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San Jose Food Works Study: Demonstrating the Economics of Local Food Systems Toolkit methodology

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Abstract
Like many fast-growing cities with a history as a major food production area, San Jose, California, has largely left its agricultural heritage behind. Much of its famed Valley of the Heart's Delight, so-called because of the vista of springtime blossoms and once a nationally important fruit production region, has been developed into the Silicon Valley, now a global high-tech center. The San Jose Food Works study makes a case that the food sector can be an important driver for achieving the city's goals for economic development, placemaking, public health, and sustainability. The study analyzes the economic contributions to the city from each food supply chain sector—production, distribution, processing, retail, and food service. It also engages stakeholders from agencies, businesses, and community-based organizations in identifying gaps and opportunities for strengthening these contributions. The recommendations developed with these stakeholders reflect a new commitment to collaborate on building a more robust, equitable, vibrant, and sustainable local food system. This reflective essay describes the practitioner-led development of a city-scale food supply chain assessment, as a process and product that demonstrate the methodology presented in the U.S. Department of Agriculture's Economics of Local Food Systems Toolkit (Thilmany McFadden et al., 2016).

Keywords
Food Sector, Food Economic Cluster, Local Food Economy, Regional Food Economy, Local Food Systems Toolkit, Food Systems, Bay Area, San Jose

Introduction
In many cities and regions, the agricultural and food economic cluster ("food sector") is largely taken for granted. Food supply, for the most part, is left to the invisible hand of market forces. Public scrutiny and intervention come into play to address sector-specific issues (e.g., farmland and environ-

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mental protection, farming viability, food safety, public health, urban farming, food access, etc.), but there is much less public attention paid to connectivity across the sectors of the food supply chain and between food supply economics and the overall economy. In contrast, other inputs that are required for survival, namely water and energy, receive much more attention in the public realm. Government at all levels plays a major role in planning for and investing in the provision of these commodities, even while most providers (certainly of energy) are private businesses. Water and energy are delivered from relatively few source points (e.g., watershed impoundments, power plants) via large-scale infrastructure and orderly distribution systems throughout the built environment. Every step entails significant public oversight to ensure reliable and relatively affordable and equitable end-user access. In some ways, the housing sector is a more apt analogy, in that housing—like food, water, and energy—is a necessity, and the government often intervenes in the provision of it. However, more similar to the provision of food, the distribution of housing is unequal, and there are multiple providers and marketplaces.

To date, most cities and regions regard their food sector in terms of its disparate parts, with production, distribution, processing, and consumption not significantly connected. The fact is that understanding and quantifying, let alone incentivizing, local food economies is challenging. This is mainly due to the existence of complex and often global supply chains and the increasing prevalence of processed and prepared food. Both of these are factors that contribute to the current lack of connection between many consumers and the places and people that produce their food—a phenomenon that is sometimes described as the 'placelessness' of food.

However, not looking at the food sector supply chain holistically and in terms of its interconnections with broader issues such as resource conservation and public health presents challenges as well as missed opportunities. When a supply chain framing is not in place, city and regional planning and economic assessment processes tend to undercount the direct contributions of the food sector, rarely count its indirect contributions, undervalue natural and especially cultural resources that underlie vital food systems, and insufficiently recognize the vulnerabilities and investment needs of the sector. Even when a city or region aspires to conduct an assessment of a local food economy, doing so is a complex endeavor requiring a credible methodology. The U.S. Department of Agriculture's (USDA's) Economics of Local Food Systems Toolkit provides a clear methodology (framing, secondary data, primary data, engaging community, input-output analysis) for conducting such an assessment, as well as helpful examples of assessments and action plans undertaken by municipalities across the country.

Teams led by Sustainable Agriculture Education (SAGE) demonstrated the Toolkit methodology and principles in two recent food sector economic assessments: the San Jose Food Works report (Sustainable Agriculture Education [SAGE], 2016), produced for the city of San Jose; and the *Bay Area Food Economy: Existing Conditions and Strategies for Resilience,* a white paper produced for the Association of Bay Area Governments (SAGE & American Farmland Trust [AFT], 2017). Both these projects aimed to analyze the food sector in terms of its contributions to the economy and to broader municipal goals. They also aimed to analyze the vulnerabilities and challenges facing the food sector. The resulting studies also outline strategies and strategic investments that need to be implemented in order for the food sector to be able to continue to contribute to the economy.

This reflective essay describes how the San Jose Food Works study demonstrates the effective application of the Toolkit methodology and principles. Because the *Bay Area Food Economy* white paper was produced after the Food Works study and report and by some of the same team, it benefited from the previous experience with Toolkit research methodology. The *Bay Area Food Economy* white paper, though not described in this article, is available online.

An analysis of economic linkages and indirect and induced contributions of the food sector to the wider economy, part of the Toolkit methodology, was not undertaken by either project because such analysis was beyond the project scope. It should also be noted that the Food Works study, as a practitioner-led project, lacks the inclusiveness and spirit of advocacy of more community-driven assessments, such as some of those profiled in the Toolkit.

Overview and Impetus

What would San Jose look like if a robust local food system were one of the vital frameworks linking the city's goals for economic development, community health, environmental stewardship, culture, and identity as the city's population grows to a projected 1.5 million people over the next 25 years?

SAGE initiated the Food Works study in fall 2015 to answer this question. Another impetus for SAGE was its involvement in a long-term effort to create an agriculture and conservation area in Coyote Valley—7,500 acres (3,000 hectares) of prime farmland on San Jose's southern boundary. Already partly incorporated into San Jose, this fertile farmland (originally called the Valley of the Heart's Delight, named after its thriving orchards) has been in the crosshairs of development for decades, most recently in a specific planning process that was ended, in part, by the 2008 recession. In 2015, city policies make it clear that the concept for an urban-edge food belt was still in direct contradiction to long-standing land use designations that anticipated expanded housing and jobs for this area. However, on the other hand, the city's department of housing wanted to investigate how local food businesses could be incorporated as street-level activation and community-engagement elements in the 72 urban villages being planned for construction in the coming decades. Despite these seemingly disparate interests, the city decided to support an assessment of its food supply chain sectors as a holistic economic cluster. The city recognized that 'food' was already making significant contributions to the city's economy and that strategic investments and partnerships could strengthen those contributions.

The study was funded by grants from the John S. and James L. Knight Foundation, Santa Clara Valley Open Space Authority, City of San Jose Department of Housing, and the 11th Hour Project. An award from the Local Food Promotion Program of the USDA Agricultural Marketing Service funded the exploration of a San Jose Market District, a subcomponent of the overall Food Works project. BAE Urban Economics, a regular partner on SAGE projects, took the lead on the economic analysis and The Health Trust was the main community partner. An advisory committee composed of engaged agencies, businesses, nonprofits, and community groups contributed to developing this roadmap for making San Jose a vibrant food city and a healthier, more resilient place.

The Food Works study is modeled on food system assessments and action plans developed by cities across the country, many of which exemplify the Toolkit methodology. It also builds on San Jose's existing planning framework, Envision 2040, while drawing from recent studies, such as the *San Jose Economic Strategy 2010 Report* (City of San Jose, 2010), the *Economic Contribution of Agriculture to Santa Clara County* (County of Santa Clara, Agricultural Commissioner's Office, 2014) and the *Santa Clara County Food System Assessment* (Santa Clara County Food System Alliance, 2013).

The Food Works study is an assessment and a call to action. It provides a compelling vision and actionable recommendations for a food system that serves all San Jose communities, now and into the future. The report analyzes food sector assets and contributions, identifies opportunities for food system investments and actions, and makes recommendations for partnerships and strategies to initiate new investment activities. The aim is for city leaders and key partners to use this information to elevate food as a driver to advance the city's goals for economic development, place-making, public health, and sustainability.

Framing and Approach

The framing is provided in the introductory chapter of the study, by the positing of an overarching vision: "San Jose's spirit of innovation, commitment to resilience and renowned diversity are expressed in a dynamic food culture of healthy food access for all residents and thriving food businesses, from ethnic grocery stores and neighborhood restaurants, to industrial processing and distribution, to market gardens and farms located in and around the City" (SAGE, 2017, p. 5). This vision was put forward by the consultant team to serve as a frame of reference for the values that the team believed would help galvanize city and public support for the study. Presented more as a proposition than a consensus, the framing in the study differs from the more participatory framing processes presented in the Toolkit.

The starting point for the study, presented in the San Jose Food System Today chapter, is an analysis of existing city policies and initiatives, the overall economic activity for food-related businesses, the geography of food in San Jose, selected Santa Clara County data and actions, other key food-related actors in the city, and the regional food systems context. In effect, this policy context took the place of the more community-based framing described in the Toolkit.

The core focus of the study is the Food Supply Chain chapter, which analyzes five primary sectors of the food supply chain—production, distribution, processing, retail, and restaurants and food service—in terms of economic activity, notable trends and businesses, gaps and opportunities, and preliminary recommendations. The Other Food Sectors chapter analyzes sectors that contribute to the overall food system but for which there are no economic data readily available in terms of notable trends and businesses, gaps and opportunities, and preliminary recommendations. The San Jose Market District/Wholesale Food Market Preliminary Assessment, included in the appendix, investigates the demand and opportunity for a facility serving co-located wholesale food distributors and processors.

To present exemplary models, the Best Practices chapter looks at what San Jose can learn from other cities as it considers ways in which food systems can contribute to economic development, neighborhood revitalization, public health outcomes, more sustainable environments, and preservation of cultural heritage.

The actionable part of the study—the Findings, Opportunities, and Recommendations chapter—summarizes key findings, opportunities, and sector-specific recommendations from previous chapters and concludes with seven overarching, cross-cutting recommendations. These recommendations propose a holistic, integrated approach to building the San Jose food system and point to various opportunities for San Jose to improve its food system in ways that support numerous city goals. For each recommendation, the team identified one or more lead actors who have agreed to help, or who are considering helping, with implementation.

Using Secondary Data Sources

As described in the Toolkit, an analysis of the economy of a local food system relies on a foundation of relevant and reliable secondary data. The first step in understanding the food sector as an economic cluster is determining those industries that compose the overall sector. In order to collect data pertinent to the San Jose food system, the consultant team defined various food-related industries using the North American Industry Classification System (NAICS). This system involves a nested range of codes, where two-digit codes broadly classify industry sectors (e.g., Manufacturing, Retail Trade, etc.), and three-, four-, five-, and six-digit codes break a two-digit code into a sequential series of subsectors, each with a greater level of industry detail.

The team first looked at how other regions had defined their food industry cluster through the NAICS to determine the set of NAICS codes most commonly used elsewhere. The team then used this set of NAICS codes to analyze the San Jose food sector through industry-level data purchased from Dun & Bradstreet and employment data furnished by the California Employment Development Department (EDD). Below are examples of tables from the study that show the results of this analysis. Table 1 uses the NAICS food sector classification to present revenue data by industry sector.

Table 2 summarizes city-level employment data from the Quarterly Census of Employment and Wages (QCEW), furnished by the EDD. San Jose food-related businesses employed just under 42,000 persons in 2015, which represents about 11.2% of the total number of jobs in San Jose. The trend data indicate that food-related employment has grown by almost 30% since 2005, which is double the rate of growth for all jobs in San Jose during the same period. (At a future point, with

Table 1. Total Revenue of Food-Related Establishments by Industry Sector, City of San Jose

NAICS	Industry Description	Total Revenue (in Millions) Dollars (a)	Percent
11	**Agriculture, Forestry, Fishing and Hunting**	**$39.2**	**1.4%**
111	*Crop Production*	*$24.4*	*0.9%*
112	*Animal Production and Aquaculture*	*$6.5*	*0.2%*
115	*Support Activities for Agriculture and Forestry*	*$8.2*	*0.3%*
31	**Manufacturing**	**$377.0**	**13.3%**
311	*Food Manufacturing*	*$343.6*	*12.1%*
312	*Beverage and Tobacco Product Manufacturing*	*$33.4*	*1.2%*
42	**Wholesale Trade**	**$865.2**	**30.6%**
4244	*Grocery and Related Product Merchant Wholesalers*	*$741.6*	*26.2%*
4245	*Farm Product Raw Material Merchant Wholesalers*	*$3.7*	*0.1%*
4248	*Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers*	*$90.8*	*3.2%*
42491	*Farm Supplies Merchant Wholesalers*	*$2.6*	*0.1%*
42493	*Flower, Nursery Stock, and Florists' Supplies Merchant Wholesalers*	*$26.4*	*0.9%*
44	**Retail Trade**	**$816.1**	**28.8%**
44422	*Nursery, Garden Center, and Farm Supply Stores*	*$11.7*	*0.4%*
445	*Food and Beverage Stores*	*$804.5*	*28.4%*
49	**Transportation and Warehousing**	**$0.0**	**0.0%**
49312	*Refrigerated Warehousing and Storage*	*$0.0*	*0.0%*
49313	*Farm Product Warehousing and Storage*	*$0.0*	*0.0%*
72	**Accommodation and Food Services**	**$731.6**	**25.9%**
722	*Food Services and Drinking Places*	*$731.6*	*25.9%*
	Total, All Food-Related Industries	**$2,829.1**	**100%**

Notes:
(a) Revenue estimates not available for all establishments from Dun & Bradstreet. In these cases, BAE estimated revenues as the average from all other establishments in the same industry sub-sector.

Sources: Dun & Bradstreet, 2016; BAE, 2016.

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more resources, it could be interesting and instructive to include the percentage of all employment in the city that each of these categories represents.)

Table 3 presents the number of establishments, number of employees, and total annual revenue by food industry category in 2016. In total, local food-related industries generate about US$2.8 billion in annual revenue. While food-related establishments represented just under 7% of all San Jose business establishments, they employed just under 42,000 people in 2015, representing about 11.2% of the total number of jobs in San Jose.

With the intention of better understanding the San Jose food system, the team also reviewed several food industry studies that have been prepared for other cities to seek data against which to benchmark San Jose's food-related business activity. The fact is, there is a relative dearth of such studies. However, the team found that studies prepared for San Francisco provided some comparable city-level data, as illustrated in Table 4 below, and also had the advantage of comparing these relatively close cities.

Mapping the locations of food-related businesses allows for a visual representation of their geographic distribution within the city of San Jose. Figure 1 depicts the location of establishments with 15 or more employees by industry. As seen in the

Table 2. Food-Related Employment in San Jose, 2005–2015

NAICS Code	Industry Description	Total Employment 2005	Total Employment 2015	% Change (2005-2015)
111	Crop Production	260	219	-15.8%
112 + 115	Animal Production and Aquaculture + Support Activities for Agriculture and Forestry	244	281	15.2%
311 + 312	Food Manufacturing + Beverage and Tobacco Product Manufacturing	1,143	1,485	29.9%
445	Food and Beverage Stores	7,511	8,015	6.7%
722	Food Services and Drinking Places	21,090	29,671	40.7%
4244 + 4248	Grocery and Related Product Merchant Wholesalers + Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers	1,645	1,709	3.9%
4245 + 42491 + 42493	Farm Product Raw Material Merchant Wholesalers + Farm Supplies Merchant Wholesalers + Flow er, Nursery Stock, and Florists' Supplies Merchant Wholesalers	69	57	-17.4%
44422	Nursery, Garden Center, and Farm Supply Stores	126	127	0.8%
49312	Refrigerated Warehousing and Storage	(a)	(a)	(a)
Total, All Food-Related Industries		**32,088**	**41,564**	**29.5%**
Total Employment in San Jose, All Industries		**322,843**	**369,655**	**14.5%**
Food-Related Employment as % of Total San Jose Employment		*9.9%*	*11.2%*	

Notes:
(a) Data suppressed to preserve confidentiality of individual businesses.

Sources: California Employment Development Department, QCEW, 2016; BAE, 2016.

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figure, there is a cluster of food-related establishments in downtown San Jose, the majority of which are in the Accommodation and Food Services industry sector. With regard to the food businesses in the Manufacturing industry sector, the majority of the larger establishments are located close to major roadways, including a cluster near the intersection of Highway 101 and Interstate 880. This is consistent with the need for manufacturing operations to be situated in areas with easy access to the goods movement system. Similar to the Manufacturing industry sector, the larger food-related Wholesale Trade establishments also generally cluster near major thoroughfares, allowing for easy freight access.

The research demonstrated that, although they account for a small proportion of the city's overall total establishments and jobs, food-related business activity expanded at a rate of about two times the citywide average between 2005 and 2015. Food-

Table 3. Food-Related Establishments, Employees and Revenue, by Industry Sector

Industry	Number of Establishments	Number of Employees (a)	Total Annual Revenue (b)
Production	160	644	$39,164,047
Processing	189	1,935	$376,989,705
Distribution	283	1,859	$865,205,029
Retail	671	8,062	$816,125,758
Restaurants & Food Service	2,095	25,186	$731,603,698
All Food-Related Industries	**3,398**	**37,686**	**$2,829,088,238**

Notes:
(a) Excludes data for establishments for w hich employment data not reported.
(b) Revenue estimates not available for all establishments from Dun & Bradstreet. In these cases, BAE estimated revenues as the average fron all other establishments in the same industry sub-sector.

Sources: Dun & Bradstreet, 2016; BAE, 2016.

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Table 4. Establishment and Employment by Industry Sector, Bay Area, San Francisco and San Jose

Industry Sector	Bay Area Establishments (a)	San Francisco Establishments (a)	San Jose Establishments (b)
Food & Beverage Wholesale/Dist. (c)	1,437	211	260
Food Manufacturing (d)	778	139	161
Beverage Manufacturing (e)	768	20	26
Total, All Industry Sectors	**2,983**	**370**	**447**

Industry Sector	Bay Area Employment (a)	San Francisco Employment (a)	San Jose Employment (b)
Food & Beverage Wholesale/Dist. (c)	22,201	2,986	1,711
Food Manufacturing (d)	23,308	1,853	1,606
Beverage Manufacturing (e)	18,085	211	327
Total, All Industry Sectors	**63,594**	**5,050**	**3,644**

Notes:
(a) Data comes from Makers & Movers report, which used 2012 QCEW data published by the Bureau of Labor Statistics.
(b) Comparable data from 2016 Dun & Bradstreet database.
(c) Includes NAICS sectors:
4244: Grocery and Related Product Merchandise Wholesalers
4245: Farm Product Raw Material Merchandise Wholesalers
4248: Beer, Wine, Distilled Alcoholic Bev. Merchandise Wholesalers
(d) Includes NAICS Sector 311: Food Manufacturing
(e) Includes NAICS Sector 3121: Beverage Manufacturing

Sources: Quarterly Census of Employment and Wages (QCEW), Bureau of Labor Statistics (BLS), 2012; Dun & Bradstreet, 2016; BAE 2016.

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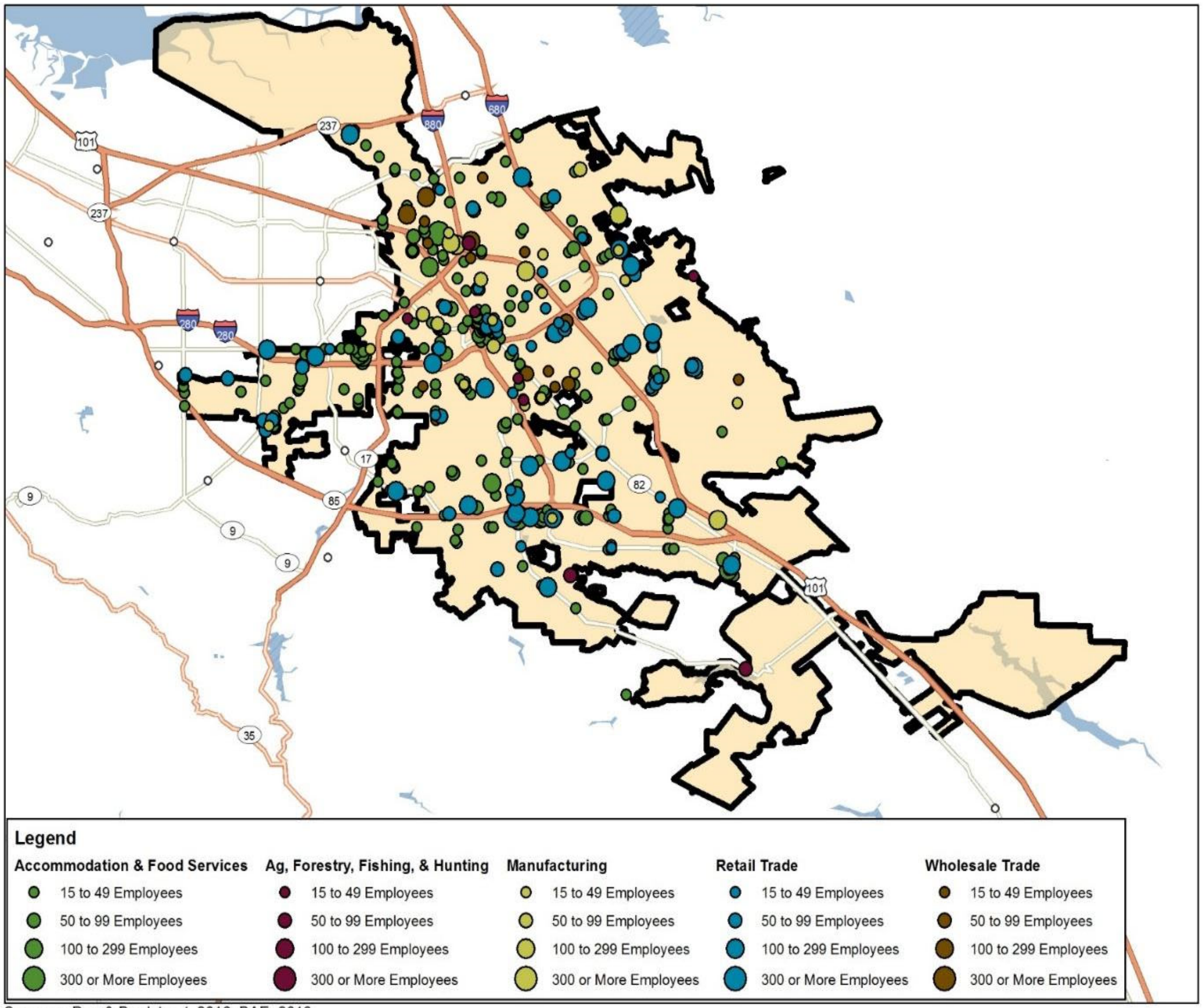
related businesses also provide job opportunities across a range of broad industry sectors and in locations that are accessible throughout San Jose's neighborhoods. This finding is corroborated by the Association of Bay Area Government's (ABAG's) *San Francisco Bay Area State of the Region 2015* report, which shows that jobs related to food preparation and serving in the Bay Area grew by the second greatest degree among all occupation fields between 2010 and 2013, after computer and mathematical jobs (ABAG, 2016). In the San Jose–Sunnyvale–Santa Clara Metropolitan Statistical Area, "food preparation and serving related jobs" account for 7.6% of total employment, which is 1.5% less than the national average, and the average hourly wage for jobs in this sector is US$12.70, which is nearly US$2 (or 16%) higher than the national average (U.S. Department of Labor, Bureau of Labor Statistics, 2016). According to the U.S. Bureau of Labor Statistics, Food Preparation and Serving Related Jobs are the fifth-biggest source of employment in the area (U.S. Department of Labor, Bureau of Labor Statistics, 2018).

In addition to analyzing economic data, the team also looked at existing city policies and strategy documents to get a better understanding of how the city regards the food sector. The review of these policies makes it clear that food is viewed as a key ingredient in San Jose's quality of life and also in place-making, which in turn is a catalyst for economic development and attracting high-quality businesses and a world-class workforce to San Jose. In addition to place-making and economic development, references to food can be found in city policies dealing with health, the environment, land use, and housing. The study includes an appendix that correlates specific city policies and strategies with food-related activities.

To understand the extent to which these food-related policies were being implemented, the team

Figure 1. Geographic Distribution of Food-Related Businesses with 15 or More Employees



Sources: Dun & Bradstreet, 2016; BAE, 2016.

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also researched current initiatives and actions. It found that, consistent with city policy documents, many city of San Jose departments and divisions are actively involved in activities that are directly or indirectly related to food. In addition to these, the study found that numerous private-sector and nonprofit organizations promote aspects of San Jose's food system, as a focus or as part of larger missions. Taken together, the prominence of food and food-related activity within city policies emphasizes the central role that food plays in all aspects of life within San Jose.

Finally, the team researched numerous city-level food system assessments that have been conducted for cities throughout the United States. In doing so, it identified case studies of exemplary projects as well as reports that provide context for the food system assessment of San Jose. The study includes a summary of policies, programs, projects, and recommendations from these assessments in an appendix to the study.

Generating and Using Primary Data

In order to corroborate, extend, and add a personal dimension to its secondary data research findings, and demonstrating the Toolkit's methodology, the team generated primary data by conducting interviews and organizing meetings with dozens of city staff, business owners, thought leaders, and staff of community organizations. A list of informants is included in an appendix in the study. A primary set of these interviews was conducted with businesses leaders and stakeholders for each of the food supply chain sectors. Information from these interviews was compiled along with secondary data research findings in a summary organized in terms of economic activity, notable trends and businesses, gaps and opportunities, and preliminary recommendations. These findings are summarized below.

Production includes agricultural businesses located in San Jose, commercial farms and ranches operating on farmland within the San Jose city limits, and community gardens and farm enterprises operating within urban San Jose. The team summarized key findings and opportunities and also made preliminary recommendations. Farms and ranches located within the city limits, as extrapolated from the Santa Clara County 2015 Crop Report (County of Santa Clara Department of Agriculture, 2015), produce an estimated US$5.2 million in annual revenue. In addition to the crop production revenue from farms in San Jose, an additional US$39.2 million of revenue comes from production businesses with headquarters located in San Jose but with their operations located outside of San Jose, either within the county or in other jurisdictions altogether. San Jose could be a much more significant market outlet for locally grown farm products if there were a stronger market "pull" coming from the local wholesale, retail, processing, and restaurant sectors.

Preliminary recommendations for the production sector included (1) retaining agriculture business headquarters and facilities in San Jose; (2) retaining and investing in remaining existing farmland in San Jose; (3) supporting initiatives and programs that link local producers with local market outlets and that showcase local food production; (4) implementing the Urban Agriculture Incentives Act (AB551); and (5) developing infrastructure for selling locally produced farm products.

Distribution. This sector covers wholesale and distribution businesses handling food and beverage products. The team summarized key findings and opportunities and made preliminary recommendations. With revenues per establishment ranging from US$100 thousand to over US$100 million and an average revenue of over US$3 million, the distribution and wholesale produce sector is growing. Many companies are critically squeezed for space and are also experiencing some labor shortages. The advent of food safety and traceability concerns has added operational costs and required facility upgrades. Based on anecdotal evidence, there is growing interest in organic and specialty items in San Jose, but the demand is still lower than elsewhere in the Bay Area.

Preliminary recommendations for the distribution sector included (1) encouraging the city to undertake proactive efforts to retain and support food distribution businesses, and (2) conducting a full feasibility analysis for a wholesale food market, based on the preliminary assessment conducted for this report (included as an appendix to the report). As shown in Table 5, of the six wholesale distribution and processing companies that were interviewed for the assessment and that indicated interest, as of 2016, there was a combined need for industrial space of 145,000 ft^2 (13,500 m^2) and 40 loading docks.

Processing. This sector encompasses food manufacturing, including the more recent emergence of commercial kitchens and food business incubators. The team summarized key findings and opportunities and also made preliminary recommendations. Specialty food manufacturing and processing is a vital and highly diverse sector, ranging from family-run businesses with a few employees to businesses with international supply chains and hundreds of employees. Some businesses are in need of affordable space to grow.

Preliminary recommendations for the distribution sector included (1) encouraging the city to undertake proactive efforts to retain and support food processing businesses; (2) supporting the development of commercial kitchens and new kitchen incubators that can help launch new food enterprises, which can be stand-alone or part of market projects; and (3) promoting the city's many unique specialty food processors, which represent a

Table 5. Summary of Demand for a Wholesale Food Market from Distributors and Processors
(all currency in US$)

	Current					Needed			
Company	Current location	Facility size (sq. ft.)	# of employees	Annual revenue	Percentage annual growth	Facility size needed (sq. ft.)	# of docks needed	Projected # employees	Want ownership/ equity
A & J Produce	San Jose	4,000	10	$2 M		10,000	3	20	N
Bassian Farms	San Jose	25,000	65	$54 M	10–20%	40,000	10	75	Y
Eddie's Produce	San Jose	4,000	6	$0.5 M		5,000	3	10	N
Farm Fresh to You	San Jose satellite	5,500	20			5,500	2	20	N
Galli Produce	San Jose	16,000	35			30,000	6	50	Y
Pacific Rim Produce	Oakland + 5 cities					50,000	16	100	Y
Total		54,500	136			140,500	40	275	

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wide range of culinary traditions and would benefit from higher visibility; for example, the San Jose Office of Economic Development could promote them as part of the city's cultural richness.

Retail. This sector includes food and beverage stores, including supermarkets, convenience stores, meat and seafood markets, fruit and vegetable markets, baked goods stores, other specialty stores, and liquor stores. The team summarized key findings and opportunities and also made preliminary recommendations. National, regional, and local supermarkets represent the largest percentage of revenues. However, the largest number of establishments are small ethnic grocery stores, which are mainly owned by minorities and employ, on average, four people or fewer. Smaller stores supplement their direct deliveries of products with purchases from large local grocery outlet stores as well as purchases made via trips several times a week to the San Francisco wholesale produce markets. Several stores are seeking assistance with sourcing more local products, public education about healthy, fresh, locally produced food, and best practices in reducing food waste.

Preliminary recommendations for the retail sector included (1) streamlining the process for meeting permitting and licensing requirements for small retailers, and (2) increasing the percentage of smaller retail food outlets that offer healthy, affordable food.

Food service. This is a broad sector that includes restaurants, food service, and drinking establishments. The team summarized key findings and opportunities and also made preliminary recommendations. San Jose restaurants range from basic to fine dining and represent dozens of culinary traditions in different neighborhoods throughout the city. Places like San Pedro Square Market and Santana Row help restaurants get established. Restaurants interested in sourcing more locally produced products are encountering barriers related to information gaps, price, logistics, and convenience. Foodservice companies across the Bay Area are experiencing a growth of above 10% per year. For many businesses in this category, the biggest challenge is the shortage of labor, including skilled cooks, managers, and dishwashers.

Preliminary recommendations for the foodservice sector included (1) supporting efforts to develop more destination restaurants (i.e., restaurants that attract regional customers and tourists); (2) exploring the development of a wholesale food market that could help increase the availability of locally grown farm products; and (3) supporting food job training programs.

Other food sectors. The team also researched four other food sectors—farmers markets, information technology (IT) related to food and agriculture, research and development (R&D) related to food and ag, and e-commerce. They corroborated their findings with selected interviews to determine the role of these sectors in the overall food system and to identify growth opportunities for these sectors. These findings include (1) some farmers market operators have an interest in developing indoor-outdoor infrastructure in central locations, such as in Guadalupe Park; (2) while business clusters for the food and agriculture technology industry have been centered in New York, Silicon Valley, and San Francisco, there are potential new opportunities in San Jose; (3) there are no major food and agriculture R&D centers based in San Jose, although many efforts are underway regionally (e.g., in Salinas, Davis, and Fresno); and (4) the food e-commerce sector has seen huge growth in recent years, receiving 36% of total global funding raised by food and agriculture tech companies in 2015 (Burwood-Taylor, Leclerc, & Tilney, 2016). The meal kit preparation and delivery sector has seen the most start-ups and the largest increase in funding in the past two years, and several of these start-ups are located in San Jose.

General Findings Across Sectors

Following are a series of broad findings that cut across the various food sectors.

- The Food Works team's economic analysis indicates that the food system is an important contributor to the city of San Jose's economic base, but based on comparisons with other cities it is not as fully developed as it could be. Still, employment growth within the food system was twice the citywide average between 2005 and 2015. Food system businesses provide a career ladder that is accessible to a diverse population, including minorities, people with limited formal education and/or limited English language proficiency, and people at various socio-economic levels. (An analysis of the wages and working conditions of these jobs was beyond the scope of the study.)
- Reviewing city documents and interviewing city employees, business owners, and thought leaders clearly showed that, even though there are considerable challenges, food is an integral part of the city of San Jose's policies regarding land use, health, economic development, housing, and the environment.
- Interviews and meetings conducted throughout this process showed that San Jose's diverse food environment creates a cultural bridge between communities and attracts visitors to San Jose as a food destination; however, this aspect could be increased significantly.

Engaging the Community

In order to engage various San Jose stakeholder communities with the data, the team identified specific areas of opportunities, developed recommendations, and identified various actors who agreed to take the lead on implementing certain actions associated with each recommendation. These recommendations primarily drew from the analysis of primary data. The secondary data on revenues, establishments, and jobs provided more of an indirect platform for the recommendations. By demonstrating the considerable economic contributions of the food sectors, the recommendations were intended to bolster the case for the city to take action to address certain vulnerabilities and opportunities in the food sector. The kinds of robust community engagement outlined in the Toolkit are limited in the study and are expected to be more fully realized through implementation of the recommendations.

Based on the analysis of the food system environment in and around San Jose, the team synthesized the most significant opportunities in food system programs and planning. The individual sections on food supply chain sectors have identified opportunities and gaps and include recommended actions to improve the environment for each of the sectors. In the synthesis approach, the process of identifying opportunities entailed looking at cross-cutting issues affecting more than one part of the supply chain and more than one of the city's goals for economic growth, place-making, and public health.

The most significant opportunities in food system programs and planning were (1) increasing jobs and developing the economic value of the food sector; (2) integrating healthy food access initiatives with efforts to develop entrepreneurship and place-making; (3) improving quality of life and protecting air and water quality by protecting urban and peri-urban agricultural lands; and (4) enhancing the effectiveness of existing programs and initiating strategic new efforts by increasing coordination between the city, nonprofit organizations, and food businesses.

The next step was to correlate opportunities with cross-cutting recommendations, as shown in Table 6. The final step in the scope of the Food Works Study was to identify, for each cross-cutting recommendation, a series of actions and one or more lead actors who agreed to help or to consider helping with the implementation of the recommendation and its actions. The team has also made preliminary, rough estimates of the resources needed to implement the recommendations.

Recommendation #1. Grow the city's economy by investing in food jobs and supporting new, expanded, or relocated food businesses. (Lead actors: Office of Economic Development, Center for Employment Training, vocational education training programs, food businesses.) Minimal initial funding requirement: Primary commitment is city staff time.

Recommendation #2. Conduct a detailed feasibility study for a wholesale food market. (Lead actors: wholesale food businesses, Knight Foundation, Office of Economic Development.) Funding requirement of approximately US$150,000–$200,000 and a partial match of city staff time for planning efforts.

Recommendation #3. Improve quality of life and public health outcomes by increasing opportunities for all San Jose residents to access fresh, affordable, healthy, and culturally appropriate foods close to where they live and work. (Lead actors: Santa Clara County Public Health Department, Parks and

Table 6. Opportunities and Cross-cutting Recommendations

Opportunities	Recommendations
a. Opportunity to increase jobs and to develop the economic value of the food sector.	Recommendation # 1. Grow the city's economy by investing in food jobs and new, expanded, or relocated food businesses.
	Recommendation #2. Develop a feasibility study for a wholesale food market terminal.
b. Opportunity to integrate healthy food access initiatives with efforts to develop entrepreneurship and placemaking.	Recommendation #3. Improve quality of life and public health outcomes by increasing opportunities for all San Jose residents to access fresh, affordable, healthy, and culturally appropriate foods.
	Recommendation #4. Advance food as place-making at city and neighborhood scales: permanently in development projects, street upgrades, and new marketplaces; and occasionally through food pop-ups, events, festivals and other promotions.
	Recommendation #5. Support development of food business incubators such as kitchen incubators, food maker-spaces, commercial kitchens, farm business incubators, and food and agricultural information technology (IT) incubators; and provide related technical assistance programs for food entrepreneurs.
c. Opportunity to improve quality of life and protect air and water quality by protecting urban and peri-urban agricultural lands.	Recommendation #6. Cultivate initiatives and dedicate land for multi-benefit urban and peri-urban food production.
d. Opportunity to enhance the effectiveness of existing programs and initiate strategic new efforts by increasing coordination between the City, nonprofit organizations and food businesses.	Recommendation #7. Institutionalize food system planning and implementation in city policies and plans.

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Recreation Department, school districts, The Health Trust.) Minimal initial funding requirement: Primary commitment is staff time from The Health Trust and the city to continue and expand on current efforts.

Recommendation #4. Advance food as place-making at the city and neighborhood scales on a permanent basis through development projects, street upgrades, and new marketplaces; and temporarily through food pop-ups, events, festivals, and other promotions. (Lead actors: Housing Department, Planning Department, Parks and Recreation Department, Office of Economic Development, Chamber of Commerce, Visitors and Convention Bureau, Business Districts and Associations, SJ Made.) Minimal initial funding requirement: Primary commitment is city staff time.

Recommendation #5. Support the development of food business incubators such as kitchen incubators (including as part of small public markets), commercial kitchens, food maker-spaces, farm business incubators, and food and agriculture IT incubators; provide related technical assistance programs for food entrepreneurs. (Lead actors: Planning Dept., Office of Economic Development, Parks and Recreation Department, Silicon Valley Small Business Development Center.) The funding requirement is primarily staff time. A feasibility study for an incubator kitchen would cost approximately US$100,000.

Recommendation #6. Cultivate initiatives and dedicate land for multi-benefit urban and peri-urban food production. (Lead actors: City Council, Parks and Recreation Department, Planning Department, Santa Clara County Agriculture Commissioner's Office, Santa Clara Valley Open Space Authority.) The initial funding requirement is primarily staff time; significant funding is required for land acquisition and improvements.

Recommendation #7. Institutionalize food system planning and implementation in city policies and plans. (Lead actors: City Council, Office of Economic Development, Parks and Recreation Department, Planning Department, Housing Department, Santa Clara County Food System Alliance.) The funding requirement is approximately US$75,000 per year for a part-time, dedicated staff position at the city. Initial funding could be provided by foundations already engaged with San Jose.

Implementation

This reflective essay describes the process of producing the San Jose Food Works study as an effective demonstration of the Economics of Local Food Systems Toolkit methodology and principles. In the hopes that the essay will encourage other municipalities to undertake similar kinds of assessments—due to both the effective analysis and impactful outcome—below is a brief summary of the impact of the San Jose Food Works study.

Following its completion, the city hosted an event for stakeholders from agencies, businesses, and community-based organizations that had contributed to the study to acknowledge the achievement and to consider next steps. With the support of funders, key food businesses, agency staff, and community stakeholders, SAGE then completed implementation of two of the Food Works recommendations with the release of two reports in June 2018: the *San Jose Wholesale Food Center Preliminary Development Prospectus* (SAGE, 2018a) and the *San Jose Food Business Incubator Needs Assessment* (SAGE, 2018b). In fall 2018, SAGE was awarded a USDA Local Food Promotion Program grant for the project, *San Jose Wholesale Food Center Feasibility Analysis —Linking Agricultural Roots to Future Sustainability*, which builds on the Preliminary Development Prospectus. This work is synergistic with three other important local initiatives: the city's climate action plan (Climate Smart San Jose); San Jose's recently adopted public safety bond, which will support protection of urban-edge farmland that provides flood protection and water recharge benefits for the city; and the county's Santa Clara Valley Agricultural Plan, a strategic action plan for protecting and revitalizing the county's remaining farmland and local agricultural economy (County of Santa Clara, Santa Clara Valley Open Space Authority, 2018).

In parallel with the implementation of San Jose Food Works recommendations, strategies proposed in the Bay Area Food Economy white paper (mentioned in the essay introduction as another SAGE-led assessment of local food economies) are now being implemented through the follow-up Bay Area Food Futures project. Funded in part by a grant from the Kaiser Permanente Northern California Community Benefit Programs, this project is being integrated into the implementation of the Bay Area's regional economic action plan.

Beyond the implementation of specific strategies, the broader impact of the San Jose Food Works study and the *Bay Area Food Economy* white paper is the growing understanding in San Jose and the region that a healthy, equitable, and sustainable food system needs to be recognized and invested in as an integral element of local and regional resilience.

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Appendix: Bibliography

The team reviewed studies and reports from San Jose, Santa Clara County, the San Francisco Bay Area, and the U.S. that had a bearing on our understanding of San Jose's food system. These reports are listed below. The team also identified numerous city-level food system assessments that have been conducted for cities throughout the United States. The team also identified case studies of exemplary projects as well as reports that provide context for local food system assessments.

San Jose Food Works Key Studies and Reports—San Jose, Santa Clara County, Bay Area, and the US

City of San Jose Studies and Reports	
Department	**Title**
Economic Development (OED)	San Jose Economic Strategy Report, 2010
	San Jose Economic Strategy Update (2013-2014) and Proposed 18-month Workplan
	San Jose Green Vision
OED - Office of Cultural Affairs	Arts and Economic Prosperity IV: the Economic Impact of Nonprofit Arts and Cultural Organizations and their Audiences in San Jose
	Cultural Connection
	Public Art Next! San Jose's New Public Arts Master Plan
	The Creative Industries of San Jose, California
	Downtown Next! A Public Art Focus Plan for Downtown San Jose
	Downtown San Jose Street Life Plan
Housing	City of San Jose Final 2015-2020 Consolidated Plan and 2015-2016 Action Plan
	City of San Jose 2014-2023 Housing Element
Planning	Envision San Jose 2040 General Plan Update (report and presentation)

County of Santa Clara Studies and Reports	
Department	**Title**
Planning	Santa Clara County General Plan Update of Health Element
Agriculture	Direct Econmic Contributions of Santa Clara County Agriculture, 2015
	Food Rescue Services, Barriers, and Recommendations in Santa Clara County

San Jose and Santa Clara County Food System Reports and Studies	
Sector	**Author and Title**
Land Conservation	Santa Clara County Open Space Authority. Santa Clara Valley Greenprint: a Guide for Protecting Open Space and Livable Communiities
	SAGE with BAE Urban Economics, Cultivate, Sustaining Agriculture and Conservation in Coyote Valley
Health	The Health Trust, The Health Trust's Healthy Eating Strategies (2014-2018)
	The Health Trust, Food for Everyone, 2016
Sustainable Food Systems	Santa Clara County Food System Alliance. Santa Clara County Food System Assessment
Planning	San Jose Downtown Association. Downtown San Jose Street Life Plan
Planning and Economic Devel.	San Jose Downtown Association (DSJA). Ten-point plan for Downtown San Jose

Bay Area Food Systems Reports and Studies	
Sector	**Title**
Economics and Food	SF Offices of Economic Development and SF Planning. Makers and Movers Economic Cluster Study: Recommendations for San Francisco
Food and Technology	San Jose Mercury News (Business).High-Tech Farming Poised to Change the Way World Eats
Health and equity	SPUR. Healthy Food Within Reach
Food Shed	SAGE, American Farmland Trust. San Francisco Foodshed Assessment
Regional Agriculture	SAGE, American Farmland Trust, Greenbelt Alliance. Sustaining our Agricultural Bounty
Food, Economics, Law	Sustainable Economies Law Center. Resources for Food and Farming Enterprises
Economics and Agriculture	Contra Costa County Food System Analysis and Economic Strategy

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Key Studies and Reports—San Jose, Santa Clara County, Bay Area, and the US (cont.)

Other Reports, Studies and Articles about Exemplary Projects and Tools	
Sector	**Title**
Economics and Food	North American Food Sector Scan Part One: Program Scan and Literature Review. Changing Tastes
Economics and Food	North American Roadmap Part Two: A Roadmap for City Food Sector Innovation and Investment. Changing Tastes
Economics and Food	The $11T Reward: How Simple Dietary Changes Can Save Lives and Money, and How We Get There. Union of Concerned Scientists
Equity and Climate Change	NRDC Urban Solutions Strategic Plan: Creating Strong, Just and Resilient Communities
Food and Place	Local Foods, Local Places Summary Report for 2015, 2016. Environmental Protection Agency (EPA)
Food Distribution	$16M Food Hub Could Break Ground Next Month
Food Distribution	Anthony Bourdain's Food Market Takes Shape
Food Distribution	Case Study of Baltimore Food Initiative
Food Distribution	Findings of the 2013 National Food Hub Survey
Food Distribution	Food Commons 2.0
Food Distribution	Food Production Campus Aims to Help Entrepreneurs Get Started
Food Distribution	Jack and Jake's (website for regional food hub in New Orleans)
Food Distribution	Making the Invisible Visible: Looking Back at 15 years of Local Food Systems Distribution Solution
Food Distribution	New Fresh Grocery Concepts Poised to Shake up St. Louis Market
Food Distribution	Running a Food Hub: Lessons Learned from the Field (Volume One)
Food Distribution	Why Louisville is Betting Big on a Massive Food Wonderland
Food System	Assessing the San Luis Obispo County Food System
Food System	City of Seattle's Food Action Plan
Food System	Food Markets Nourishing Development
Food System	Food Works: A Vision to Improve NYC's Food System
Food System	Food Works: A Vision to Improve NYC's Food System. Accomplishments and New Ideas 2013
Food System	Multnomah County Food Report
Food System	NYC Food Policy: Food Metrics Report for 2014
Food System	Resilient Food Systems, Resilient Cities: Recommendations for the City of Boston
Food System	Trends in U.S. Local and Regional Food Systems: a Report to Congress. USDA ERS
Food System	Planning / Baltimore Food Policy Initiative / Healthy Food Retail
Economics and Agriculture	Contra Costa County Food System Analysis and Economic Strategy
Food Distribution	Making the Invisible Visible: Looking Back at 15 years of Local Food Systems Distribution Solution
Food Distribution	Findings of the 2013 National Food Hub Survey
Food Distribution	Running a Food Hub: Lessons Learned from the Field (Volume One)
Equity and Climate Change	NRDC Urban Solutions Strategic Plan: Creating Strong, Just and Resilient Communities

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