.77	9 (36%)	19,161 (5%)	Damascus, Estacada, Gladstone, Government Camp, Happy Valley, Mt. Hood Villages, Oatfield, Rhododendron, Sandy
Clark	325	0.64	14 (54%)	55,585 (11%)	Vancouver neighborhoods, Yacolt, Woodland, small remote towns
Columbia	40	0.75	5 (56%)	6,231 (12%)	US-30 food store 'crescent': Clatskanie, Ranier, Scappoose, St. Helens
Multnomah	867	1.08	3 (38%)	3,563 (<1%)	Portland and Gresham neighborhoods, Fairview
Washington	414	0.69	10 (37%)	52,552 (9%)	Tualatin

Note. Areas are defined as incorporated and unincorporated population centers. Food retail stores include supermarkets, general merchandise stores, grocery stores, specialty markets, and convenience stores. Large food retailers include supermarkets and general merchandise stores.

Potential Impact

All the hazards considered in this analysis could cause extended power outages for food retail businesses. Most small food retail stores (defined here as grocery stores, specialty markets and convenience stores) will not have the capacity to continue operations because they do not have a source for backup power. Without backup power, it could take days or weeks to open for business.

Grocery stores and specialty markets may not survive the loss of business and revenue, and most do not have adequate insurance (including business interruption insurance). A disaster could lead to permanent food store closures due to loss of income, resulting in fewer food retail stores in the neighborhoods that need it most. This can lead to serious, long-term impacts to those communities.

Recommendations for Emergency Management

The most important mitigation strategies include placement of equipment for ice treatment and removal and clearing landslide damage, as well as the provision of mobile emergency generators or other alternative backup power sources. Emergency managers should also work with local utility companies to ensure they prioritize food retail stores for power restoration and work with food retail stores to ensure they have the right hookups for mobile generators or access to other backup power sources. While power generators have historically been the resource for backup power, solar and other alternative power sources should be explored.

Recovery plans for food retail stores need to focus on immediate grants to cover loss of business and loss of inventories, ensuring they can survive, restock, reopen, and return to normal operations as quickly as possible. Small Business Administration (SBA) disaster grants are one source of funding, but more outreach is needed to make sure small businesses know how to access those resources.

Policy Implications

Most food retail store resilience interventions are beyond the control of emergency management. Zoning regulations and incentives are needed to ensure food retail stores are located in areas with the least hazard risk (e.g., outside of flood zones). Programs that subsidize generator hookups and mobile generator contracts for small food retail stores are critical since permanent generator installation is likely not feasible for rented or small buildings/spaces. Programs that incentivize solar and other alternative power sources should also be explored. Other critical mitigation strategies include helping food retail stores acquire adequate insurance (especially business interruption insurance) and create business continuity plans.

5. LOCAL FOOD DISTRIBUTION RESILIENCE

In terms of mitigating a food crisis, the other important food system component to manage—and the one most often considered by emergency management (especially FEMA)—is the risk of food supply chain disruptions. While national supply chain resilience is important, what matters most to

mitigating local food crises is the resilience of the supply chain segment that connects local food retail stores and food assistance organizations to their distribution centers or warehouses.[12]

Warehouses are used to aggregate food that is trucked in from various areas (within Oregon or other states) to be sorted and distributed locally to businesses that sell directly to consumers. Warehouses vary significantly in terms of size, ownership, and products and services. For example, some supermarkets own their own warehouses (vertical integration), while grocery stores, specialty markets, and convenience stores generally rely on a mix of warehouses that vary in size and territory (e.g., Portland-based Alexis Foods and national C&S Wholesale Grocers). Some companies also have warehouses that provide direct-to-store delivery (e.g., GJ Products, Frito Lay, soft drink companies). They serve all types of food retail stores. Warehouses distribute food beyond the county they are in, so local supply chain resilience may depend on the resilience of warehouses in other counties.

The FCG segments warehouses into two categories based on their potential impact on local food supply chain disruptions (see figure below). Primary warehouses are large facilities that include both vertically integrated (owned by a large supermarket) and independently owned facilities. City warehouses are often smaller facilities; they outnumber primary warehouses and serve a greater number of food retail stores. In turn, small food retail stores generally rely on multiple warehouses, as described above.[13] Both types of warehouses are critical to local food supply chains, but primary warehouses are a significant single point of risk because each facility represents a larger share of food distribution than a single city warehouse.

FEEDING CITY GROUP FOOD WAREHOUSE SEGMENTATION

Primary warehouses (large facilities serving mostly supermarkets)

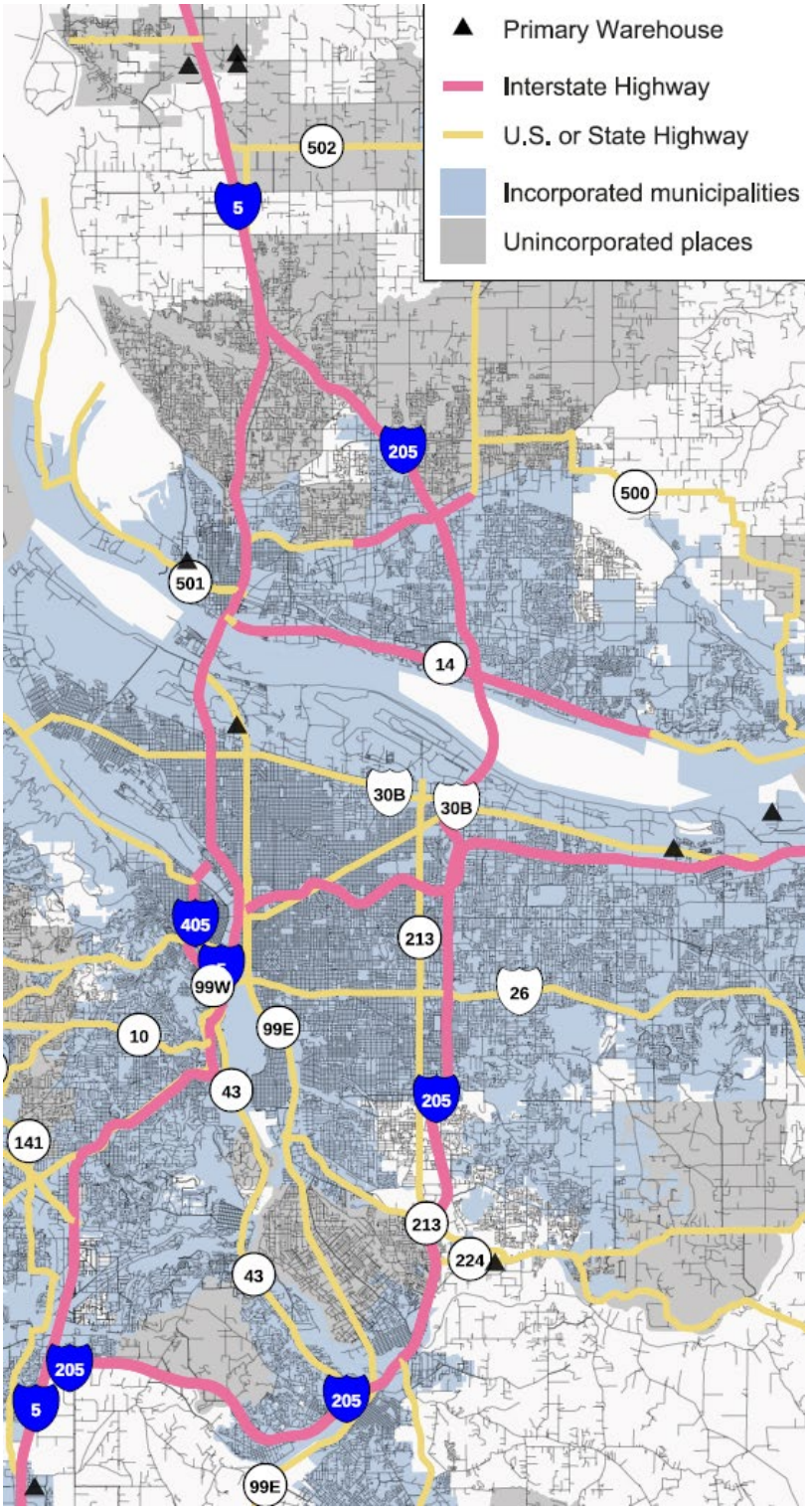
City warehouses (smaller operations that specialize or serve smaller food stores)

[12] Technically, distribution centers (which includes order fulfillment) and warehouses (which are designed for storage) are different, but as supply chain operations have evolved, the distinction has blurred and the terms are often used interchangeably. Source. Food wholesalers or wholesale grocers are also technically different, because they buy products in bulk and then divide and sell smaller amounts to retailers, but they also operate warehouses and distribute, and the term is also used interchangeably with warehouses and distribution centers. Source. For this project, the term warehouse is primarily used to refer to all three types of facilities.

[13] Because the FCG segments warehouses into only two groups, the City warehouse category includes some warehouses that are not critical to the local food supply because they primarily sell out of the region—e.g., Bob's Red Mill.

Potential Points of Failure

The hazard risk for food warehouses depends on their location. Warehouses are located in areas that make business sense (e.g., near a major highway interchange) but may face hazard risks to both facility operations as well as to their food truck transportation routes. There are 233 city warehouses in the RDPO region, with 143 clustered in Portland and Clackamas County near I-205 and Routes 224 and 213. None in this cluster are located in areas at risk to wildfire or landslides, but eight of the warehouses are located in an area at risk for ice storms. Within this group of eight warehouses, most serve clients outside of the RDPO region (e.g., Bob's Red Mill, Jaivika Naturals), although two are important to local the local food supply: a Bishops' Storehouse, which serves members of the Church of Jesus Christ of Latter-day Saints in need of food, and Wymore Transfer Company. Of the remaining 90 city warehouses dispersed around the rest of the region, only four face any hazard risk, and only one of those is significant to the local food supply: US Meat & Restaurant Supply in Sandy, Clackamas County. It is at risk for ice storms.



Source: FCG, 2025.

There are nine primary warehouses in the RDPO region (see map). Four primary warehouses are in Clark County in Washington state: three clustered around I-5 in Ridgefield (Dollar Tree Distribution, Focus Global Logistics, and United Natural Foods) and one in Vancouver (Focus Global Logistics). The remaining five primary warehouses are in Oregon. Two are in Clackamas County: one in unincorporated Clackamas

south of Portland around I-205 (Fred Meyer) and one in Wilsonville (Sysco). Three are in Multnomah County: one in Troutdale (C&S Wholesale Grocers), one in Gresham (Grocery Outlet) and one in Portland (Price Mart Distribution). No primary warehouses are at risk for wildfire or landslides, but one (C&S Wholesale Grocers in Troutdale) is located in a FEMA flood zone. It also has been affected by ice storms two years in a row. In 2024, a major ice storm that produced 4-inches of ice at the facility impacted operations over several days.

Warehouses are also critical points of vulnerability for food assistance organizations. The FCG analyzed the vulnerabilities of OFB's four regional food banks—Metro Services (Portland), Washington County Services (Beaverton), Columbia Pacific Food Bank (St. Helens), and Clark County Food Bank (Vancouver, WA)—as well as the regional warehouses for Meals on Wheels People (MOWP), which serves Multnomah, Washington, and Clark counties.

The Clark County Food Bank faces moderate ice storm risk. The Columbia County Food Bank faces the greatest location risk. It is located in an area with moderate risk to ice storms and low risk to wildfires. While it is not located in a FEMA flood zone, its location near the Columbia River makes the limited transportation routes surrounding the food bank (US-30) vulnerable to flooding. The Columbia County Food Bank does not have a generator (and neither does Washington County Services food bank).

Source: Google maps, 2025.

MOWP operates three warehouses in the region (two in Portland and one in Vancouver). The FCG analysis found that none face any significant location risk, and the two in Portland have generators. In the RDPO region (and in Oregon), there is one USDA warehouse, located in Clackamas County.[14] It does not face any significant location risk.

Potential Impact

Of the four natural hazards considered for this project, landslides pose the greatest risk because they can close transportation routes for extended periods. According to Oregon Department of Transportation (ODOT), it could take two weeks to restore any road after a landslide. Ice storms

[14] It is used for USDA food distribution programs (managed by ODHS). A private company (Gold Star Foods) owns and operates the warehouse and it is contracted by ODHS to handle all food distribution logistics. USDA food is also stored at OFB for distribution to their partners (the TEFAP program). USDA food for Oregon tribal governments is distributed from a warehouse in Kansas City and stored locally on reservations in buildings/spaces owned and operated by each tribe.

might close more roads but for a lesser period of time. Widespread wildfires could cause extended regional food supply disruptions to major food transportation routes into and across the Portland Metro area, but the respective states would likely be activated to lead and coordinate emergency management response and recovery efforts.

Food transportation may be delayed (but not completely stopped) for most mid-size hazard events because there are transportation route redundancies in most counties. While these redundancies offer alternative options for food deliveries, closures along more direct or ideal routes will lead to longer food delivery times. Most communities in Columbia County, which has no classified primary roads, are at risk of even longer delays in food supplies as alternative modes of transportation (beyond food delivery by truck) may be needed for any road closure.[15] US-30 is the primary artery in the county, but is classified as a secondary road. Typically, primary roads are high-volume roads and are given priority for hazard removal. Remote towns in Clackamas, Clark, and Washington counties share the same risk as rural Columbia County communities because they also depend on secondary roads.

Recommendations for Emergency Management

Coordinated cross-jurisdictional planning needs to involve the functions that include response plans for clearing roads, identifying alternate transportation routes or modes of transportation, and restoring power. Since four of the nine primary warehouses are located in Clark County, Washington, and the remaining five are located in Oregon, bi-state leadership involving OREM or OEM and Washington Emergency Management Division may be the most relevant for planning efforts around the primary warehouses given their potential impact across both states. Supporting resilience and business continuity planning for food banks, especially in Clark and Columbia, is also critical.

Policy Implications

More analysis is needed to understand the risks for specific warehouses. For example, Fred Meyer has additional warehouses in Idaho and Washington. If the one located in the RDPO region closed, they may be able to shift resources (e.g., staff and food) to the others to maintain some food supplies at their supermarkets. However, the feasibility and impact of this shift needs to be explored. C&S Wholesale Grocers only has one primary warehouse in the region, but since this warehouse also supplies grocery stores and specialty markets, it may be a more critical vulnerability when considering the supply of culturally-relevant foods to specialty markets that may not have redundant supply chains. The installation of whole-building generators or alternative power sources for all food warehouses would mitigate most power outages due to ice storms or a Public Safety Power Shutoff (PSPS) event. Some warehouses already have generators.

[15] Road classifications reference census designations: “Primary roads are limited-access highways that connect to other roads only at interchanges and not at at-grade intersections. This category includes Interstate highways, as well as all other highways with limited access (some of which are toll roads).” Source (pg. E-109).

Transportation risk mitigation should be the biggest priority, focusing on landslide prevention for the major food distribution routes (I-205, I-5 and I-405, especially in the Portland area and northern Clackamas County). Similarly, I-84 is a freight route and the only East-West interstate; it is very vulnerable to landslides, with limited alternate routes. Although I-84 is not a significant food transportation route (as most warehouses rely on the North-South routes), it does provide access to several communities. The implications of landslide road closures for food distribution need to be explored further.

A Regional Disaster Planning Roadmap for Food Systems

Building on earlier projects, the RDPO and its partners took another significant step toward building a more resilient food system with the assessment summarized in this report. The priorities outlined provide a framework for ongoing food system disaster planning at the local and regional levels. The framework, model, and momentum created by the project form a solid foundation for additional planning efforts, going beyond the RDPO and ideally bringing in other food system resilience efforts within philanthropic, non-profit, and government sectors.

Detailed actions for each priority are identified below. As a next step, the RDPO, emergency management partners, and food system partners should come together in cross-jurisdictional work groups to review and organize these actions, and identify implementation leads and other partners. This will not only push the priorities forward but will also build shared knowledge and advance practice across local emergency management partners.

Planning Priority	Action Plan
1. Centralize coordination for food system planning	**1.1** Each county identifies existing positions across local government that are integral to emergency planning across the food system. **1.2** Develop a coordinating structure and set of expectations for each position in terms of planning and response actions. **1.3** Identify resources and actions needed to implement the coordinating structure during “blue skies” (i.e., planning) and how it would be leveraged during a response or recovery. **1.4** Identify opportunities for expanding food system knowledge in the region through external experts or participation in food networks. **1.5** Build public-private partnerships that include outreach and education efforts with the food retail sector in the RDPO region.

Planning Priority	Action Plan
2. Mass care feeding plans	**2.1** Develop (or update and strengthen) mass care feeding plans in each county. **2.2** For counties in Oregon, coordinate with OREM on the State's mass care plans for counties. Clark County should do the same with Washington State Emergency Management Division. **2.3** Identify potential mass feeding providers and/or review capacity of existing providers. Utilize the ARC food vendor survey and OREM capacity guidelines to inform capacity reviews (both were shared with the counties). **2.4** Develop mass feeding contracts for each county (vendors may be located outside of county). For counties in Oregon, explore how OREM can support (e.g., holding the primary contract, vendor management, financial). Once clarified, counties should then individually work with OREM to identify specific opportunities for shared food vendor contracts. For Clark County, explore if similar opportunities are available for Washington State Emergency Management Division. **2.5** Develop MOUs with food assistance and disaster relief organizations to define shared expectations on roles and types and level of support during an emergency for each county. **2.6** Strategies that address chronic food insecurity locally is the most fundamental mitigation strategy, but one that goes beyond the scope of emergency management. Local partnerships should explore opportunities that both address food insecurity and also prepare for disasters (e.g., outlining processes to scale up food assistance organizations).
3. Mass care feeding plans for at-risk communities	**3.1** Each county intentionally considers their "at-risk communities" when developing or updating mass feeding plans. Additional analysis is needed to identify "at-risk neighborhoods" in larger cities (e.g., Portland, Vancouver, and Gresham) and understand the food needs and impact of homeless populations after disasters. **3.2** Share effective strategies used during the pandemic to distribute food that could be adapted as models. Some of those strategies are captured in a related Portland State University report. **3.3** Collect effective mass feeding strategies for small, remote towns. **3.4** Develop effective strategies for bridging households from emergency case management services to normalized food access. To support the recovery of local food retail stores, explore the feasibility of cash-based assistance programs for households that do not normally utilize food pantries or other food assistance organizations. **3.5** Identify strategies and funders to increase the capacity of food assistance organizations and regional food banks in each county. Examples include additional funding, non-profit development programs that focus on strategy and efficiency, exploring mergers, etc. The Oregon Food Bank is already over capacity in terms of their partners. **3.6** Develop practices for integrating the Oregon Food Bank (which also serves the Clark County Food Bank) into local mass feeding planning

Planning Priority	Action Plan
	discussions and plans, and clarify its role in emergency response, especially with respect to other food assistance organizations and disaster relief partners. **3.7** Continue to develop Metro's Social Vulnerability Explorer to integrate food vulnerability and update this data annually for use across counties. Some of this work is part of another UASI-funded effort led by Metro set to conclude in 2026.
4. Interventions for food retail resilience in priority areas	**4.1** Ensure each county's response and recovery plans include mitigation strategies for food retail risk in the priority areas outlined in this report (e.g., equipment placement, mobile generators, generator hook-ups, alternative power sources, etc.). **4.2** Engage local utility companies to ensure priority power restoration for food retail stores in the priority areas. **4.3** Ask SBA and economic development agencies to develop outreach around post-disaster grant programs to cover loss of business to food retail stores. Integrate those resources into recovery plans. **4.4** Explore opportunities to provide education about (and perhaps subsidize) business interruption insurance for grocery stores and specialty markets.
5. Local food distribution resilience	**5.1** Understand specific vulnerabilities and status of business continuity plans at primary warehouses, regional food banks, and Meals on Wheels People warehouses. **5.2** Develop cross-jurisdictional shared understanding of potential cascading impacts and response actions at the most vulnerable primary and food assistance warehouses. **5.3** Identify the potential impact of disruptions at the city warehouses identified as being at risk in the assessment, and priority rank the warehouses for specific resilience interventions.

While this project was an important step towards food system resilience, it certainly should not be the last. Some of the recommended actions fill important gaps in the assessment, but other limitations are not addressed. For example, additional research is needed to understand the risk of terrorism to food subsystems and the implications of global food supply chain disruptions.

Acknowledgements

The Regional Disaster Preparedness Organization (RDPO) provided the leadership and administered funding for this study. Carol Chang, Senior Planning Coordinator, served as project manager and a partner in the research. Carol provided critical connections in the community and thoughtful insights that guided this study. The RDPO and the FCG thank all members of the Project Task Force and Public-Private Advisory Group for sharing their expertise and being generous with their time. They also thank the contributions of Joe Gordon at Metro, a regional government for the Portland Metropolitan area, for sharing data and regional data insights.

The report was authored by Kimberly Zeuli, PhD, Managing Director of The Feeding Cities Group, who also led the project. The consulting team included Alisa Pyszka, President of Bridge Economic Development, who provided indispensable knowledge about local conditions and economic development issues.

Citation and use

This report was developed by The Feeding Cities Group for the Regional Disaster Preparedness Organization (RDPO) of the Portland Metropolitan Region with funding from the U.S. Department of Homeland Security/Urban Areas Security Initiative (UASI) grant program.

Zeuli, K. (2025). *Food System Assessment for the Portland Metropolitan Region*. The Regional Disaster Preparedness Organization.