SEWRPC Planning Report No. 58

A REGIONAL FOOD SYSTEM PLAN FOR SOUTHEASTERN WISCONSIN

# Chapter 2

# THE FOOD SYSTEM

## 2.1 INTRODUCTION TO THE FOOD SYSTEM

"*There is one place that nearly everything that matters in the world today converges: our food and our food system-the complex web of how we grow food, how we produce, distribute, and promote it; what we eat, what we waste, and the policies that perpetuate unimaginable suffering and destruction across the globe that deplete our human, social, economic, and natural capital.*"[1]

Everyone needs to eat to survive. Food is the fuel that supplies nutrients for growth, energy to move, and tastes and experiences that shape our lives. However, despite the importance of food in our lives, our food system is mostly removed from the public eye. The food system is a complex web of activities, processes, and actors involved in the production, processing, distribution, transport, sale, consumption, and disposal of food products. A sustainable food system ensures adequate nutrition for all in a way that protects economic, social, and environmental interests for the future.[2] Figure 2.1 provides a visual of our food system, from food grown on farms to consumer waste.

[1] *Steve Ventura and Martin Bailkey, eds., Good Food, Strong Communities: Promoting Social Justice through Local and Regional Food Systems, 212 (University of Iowa Press, 2017).*

[2] *Hahn Nguyen, "Sustainable Food Systems: Concept and Framework" (Food and Agriculture Organization of the United Nations, 2018), www.fao.org/3/ca2079en/CA2079EN.pdf.*

**Figure 2.1**
**The Food System**




*Source: SEWRPC*

The journey from farm to plate begins with the first stage in the food system—production. Food production involves preparing farmland, selecting seeds, cultivating the plants or raising the animals, ensuring adequate soil fertility, managing pests, harvesting the crop, and managing the crop residue on the farmland.[3] Food processing follows once the crop or animal has been harvested.[4] There are various levels to food processing, although much of the food consumed in our society has been processed to some degree. For instance, fresh produce may only get washed, sorted, and packaged, but dairy products must be cooled, separated into components, and packaged. Following processing is food distribution, whether it is transported by trucks, trains, boats, or planes.[5] Eventually, food finds its way to the point-of-sale, which typically occurs at grocery stores, convenience stores, restaurants, or other marketplaces.[6] Once we've purchased or received our food, we get to consume it. Ultimately any leftover food, from any point in the food system, becomes waste.[7] If disposed of properly, food waste can provide nutrient inputs for future food production.

Regional food system planning requires a broad assessment of a community or region, which provides information on that food system's "resources, assets, challenges and opportunities."[8] Throughout this planning process, food system stakeholders, community members, and planners worked together to identify potential growth areas and envision a food system that benefits everyone. Regional food systems have several positive features; they are community-based, relational, participatory, healthy, economical, inclusive, and equitable.[9] Regional food system planning benefits consumers by ensuring access to fresh food, decreased transportation costs, and increased food literacy; they benefit producers by allowing more opportunity to develop relationships with residents and the greater community; and regional food systems

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[3] *Oran B. Hesterman, PhD, Fair Food: Growing a Healthy, Sustainable Food System for All (PublicAffairs, 2011).*

[4] Ibid.

[5] Ibid.

[6] Ibid.

[7] Ibid.

[8] *American Planning Association, "APA Knowledgebase Collection: Food Systems," accessed November 16, 2020, www.planning.org/knowledgebase/food.*

[9] *Mary Hendrickson, Sarah Massengale, and Crystal Weber, "Introduction to Local Food Systems," Community and Leadership (University of Missouri Extension), 1-2, extension.missouri.edu/media/wysiwyg/Extensiondata/Pub/pdf/commdm/dm0271.pdf.*

benefit communities by supporting local economies, increasing food safety and security, and developing greater food literacy and relationships with producers.[10]

The background information presented in this chapter helps to establish the foundation for the rest of this Regional Food System Plan by presenting information on the food system generally, and in the context of Southeastern Wisconsin specifically. This chapter explores the stages of the food system including agricultural production, processing and manufacturing, distribution, consumption, and food recovery and waste.

## 2.2 AGRICULTURAL PRODUCTION

### Background

Farms produce food by cultivating certain crops and raising animals for food.[11] In the past, our food system was much simpler. Before modern agriculture, most people spent much of their time hunting and gathering food. When most people lived in rural areas and took part in farming, the system was much more localized. Households often grew most of the food they ate through subsistence farming, and long-distance food shipment was an anomaly. Subsistence farms typically require a small land area and limited infrastructure and resource inputs (e.g., pesticides and fertilizers), and they only produce enough food to meet their household needs.[12] Over time, our system needed to grow to meet the needs of our growing cities. With the Industrial Revolution, new technological advances in machinery, crop genetics, and agricultural chemicals presented avenues for increasing the amount of food farmers produced and overall food security. These productivity shifts allowed for growth in other fields, such as manufacturing, health care, social services, and education. Had most people still been engaged in farming, there would have been fewer trained individuals to further develop our society into what it is today. Because of these scientific and technological advances, our society became urbanized, and consumers became disconnected from their food source, leading to greater specialization and centralization of the food system.[13]

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[10] Ibid.

[11] *Agriculture, Reference, ScienceDaily, accessed January 25, 2021, www.sciencedaily.com/terms/agriculture.htm.*

[12] Ibid.

[13] *Oran B. Hesterman, PhD, Fair Food, 8.*

Today in the U.S., farmers account for merely 1 percent of the population. While any farm that sells food would be considered a commercial farm, there are vast differences between small-scale and large-scale farming operations, in both the ways in which the food is often produced and the impacts of that food production on the environment, the economy, and our health.

## Agriculture in Southeastern Wisconsin

While Southeastern Wisconsin is the most developed area of the State, there is still a vibrant agricultural industry in the Region. The following section discusses some of the basic characteristics of farming in the Region, including development pressure and farmland, commodities produced, farm financing, and urban agriculture.

### *Development Pressure and Farmland*

Food has largely been grown in the more rural areas of the Region because of the availability of highly productive farmland, and farming has played an important role in the rural communities of Southeastern Wisconsin. Our farms provide not only food and fiber, but also contribute to wildlife habitat and provide form and structure to community development. Maintaining farmland serves to promote compact urban development and efficient and cost-effective provision of urban services. It also preserves the rural lifestyle that is part of the Region's heritage.

To monitor development pressure and the use of farmland in the Region, the Commission uses two types of inventories—an urban growth analysis and a land use inventory. For the purposes of this report, these inventories have been used to discuss the development pressure facing the Region's farmers and to identify how farmland is used in the Region.

#### Development Pressure

The Commission's urban growth analysis paints a picture of how the Region has grown over time and how changes in development patterns have put pressure on the Region's existing farmland. The urban growth analysis, last updated in 2010 to support developing VISION 2050, identifies concentrations of urban development and shows the Region's urbanization over a 160 year period. Areas identified as urban under this time series analysis include residential structures or other buildings that have been constructed in relatively compact groups, showing a concentration of residential, commercial, industrial, governmental, institutional, or other urban land uses. Aerial photographs have been used to identify urban growth that has occurred since 1940, and a variety of historical resources have been used to identify urban growth that occurred before 1940.

The urban growth analysis is presented on Map 2.1. In 1850, the Region's urban development was concentrated primarily in established urban centers such as Burlington, Kenosha, Milwaukee, Port Washington, Racine, Waukesha, and West Bend, with many smaller settlements throughout the Region. Over the 100-year period from 1850 to 1950, urban development in the Region occurred in a pattern resembling concentric rings around existing urban centers, resulting in a relatively compact regional settlement pattern.

After 1950, there was a notable change in the pattern and rate of urban development in the Region. While substantial amounts of development continued to occur next to established urban centers, considerable development also occurred in isolated enclaves in the Region's outlying areas. Map 2.1 shows a continuation of this trend during the 2000s, with developments occurring next to existing urban centers and considerable development in scattered fashion in outlying areas. The changing development pattern, along with declining household size, has resulted in declining population density. As shown in Figure 2.2, both the urban population and household density of the Region have declined between 1940 and 2010, with the sharpest decline happening between 1940 and 1980.

The effects of the changing development pattern and decline in density have put increased pressure on farmland. More farmland must be converted to non-agricultural uses to accommodate the same number of homes than would be needed under a more compact development pattern, such as that recommended by VISION 2050, the regional land use and transportation plan.

Existing Farmland

The Commission land use inventory identifies existing land use by detailed land use category for the entire area of the Region at selected points in time. The land use classification system used in the inventory consists of nine major categories that are divisible into sixty-five sub-categories, making the inventory suitable for land use and transportation planning; adaptable to stormwater drainage, public utility, and community facility planning; and compatible with other land use classification systems. Aerial photographs (orthophotographs) serve as the primary basis for identifying existing land use. Table 2.1 and Map 2.2 present exiting land use data from the 2010 land use inventory and Table 2.2 presents the regional change in agricultural land between 1963 (when the first SEWRPC land use inventory was conducted) and 2010.

Table 2.1 shows that about 1,156 square miles, or 43 percent of the total area of the Region, were in agricultural use in 2010. As shown on Map 2.3, large, essentially uninterrupted blocks of agricultural land

## Map 2.1
## Historical Urban Growth in the Region: 1850-2010

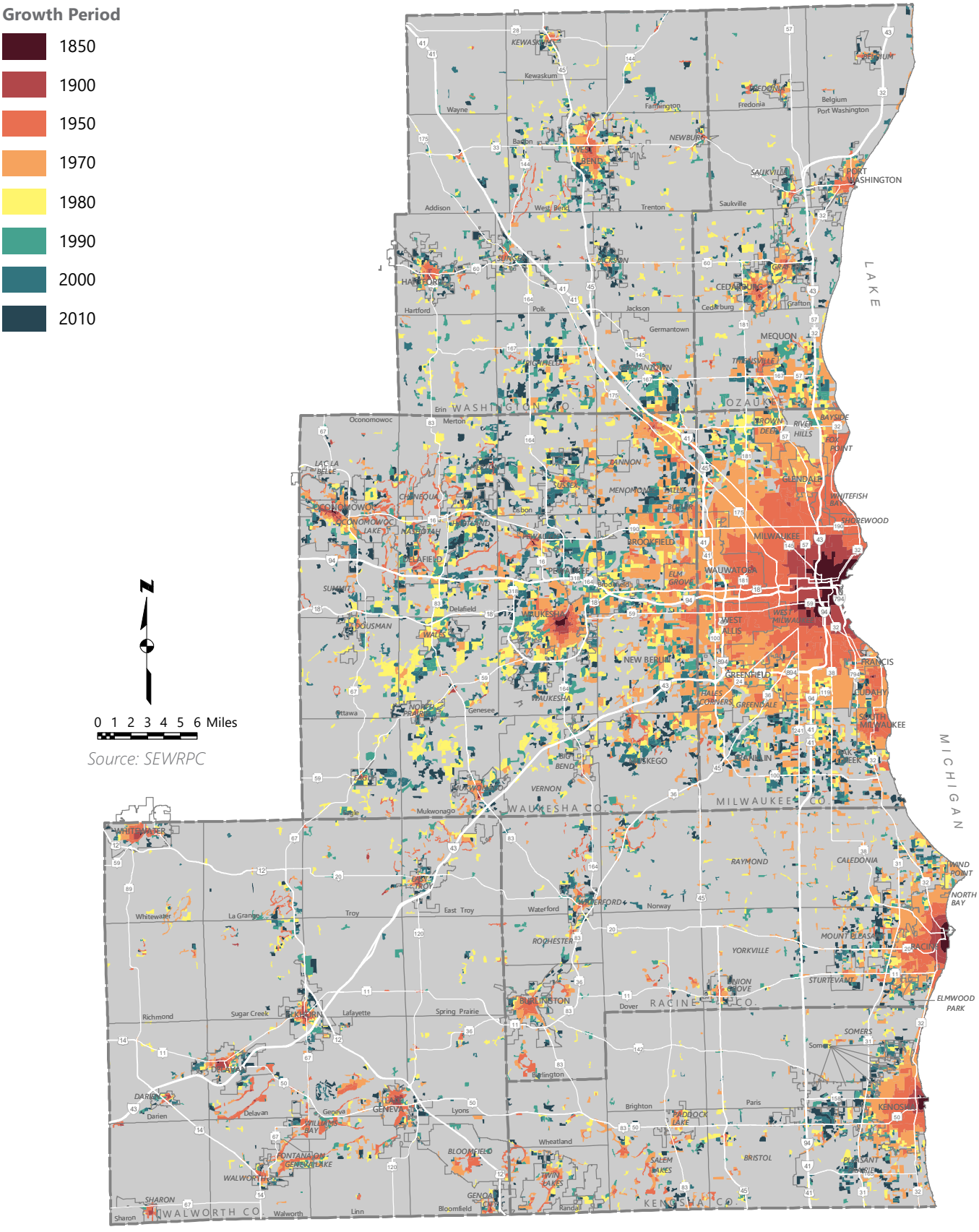
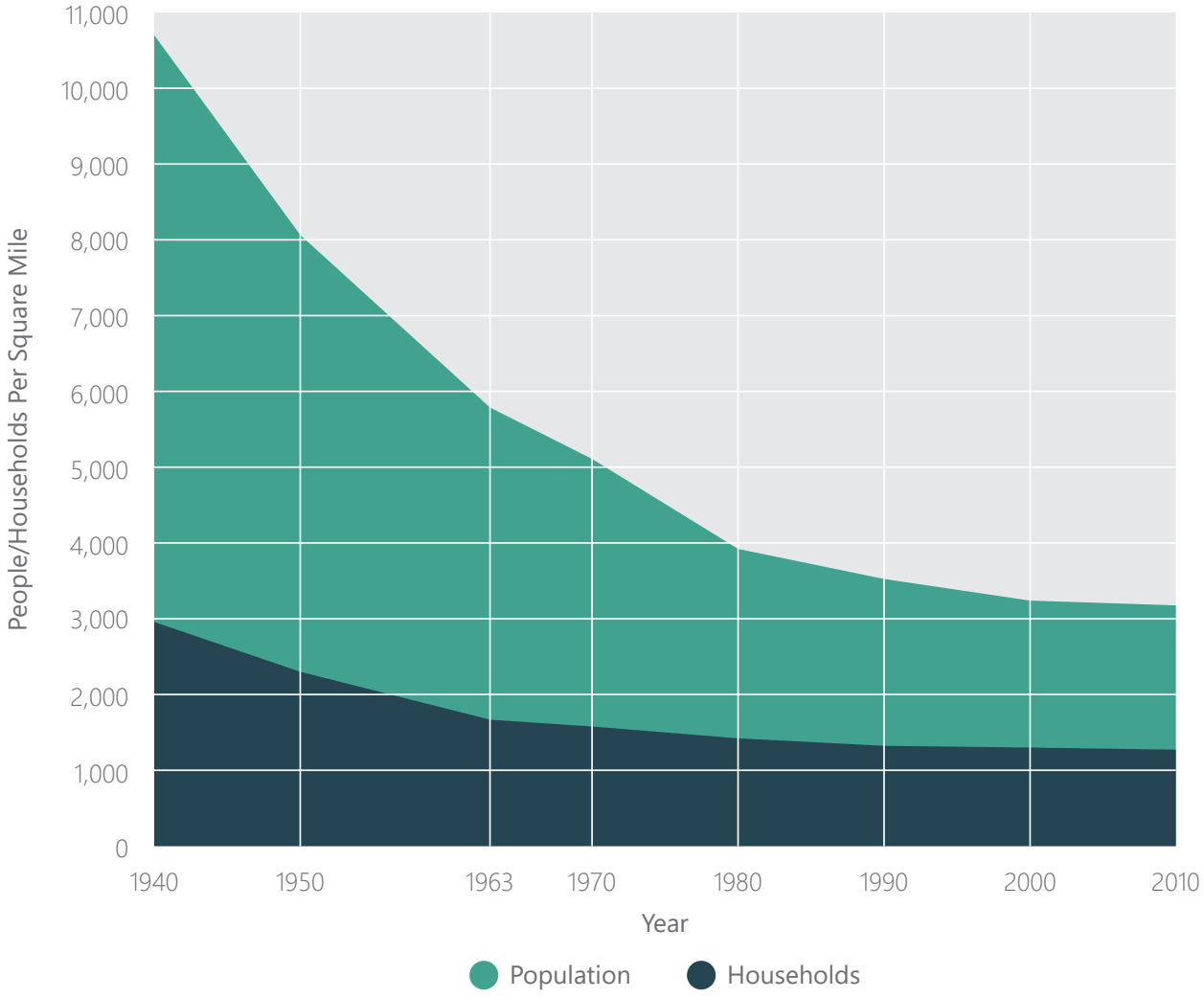


**Figure 2.2**
**Population and Household Density in the Region: 1940-2010**




Note: This figure does not include rural farm population and households

*Source: U.S. Bureau of the Census and SEWRPC*

#257130 – Table 2.1 – Existing Land Use in the Region by County: 2010
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## Table 2.1
## Existing Land Use in the Region by County: 2010

| Land Use | Kenosha | | Milwaukee | | Ozaukee | | Racine | | Walworth | | Washington | | Waukesha | | Region | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Miles | Percent of Total | Square Miles | Percent of Total | Square Miles | Percent of Total | Square Miles | Percent of Total | Square Miles | Percent of Total | Square Miles | Percent of Total | Square Miles | Percent of Total | Square Miles | Percent of Total |
| Developed Land | | | | | | | | | | | | | | | | |
| Residential | 32.4 | 11.6 | 81.0 | 33.4 | 31.5 | 13.4 | 41.8 | 12.3 | 36.3 | 6.3 | 47.0 | 10.8 | 131.0 | 22.6 | 401.0 | 14.9 |
| Commercial | 2.7 | 1.0 | 12.3 | 5.1 | 1.8 | 0.8 | 3.6 | 1.1 | 2.4 | 0.4 | 2.7 | 0.6 | 10.1 | 1.7 | 35.6 | 1.3 |
| Industrial | 2.9 | 1.0 | 11.2 | 4.6 | 1.9 | 0.8 | 4.3 | 1.3 | 2.5 | 0.4 | 2.9 | 0.7 | 9.3 | 1.6 | 35.0 | 1.3 |
| Transportation, Communication, and Utilities | 19.4 | 7.0 | 53.2 | 21.9 | 15.9 | 6.8 | 22.6 | 6.6 | 26.1 | 4.5 | 26.3 | 6.0 | 50.4 | 8.7 | 213.9 | 8.0 |
| Governmental and Institutional | 3.2 | 1.2 | 13.3 | 5.5 | 2.1 | 0.9 | 3.9 | 1.1 | 2.9 | 0.5 | 2.7 | 0.6 | 8.8 | 1.5 | 36.9 | 1.4 |
| Recreational[a] | 5.9 | 2.1 | 12.3 | 5.1 | 4.1 | 1.7 | 5.3 | 1.5 | 7.3 | 1.3 | 6.5 | 1.5 | 14.7 | 2.5 | 56.1 | 2.1 |
| Developed Land Subtotal | 66.5 | 23.9 | 183.3 | 75.6 | 57.3 | 24.4 | 81.5 | 23.9 | 77.5 | 13.4 | 88.1 | 20.2 | 224.3 | 38.6 | 778.5 | 29.0 |
| Undeveloped Land | | | | | | | | | | | | | | | | |
| Agricultural[b] | 136.6 | 49.0 | 15.6 | 6.4 | 118.2 | 50.2 | 180.7 | 53.0 | 352.6 | 61.2 | 203.0 | 46.6 | 148.8 | 25.6 | 1,155.5 | 43.0 |
| Natural Resource Areas | | | | | | | | | | | | | | | | |
| Surface Water | 28.9 | 10.4 | 11.6 | 4.8 | 30.8 | 13.1 | 29.8 | 8.7 | 51.4 | 8.9 | 72.7 | 16.7 | 89.9 | 15.5 | 315.1 | 11.7 |
| Wetlands | 15.9 | 5.7 | 7.4 | 3.0 | 11.4 | 4.8 | 19.6 | 5.8 | 51.8 | 9.0 | 37.6 | 8.7 | 47.7 | 8.2 | 191.4 | 7.1 |
| Woodlands | 8.8 | 3.2 | 2.4 | 1.0 | 4.1 | 1.7 | 9.4 | 2.8 | 23.7 | 4.1 | 8.0 | 1.8 | 28.2 | 4.9 | 84.6 | 3.1 |
| Natural Resource Areas Subtotal | 53.6 | 19.3 | 21.4 | 8.8 | 46.3 | 19.6 | 58.8 | 17.3 | 126.9 | 22.0 | 118.3 | 27.2 | 165.8 | 28.6 | 591.1 | 21.9 |
| Unused and Other Open Land[c] | 21.8 | 7.8 | 22.4 | 9.2 | 13.6 | 5.8 | 19.7 | 5.8 | 19.4 | 3.4 | 26.1 | 6.0 | 41.6 | 7.2 | 164.6 | 6.1 |
| Undeveloped Land Subtotal | 212.0 | 76.1 | 59.4 | 24.4 | 178.1 | 75.6 | 259.2 | 76.1 | 498.9 | 86.6 | 347.4 | 79.8 | 356.2 | 61.4 | 1,911.2 | 71.0 |
| Total | 278.5 | 100.0 | 242.7 | 100.0 | 235.4 | 100.0 | 340.7 | 100.0 | 576.4 | 100.0 | 435.5 | 100.0 | 580.5 | 100.0 | 2,689.7 | 100.0 |

Note: Off-street parking area is included with the associated use.

[a] *Includes only intensive use recreational land.*

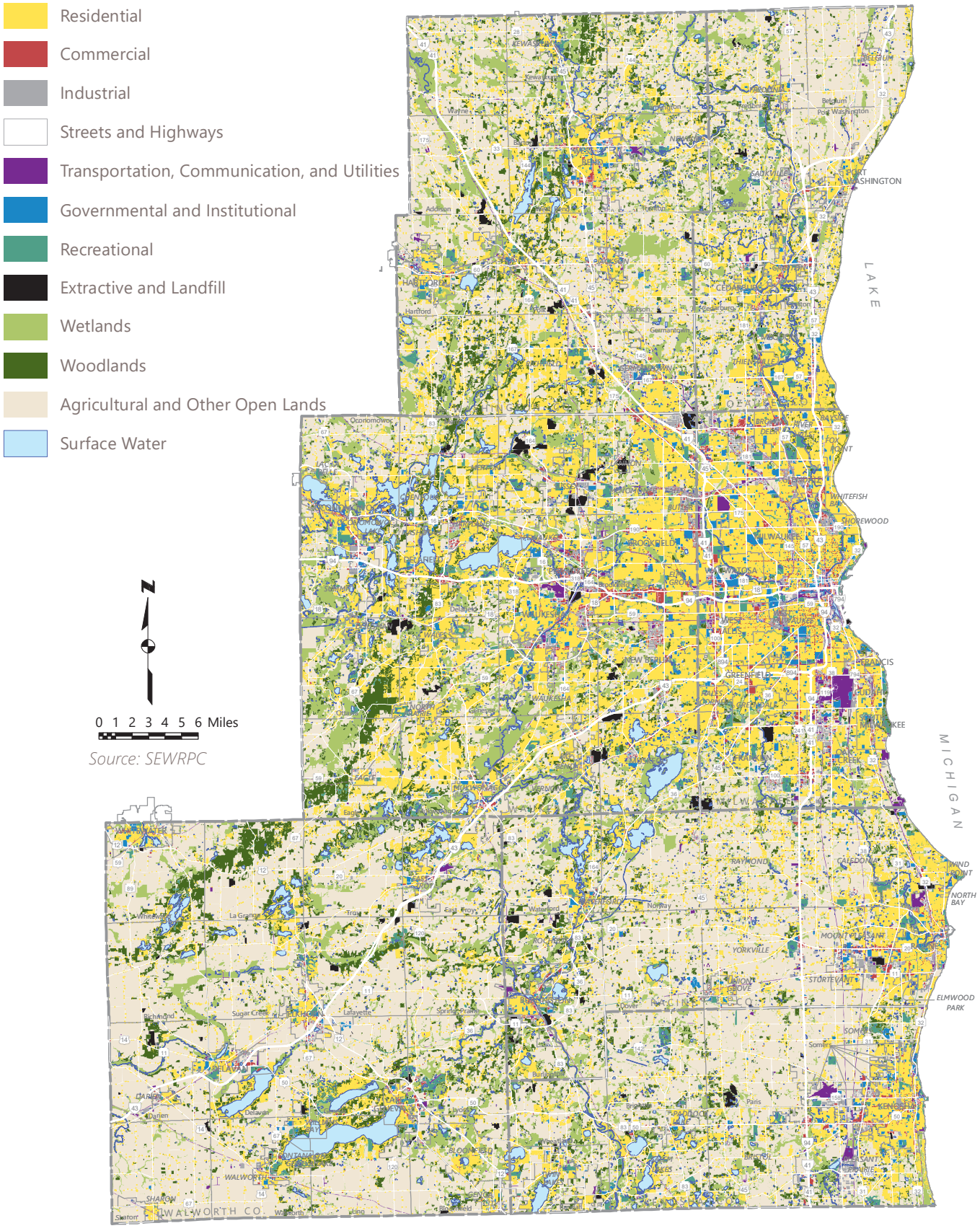
[b] *Includes farmed wetlands.*

[c] *Includes landfills and mineral extraction sites.*

*Source: SEWRPC*

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## Map 2.2
## Existing Land Use in the Region: 2010




*Source: SEWRPC*

## Table 2.2
## Agricultural Land Uses in the Region: 1963-2010

| Year | Kenosha | | Milwaukee | | Ozaukee | | Racine | |
|---|---|---|---|---|---|---|---|---|
| | Square Miles | Percent of Total | Square Miles | Percent of Total | Square Miles | Percent of Total | Square Miles | Percent of Total |
| Existing Land Use | | | | | | | | |
| 1963 | 178.2 | 64.0 | 53.2 | 21.9 | 162.7 | 69.1 | 232.4 | 68.2 |
| 1980 | 167.7 | 60.2 | 36.0 | 14.8 | 146.6 | 62.3 | 216.0 | 63.4 |
| 2000 | 148.0 | 53.2 | 20.2 | 8.3 | 126.9 | 53.9 | 195.5 | 57.4 |
| 2010 | 136.6 | 49.1 | 15.6 | 6.4 | 118.2 | 50.2 | 180.7 | 53.1 |
| Change in Land Use | | | | | | | | |
| 1963-1980 | -10.5 | -5.9 | -17.2 | -32.3 | -16.1 | -9.9 | -16.4 | -7.1 |
| 1980-2000 | -19.7 | -11.7 | -15.8 | -43.9 | -19.7 | -13.4 | -20.5 | -9.5 |
| 2000-2010 | -11.4 | -7.7 | -4.6 | -22.8 | -8.7 | -6.9 | -14.8 | -7.6 |

| Year | Walworth | | Washington | | Waukesha | | Region | |
|---|---|---|---|---|---|---|---|---|
| | Square Miles | Percent of Total | Square Miles | Percent of Total | Square Miles | Percent of Total | Square Miles | Percent of Total |
| Existing Land Use | | | | | | | | |
| 1963 | 407.3 | 70.7 | 290.5 | 66.7 | 312.9 | 53.9 | 1,637.1 | 60.9 |
| 1980 | 391.7 | 67.9 | 265.0 | 60.8 | 252.4 | 43.5 | 1,475.4 | 54.9 |
| 2000 | 368.4 | 63.9 | 221.5 | 50.8 | 176.0 | 30.3 | 1,256.4 | 46.7 |
| 2010 | 352.6 | 61.2 | 203.0 | 46.6 | 148.8 | 25.6 | 1,155.5 | 43.0 |
| Change in Land Use | | | | | | | | |
| 1963-1980 | -15.6 | -3.8 | -25.5 | -8.8 | -60.5 | -19.3 | -161.7 | -9.9 |
| 1980-2000 | -23.3 | -5.9 | -43.5 | -16.4 | -76.4 | -30.3 | -218.9 | -14.8 |
| 2000-2010 | -15.8 | -4.3 | -18.5 | -8.4 | -27.2 | -15.5 | -101.0 | -8.0 |

Note: As a result of a change in inventory procedures, the 2010 data for agriculture is not directly comparable with data for the year 2000 and prior years. As part of the 2010 land use inventory, wetlands were mapped at a much finer scale and level of detail as compared to prior inventories, increasing the accuracy and precision of wetland mapping throughout the Region, and providing for basic consistency with the Wisconsin Wetlands Inventory. This resulted in the identification of more, smaller wetlands than in the past, contributing to the reported increase in the wetland area. This effort also resulted in the identification of more, smaller surface water areas than in the past, contributing to the reported increase in the overall surface water area. The more comprehensive mapping of wetlands and surface water is, in turn, responsible for part of the reported decrease in the agricultural land area of the Region.

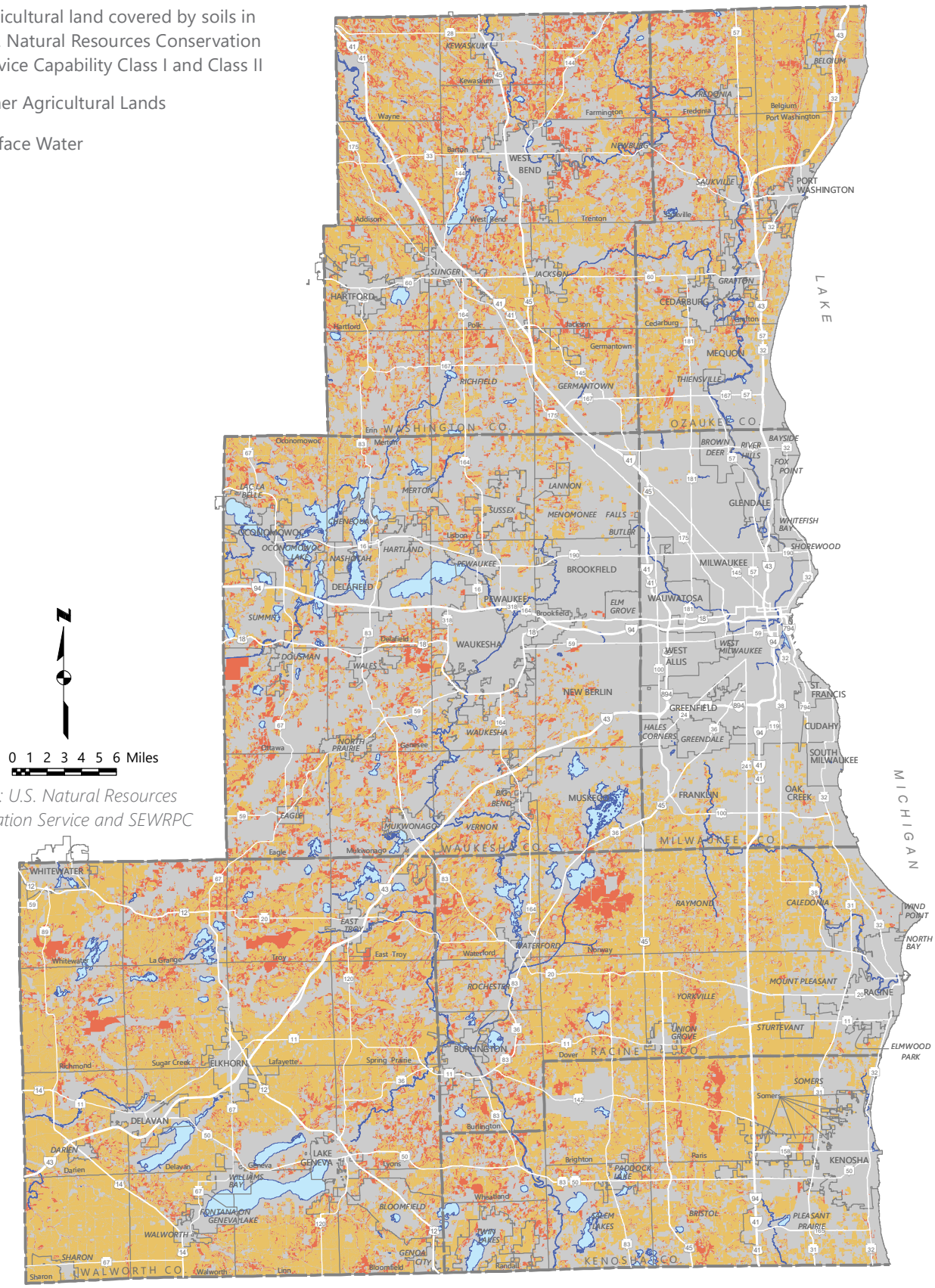
*Source: SEWRPC*

## Map 2.3
## Agricultural Lands in the Region: 2010

Agricultural land covered by soils in U.S. Natural Resources Conservation Service Capability Class I and Class II

Other Agricultural Lands

Surface Water




*Source: U.S. Natural Resources Conservation Service and SEWRPC*

remain in the Region, particularly in outlying areas. In other areas, farmland is more fragmented, being intermixed with nonagricultural uses. As further shown on Map 2.3, much of the existing agricultural land in the Region (887 acres or 77 percent) is covered by highly productive soils—comprised of soils in agricultural capability Class I and Class II, as classified by the U.S. Natural Resources Conservation Service.[14] Further discussion regarding soil suitability for agricultural production and soil health is presented in Chapter 4, *Environmental Stewardship*.

Table 2.2 shows that about 380 square miles of agricultural land were lost between 1963 and 2000 and another 100 square miles were lost between 2000 and 2010. As explained in the note on Table 2.2, the 2010 data for agricultural land are not directly comparable to prior years because of a change in land use inventory procedures.

Table 2.3 and Map 2.4 present more detailed information about the different types of agricultural uses in the Region, including the following:

- Cultivated Lands—including lands used to cultivate crops such as row crops, grain crops, vegetable crops, and hay

- Pasture and Unused Agricultural Lands—including lands used as pasture, or lands that were formerly cultivated or used for pasture and have not yet succeeded to a wetland or woodland plant community

- Orchards and Nurseries—including lands used for orchards, nurseries, and sod farms

[14] T*he NRCS has classified soils into capability groupings that indicate their general suitability for most kinds of farming. The groupings are based upon composition and limitations of the soils, the risk of damage when used, and the way they respond to treatment. Under the NRCS system, there are eight capability classes ranging from Class I, which have few limitations, to Class VIII, which have severe limitations due to soils and landforms so rough, shallow, or otherwise limited that they do not produce economically worthwhile yields of crops, forage, or wood products. In general, Class I soils are more arable and suitable for farmland; Class II soils have some limitations that reduce the choice of plants that can be grown or require moderate conservation practices to reduce the risk of damage when used; Class III and IV soils have severe limitations that reduce the choice of plants, require special conservation practices, or both. The soils in the remaining classes have progressively greater natural limitations not suitable for cropland, but can be used to pasture, grazing, woodland, wildlife, recreation, and aesthetic purposes. Generally, lands with Class I and II soils are considered "National Prime Farmlands" and lands with Class III soils are considered "Farmlands of Statewide Significance."*

#261585 – Table 2.3 – Agricultural Land Use: 2010
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## Table 2.3
## Agricultural Land Use Types in the Region: 2010

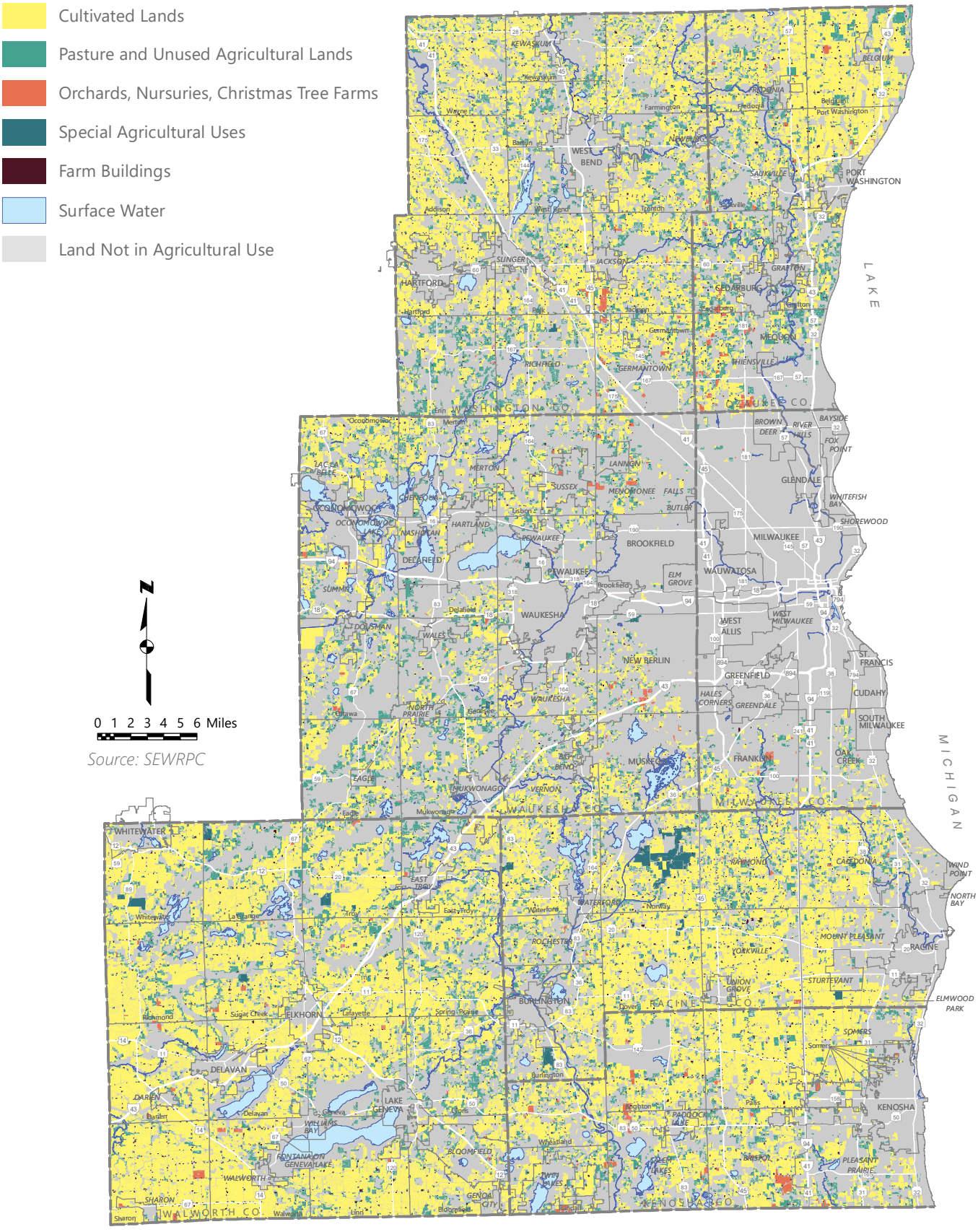
| Land Use | Kenosha (acres) | Milwaukee (acres) | Ozaukee (acres) | Racine (acres) | Walworth (acres) | Washington (acres) | Waukesha (acres) | Region (acres) |
|---|---|---|---|---|---|---|---|---|
| Cultivated Lands | 71,544 | 6,991 | 57,450 | 95,630 | 190,779 | 101,635 | 66,364 | 590,393 |
| Pasture and Unused Agricultural Lands | 12,424 | 2,594 | 15,248 | 13,875 | 28,999 | 24,221 | 25,234 | 122,595 |
| Orchards, Nurseries, Christmas Tree Farms | 1,929 | 288 | 1,383 | 437 | 1,357 | 1,168 | 1,340 | 7,902 |
| Special Agricultural Uses | 28 | -- | -- | 3,628 | 1,123 | 216 | 410 | 5,405 |
| Farm Buildings | 1,505 | 136 | 1,573 | 2,070 | 3,398 | 2,696 | 1,859 | 13,237 |
| Total | 87,430 | 10,009 | 75,654 | 115,640 | 225,656 | 129,936 | 95,207 | 739,532 |

Note: (--) Represents zero.

*Source: SEWRPC*

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## Map 2.4
## Agricultural Lands in the Region: 2010




Source: SEWRPC

- Farm Buildings—including barns, silos, and other buildings used to store farm equipment or supplies or house farm animals

Cultivated lands are the predominant type of agricultural land use in the Region and each County, accounting for nearly 80 percent of all land used for agricultural purposes in the Region in 2010. Walworth County had the most cultivated lands at 190,779 acres, representing approximately 32 percent of all cultivated lands in the Region in 2010.

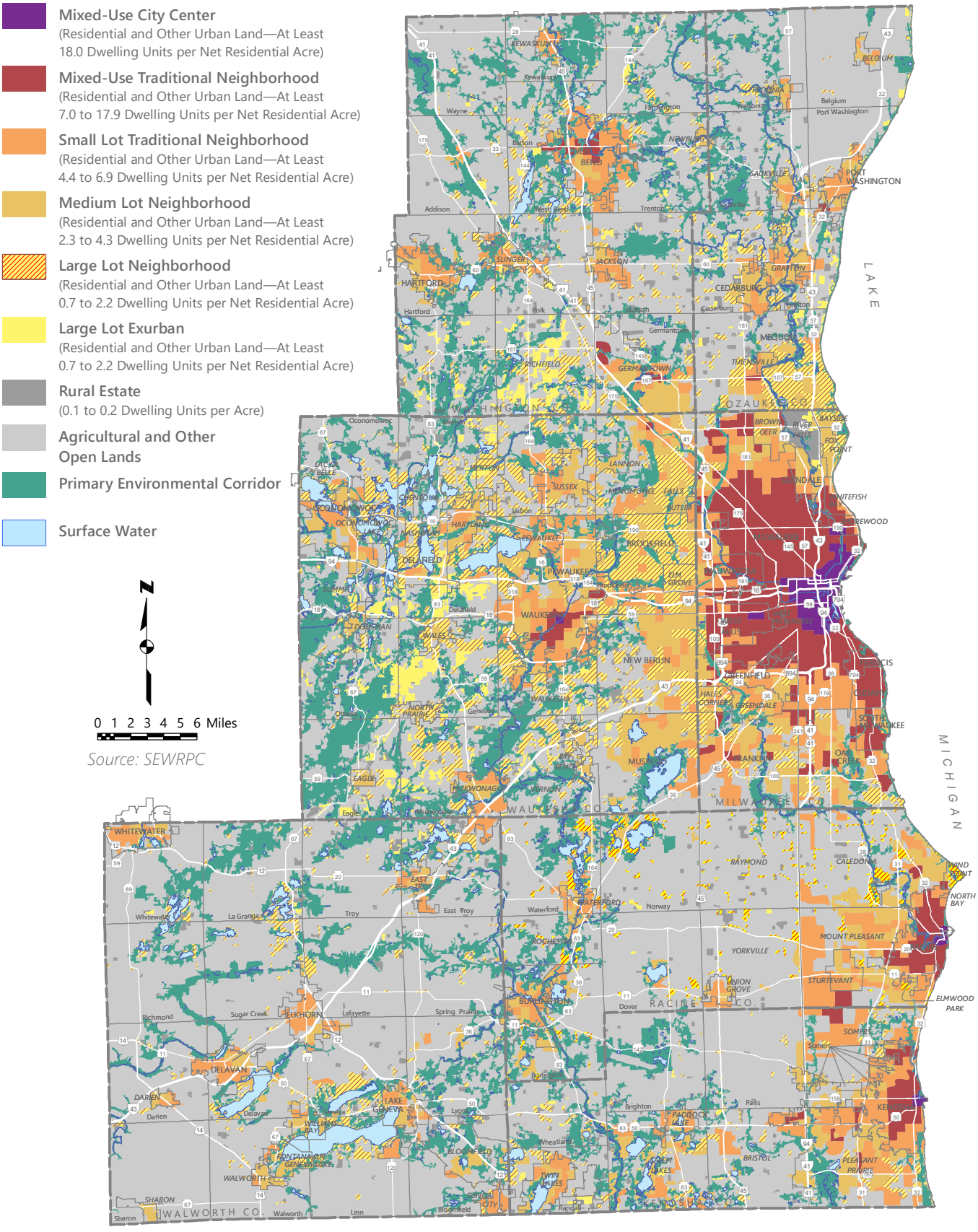
Planned Farmland

VISION 2050 recommends a compact development pattern, shown on Map 2.5 and Figure 2.3, and minimizing the impacts of new development on productive agricultural land, including highly productive Class I and II soils (prime agricultural land) as classified by the NRCS. Some Class I and II farmland located in the vicinity of existing urban service areas may be recommended for future urban use to facilitate planned expansion of those urban service areas. A total of 1,090 square miles would remain in agricultural use under VISION 2050, which is 94 percent of the existing agricultural area. Table 2.4 presents existing and planned agricultural land use in the Region if VISION 2050 were to be implemented.

VISION 2050 recognizes the impact of market forces on the location, intensity, and character of future urban development. It also recognizes the important role of communities in development decisions. VISION 2050 is intended to provide a guide, or overall framework, for future land use within the Region. Implementation of the land use recommendations relies on the actions of local, county, State, and Federal agencies, and units of government in conjunction with the private sector.

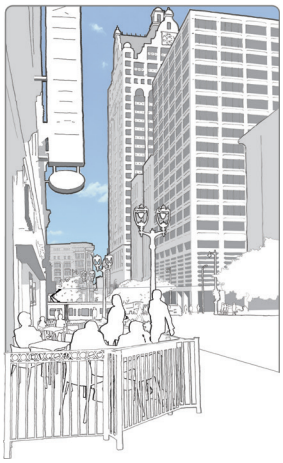
VISION 2050 implementation status was reviewed in 2020 and it was found that some of the development trends since 2010 have helped to implement the recommendation to preserve productive agricultural lands and some have not. About 86 percent of the new residential lots created through subdivision plats were located within planned urban service areas as recommended by VISION 2050 and there was a focus on multifamily residential development, both of which help to preserve productive agricultural land by supporting the recommended compact development pattern. However, there was still a significant amount of residential development outside planned urban service areas and many of the subdivisions platted within planned urban service areas were at lower than recommended densities.

## Map 2.5
## Land Use Development Pattern: VISION 2050



## Figure 2.3
## VISION 2050 Land Use Categories

The recommended VISION 2050 land use pattern was developed by allocating new households and employment envisioned for the Region under the Commission's year 2050 growth projections to a series of seven land use categories that represent a variety of development densities and mixes of uses.



***MIXED-USE CITY CENTER***
Mix of very high-density offices, businesses, and housing found in the most densely populated areas of the Region



***MEDIUM LOT NEIGHBORHOOD (showing lots of about 15,000 square feet)***
Primarily single-family homes on ¼- to ½-acre lots found at the edges of cities and villages



***LARGE LOT NEIGHBORHOOD (showing lots of about ½ acre)***
Primarily single-family homes on ½-acre to one-acre lots found at the edges of cities and villages and scattered outside cities and villages



***MIXED-USE TRADITIONAL NEIGHBORHOOD***
Mix of high-density housing, businesses, and offices found in densely populated areas



***LARGE LOT EXURBAN (showing lots of about 1.5 acres)***
Single-family homes at an overall density of one home per 1.5 to five acres scattered outside cities and villages



***SMALL LOT TRADITIONAL NEIGHBORHOOD (showing lots of about 7,000 square feet)***
Mix of housing types and businesses with single-family homes on lots of ¼-acre or less and multifamily housing found within and at the edges of cities and villages



***RURAL ESTATE (showing a cluster subdivision with one-acre lots)***
Single-family homes at an overall density of one home per five acres scattered outside cities and villages

*Source: SEWRPC*

#257931– Table 2.4 - Existing and Planned Agricultural Land Use in the Region: 2010 and 2050
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MLP/KES/mid
6/3/2021

## Table 2.4
## Existing and Planned Agricultural Land Use in the Region: 2010 and 2050

| | Agricultural Land[a] (square miles) | | |
|---|---|---|---|
| **County** | 2010 | Change | 2050 |
| Kenosha | 136.6 | -14.1 | 122.5 |
| Milwaukee | 15.6 | -2.4 | 13.2 |
| Ozaukee | 118.2 | -4.6 | 113.6 |
| Racine | 180.7 | -10.8 | 169.9 |
| Walworth | 352.6 | -8.2 | 344.4 |
| Washington | 203.0 | -8.8 | 194.2 |
| Waukesha | 148.8 | -16.7 | 132.1 |
| Region | 1,155.5 | -65.8 | 1,089.7 |

[a] *Includes farmed wetlands.*

*Source: SEWRPC*

Farmland Preservation Plans

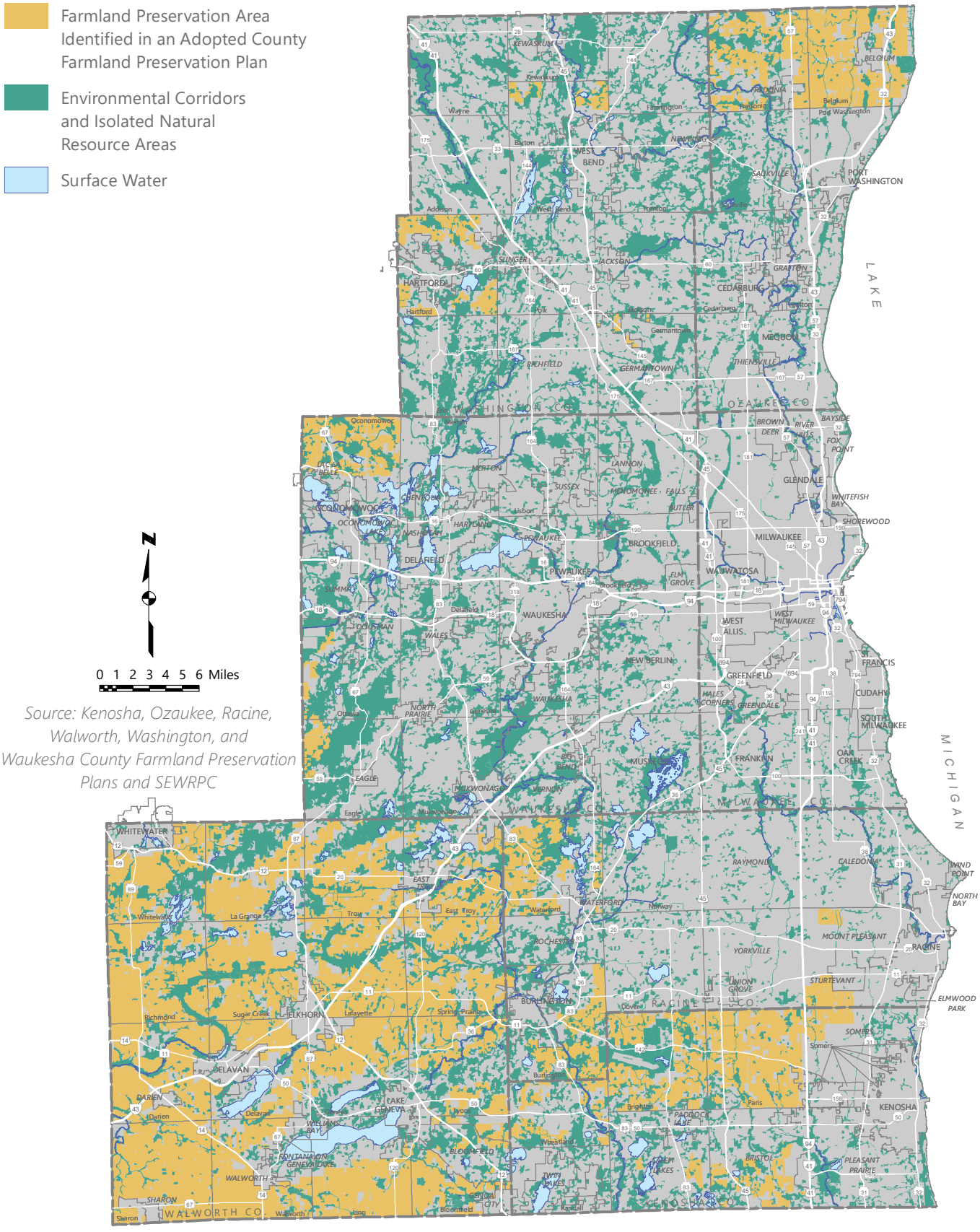
Under the Wisconsin Farmland Preservation law (Chapter 91 of the *Wisconsin Statutes*), counties in the State are responsible for preparing farmland preservation plans. The six counties in the Region with substantial amounts of agricultural land, Kenosha, Ozaukee, Racine, Walworth, Washington, and Waukesha, initially prepared farmland preservation plans in the late 1970s and early 1980s. The year 2035 regional land use plan recommended that those counties, in cooperation with the concerned local governments, update and extend those plans. The regional plan recommended that such planning place an emphasis on preserving Class I and Class II soils. The regional plan recognized that counties may also consider other agricultural soil classes as well as other factors—such as the size of farm units, the overall size of the farming area, the availability of farm implement dealers, and conflicts between farming operations and urban activities—in identifying farmland preservation areas.

Changes to the Wisconsin Farmland Preservation law enacted by the State Legislature in 2009 effectively required that counties update their farmland preservation plans as one of the conditions for continued landowner participation in the Farmland Preservation tax credit program. By the end of 2013, Kenosha, Ozaukee, Racine, Walworth, Washington, and Waukesha Counties had prepared and adopted new farmland preservation plans (the plans can be accessed on the SEWRPC website). All the plans have been certified by the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) by the end of 2013 as meeting the farmland preservation planning standards set forth in Chapter 91. Walworth County was in the process of another update to its plan during the writing of this report.

The farmland preservation areas identified in the updated county farmland preservation plans are shown on Map 2.6. The largest concentration of farmland identified for preservation is located in the southwest and south-central areas of the Region—including Walworth County, Kenosha County west of IH 94, and the far westerly portion of Racine County. A relatively large farmland preservation area has also been identified in northern Ozaukee County. Smaller farmland preservation areas have been identified in Washington and Waukesha Counties.

While large blocks of Class I and Class II agricultural land have been included in the farmland preservation areas identified in county farmland preservation plans, many farming areas with concentrations of Class I and Class II soils have been excluded. Some Class I and Class II areas were excluded from the farmland preservation area on the basis of non-soil factors, such as minimum farm "block" size. However, the exclusion of much Class I and Class II farmland is attributable to local government reluctance to specifically

## Map 2.6
## Farmland Preservation Areas in the Region: 2013




*Source: Kenosha, Ozaukee, Racine, Walworth, Washington, and Waukesha County Farmland Preservation Plans and SEWRPC*

identify exclusive-use farming areas (often due to a lack of interest among landowners to participate in the Farmland Preservation Tax Credit Program). In general, the county farmland preservation plans identify farmland preservation areas only where local government support has been demonstrated.

In their local comprehensive plans, many communities have opted for less restrictive agricultural land use categories, often relying on agricultural-rural residential districts, which accommodate more residential development than would be allowed in an exclusive farmland preservation area (typically at a minimum overall density of one home per five acres). While such planning districts serve to maintain rural densities and rural character, they are not as effective as exclusive farmland preservation districts in preserving farmland.

***Farm Revenue and Production***

Farms and farm production are valuable indicators in determining the economic impact of agricultural operations in the Region. As part of the Federal Census of Agriculture, farms are defined as operations from which $1,000 or more of agricultural products were sold, or normally would be sold, during the year. A farm includes land owned and operated by the farmer as well as lands rented from others. The most recent Census of Agriculture available is from 2017.

Many of the farms in the Region are smaller farms that may also have relatively low sales figures suggesting that they could be hobby farms or farmed by workers with another principal occupation. While there are farms that do not produce significant amounts of revenue, 39 percent of the Region's farms are between 50 and 500 acres and 10 percent of the Region's farms are over 500 acres. Many of these farms are likely to produce commodity crops and have higher revenues. Tables 2.5 and 2.6 present information about farm size and sales in 2017.

When compared to the State and nation, the Region tends to have smaller farms, which is likely due to the relatively urbanized nature of the Region. In 2017 it was reported that there were total of 3,521 farms in the Region with an average size of 198 acres, which is smaller than the State average farm size of 221 acres, and much smaller than the national average farm size of 441 acres. As shown on Table 2.5, the average farm size was similar among each County in the Region except for Milwaukee County, ranging between 170 acres in Waukesha County and 218 acres in Washington County. Table 2.6 shows the number of farms in the Region by size and income range.

#256990 – Table 2.5 – Regional Overview: 2017
110-1249
MLP/mid
4/1/2021

## Table 2.5
## Average Farm Size: 2017

| Counties | Average Farm Size (Acres) |
|---|---|
| Kenosha | 187 |
| Milwaukee | (D) |
| Ozaukee | 188 |
| Racine | 209 |
| Walworth | 204 |
| Washington | 218 |
| Waukesha | 170 |
| Region | 196[a] |

[a] Milwaukee County is excluded from the calculation of the Region's average farm size due to lack of data.

Note: (D) Withheld to avoid disclosing data for individual operations.

*Source: USDA National Agriculture Statistics Service, Agricultural Census (2017)*

#256997 – Table 2.6 - Farms by Value of Sales and Size: 2017
110-1249
MLP/mid
4/1/2021

## Table 2.6
## Farms by Value of Sales and Size: 2017

| | Kenosha | | Milwaukee | | Ozaukee | | Racine | | Walworth | | Washington | | Waukesha | | Region | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Farms by Value of Sales | | | | | | | | | | | | | | | | |
| Less than $2,500 | 143 | 34.5 | 24 | 27.9 | 92 | 29.1 | 183 | 30.0 | 313 | 33.3 | 140 | 24.2 | 256 | 44.6 | 1,151 | 32.7 |
| $2,500 to $9,999 | 95 | 22.9 | 26 | 30.3 | 38 | 12.0 | 115 | 18.8 | 138 | 14.7 | 95 | 16.4 | 86 | 15.0 | 593 | 16.9 |
| $10,000 to $49,999 | 62 | 14.9 | 10 | 11.6 | 61 | 19.3 | 124 | 20.3 | 176 | 18.7 | 115 | 19.9 | 111 | 19.3 | 659 | 18.7 |
| $50,000 to $99,999 | 31 | 7.5 | 8 | 9.3 | 26 | 8.2 | 54 | 8.8 | 86 | 9.1 | 59 | 10.2 | 34 | 5.9 | 298 | 8.5 |
| $100,000 to $249,999 | 35 | 8.4 | 10 | 11.6 | 48 | 15.2 | 60 | 9.8 | 91 | 9.7 | 62 | 10.7 | 37 | 6.5 | 343 | 9.7 |
| $250,000 to $499,999 | 20 | 4.8 | 5 | 5.8 | 18 | 5.7 | 41 | 6.7 | 65 | 6.9 | 42 | 7.3 | 24 | 4.2 | 215 | 6.1 |
| $500,000 or More | 29 | 7.0 | 3 | 3.5 | 33 | 10.5 | 34 | 5.6 | 72 | 7.6 | 65 | 11.3 | 26 | 4.5 | 262 | 7.4 |
| Total | 415 | 100.0 | 86 | 100.0 | 316 | 100.0 | 611 | 100.0 | 941 | 100.0 | 578 | 100.0 | 574 | 100.0 | 3,521 | 100.0 |
| Farms by Size | | | | | | | | | | | | | | | | |
| 1 to 9 acres | 68 | 16.4 | 48 | 55.8 | 51 | 16.1 | 138 | 22.6 | 177 | 18.8 | 81 | 14.0 | 118 | 20.6 | 681 | 19.3 |
| 10 to 49 acres | 163 | 39.3 | 24 | 27.9 | 95 | 30.1 | 178 | 29.1 | 289 | 30.7 | 155 | 26.8 | 208 | 36.2 | 1,112 | 31.6 |
| 50 to 179 acres | 98 | 23.6 | 4 | 4.7 | 69 | 21.8 | 154 | 25.2 | 248 | 26.4 | 180 | 31.1 | 159 | 27.7 | 912 | 25.9 |
| 180 to 499 acres | 52 | 12.5 | 8 | 9.3 | 63 | 19.9 | 79 | 12.9 | 120 | 12.7 | 100 | 17.3 | 50 | 8.7 | 472 | 13.4 |
| 500 to 999 acres | 19 | 4.6 | 2 | 2.3 | 29 | 9.2 | 39 | 6.4 | 58 | 6.2 | 42 | 7.3 | 15 | 2.6 | 204 | 5.8 |
| 1,000 acres or more | 15 | 3.6 | -- | -- | 9 | 2.9 | 23 | 3.8 | 49 | 5.2 | 20 | 3.5 | 24 | 4.2 | 140 | 4.0 |
| Total | 415 | 100.0 | 86 | 100.0 | 316 | 100.0 | 611 | 100.0 | 941 | 100.0 | 578 | 100.0 | 574 | 100.0 | 3,521 | 100.0 |

Note: (--) Represents zero.

*Source: USDA National Agriculture Statistics Service, Agricultural Census (2017)*

PRELIMINARY DRAFT

Table 2.7 presents the total amount of income per farm and the total for each county, and the Region as a whole. The total market value of agricultural products in the Region was $604,186,000 in 2017, with a per farm average of $171,595.[15] Walworth and Washington Counties had the highest market value of agricultural products sold at $167,371,00 and $157,444,000, respectively. This generally aligns with farm sizes and commodity production in those Counties. Milwaukee had the lowest market value of agricultural products sold at a value of $6,799,000. Table 2.7 shows that, on average, many individual farming operations do not create a great deal of profit. Some of these farms may not be intended to be the principal source of household income and many operators may have to rely substantially on off-farm incomes.

Table 2.8 sets forth agricultural sectors or commodity groups in the Region in 2017, and the amount and percentage of revenue associated with each sector. Crops accounted for 52 percent of the share of sales by type, about $312,737,000.[16] Animal products accounted for 48 percent of the share of sales by type, about $291,449,000. The most produced crops include commodity crops, produce, and nursery products (e.g., sod), while the most produced animal products include dairy, poultry and eggs, and livestock.[17] Table 2.9 shows the top crops in 2017 for each county and for the Region in terms of acreage.

Under the Farm Bill, specialty crops and commodity crops are treated as two separate categories. Specialty crops consist of fruits and vegetables and commodity crops consist of corn, wheat, rice, soybeans, other feed grains, and oilseeds. Federal programs such as price loss coverage and crop insurance, which is less available to those who choose to grow specialty crops, may incentivize some farmers to grow commodity crops. Commodity crops are also used for animal feed; therefore, farmers are often growing inputs that will be used to grow animals and to produce animal products throughout the country.

This abundance of commodity crops has resulted in highly accessible and affordable processed food, mostly from wheat and corn. Whatever the destination of the commodity crop, it likely will not be going to local grocery stores, restaurants, or other points of sale. Commodity crops are most often grown for a subsidized price that lowers risk for the farmer but is then typically harvested and sent off for processing into whatever it will become (either animal feed or highly processed foods), rather than providing fresh and local food to the community. Encouraging farms in the Region to grow food that will go to local communities could help

[15] *USDA National Agriculture Statistics Service, Agricultural Census (2017).*

[16] *USDA National Agriculture Statistics Service, Agricultural Census (2017).*

[17] *USDA National Agriculture Statistics Service, Agricultural Census (2017).*

## Table 2.7
## Farm Income Overview in the Region: 2017

| Type of Income | Kenosha | Milwaukee | Ozaukee | Racine | Walworth | Washington | Waukesha | Region |
|---|---|---|---|---|---|---|---|---|
| Total ($) | | | | | | | | |
| Market Value of Products Sold | 59,852,000 | 6,799,000 | 75,225,000 | 86,441,000 | 167,371,000 | 157,444,000 | 51,054,000 | 604,186,000 |
| Government Payments | 2,469,000 | 64,000 | 355,000 | 2,502,000 | 6,423,000 | 565,000 | 1,122,000 | 13,500,000 |
| Farm-Related Income | 5,163,000 | 656,000 | 1,646,000 | 6,093,000 | 9,593,000 | 4,121,000 | 7,687,000 | 34,959,000 |
| Total Farm Production Expenses | 55,854,000 | 6,335,000 | 58,271,000 | 75,118,000 | 151,512,000 | 137,759,000 | 54,545,000 | 539,394,000 |
| Net Cash Farm Income | 11,630,000 | 1,183,000 | 18,954,000 | 19,918,000 | 31,875,000 | 24,317,000 | 5,318,000 | 113,249,000 |
| Per Farm Average ($) | | | | | | | | |
| Market Value of Products Sold | 144,222 | 79,055 | 238,052 | 141,475 | 177,865 | 272,395 | 88,945 | 163,144 |
| Government Payments (average per farm receiving) | 16,460 | 4,005 | 2,553 | 9,199 | 13,271 | 3,004 | 7,010 | 7,929 |
| Farm-Related Income | 23,791 | 28,511 | 9,625 | 19,220 | 19,187 | 14,016 | 32,165 | 20,931 |
| Total Farm Production Expenses | 134,588 | 73,667 | 184,403 | 122,942 | 161,012 | 238,337 | 95,027 | 144,282 |
| Net Cash Farm Income | 28,024 | 13,759 | 59,981 | 32,600 | 33,873 | 42,164 | 9,265 | 31,381 |

*Source: USDA National Agriculture Statistics Service, Agricultural Census (2017)*

PRELIMINARY DRAFT

#256981 – Table 2.8 - Market Value of Sales by Commodity or Commodity Group
110-1249
MLP/mid
4/1/2021

## Table 2.8
## Market Value of Sales by Commodity or Commodity Group in the Region: 2017

| Commodity | Kenosha | Milwaukee | Ozaukee | Racine | Walworth | Washington | Waukesha | Region |
|---|---|---|---|---|---|---|---|---|
| Crops | | | | | | | | |
| Grains, Oilseeds, Dry Beans, Dry Peas | 23,587 | 1,133 | 10,272 | 39,039 | 67,445 | 29,207 | 25,432 | 196,115 |
| Vegetables, Melons, Potatoes, Sweet Potatoes | 2,122 | 1,267 | 1,116 | 13,738 | 3,034 | (D) | 848 | 22,125 |
| Fruits, Tree Nuts, Berries | 498 | (D) | 2,268 | 1,551 | 894 | 957 | 52 | 6,220 |
| Nursery, Greenhouse, Floriculture, Sod | 13,172 | 3,971 | 3,562 | 9,202 | 3,617 | 31,285 | 9,525 | 74,334 |
| Cultivated Christmas Trees, Short Rotation Woody Crops | (Z) | -- | 121 | 30 | 292 | (D) | 213 | 656 |
| Other Crops and Hay | 958 | (D) | 1,628 | 1,105 | 1,853 | 3,570 | 1,679 | 10,793 |
| Crops Total Sales ($1,000) | 40,101 | 6,527 | 18,806 | 64,831 | 76,991 | 67,701 | 37,780 | 312,737 |
| Crops Percentage of Total Sales | 67 | 96 | 25 | 75 | 46 | 43 | 74 | 52 |
| Animal Products | | | | | | | | |
| Poultry and Eggs | 74 | (D) | (D) | 4,217 | 115 | (D) | 883 | 5,289 |
| Cattle and Calves | 3,079 | 66 | 20,546 | 3,932 | 28,643 | 23,820 | 5,306 | 85,392 |
| Cow Milk | 13,935 | -- | 34,540 | 12,280 | 55,298 | 62,906 | 5,985 | 184,944 |
| Hogs and Pigs | 112 | (D) | 31 | 546 | 3,576 | 111 | (D) | 4,376 |
| Sheep, Goats, Wool, Mohair, Milk | (D) | 26 | (D) | 170 | 1,860 | (D) | (D) | 2,056 |
| Horses, Ponies, Mules, Burros, Donkeys | 692 | -- | 28 | (D) | 416 | 29 | 386 | 1,551 |
| Aquaculture | (D) | (D) | -- | -- | (D) | (D) | (D) | (NA) |
| Other Animals and Animal Products | (D) | 13 | 362 | (D) | (D) | 511 | 293 | 1,179 |
| Animal Products Total Sales ($1,000) | 19,751 | 272 | 56,419 | 21,610 | 90,380 | 89,743 | 13,274 | 291,449 |
| Animal Products Percentage of Total Sales | 33 | 4 | 75 | 25 | 54 | 57 | 26 | 48 |
| Total Sales ($1,000) | 59,852 | 6,799 | 75,225 | 86,441 | 167,371 | 157,444 | 51,054 | 604,186 |

Note: (D) Withheld to avoid disclosing data for individual operations. (NA) Not available. (Z) Less than half of the unit shown. (--) Represents zero.

*Source: USDA National Agriculture Statistics Service, Agricultural Census (2017).*

PRELIMINARY DRAFT

#257009 – Table 2.9 - Top Crops in 2017
110-1249
MLP/mid
4/1/2021

## Table 2.9
## Top Crops in the Region: 2017

| Top Crops (Acres)[a] | Kenosha | Milwaukee | Ozaukee | Racine | Walworth | Washington | Waukesha | Region |
|---|---|---|---|---|---|---|---|---|
| Corn for Grain | 24,836 | 802 | 7,575 | 34,904 | 76,716 | 29,667 | 23,600 | 198,100 |
| Soybeans | 21,452 | 1,717 | 11,376 | 46,731 | 49,173 | 28,089 | 25,051 | 183,589 |
| Forage (Hay) | 6,854 | (D) | 13,246 | 9,494 | 17,635 | 26,185 | 10,696 | 84,110 |
| Corn for Silage or Greenchop | 2,605 | (NA) | 8,044 | (NA) | 8,713 | 10,858 | 1,325 | 31,545 |
| Wheat for Grain | 3,900 | 334 | 2,711 | 7,265 | 4,041 | 5,211 | 2,666 | 26,128 |
| Vegetables | (NA) | 176 | (NA) | 3,837 | (NA) | (NA) | (NA) | 4,013 |

Note: (D) Withheld to avoid disclosing data for individual operations. (NA) Not available.

[a] *Crop commodity names may be shortened; see full names at www.nass.usda.gov/go/cropnames.pdf.*

*Source: USDA National Agriculture Statistics Service, Agricultural Census (2017)*

PRELIMINARY DRAFT

to ensure a steady source of food in the face of supply chain issues such as those that have arisen during the Covid-19 pandemic, and positively influence the health of our communities, environment, and ultimately the economy.

***Organic Agriculture***

There has been a rise in consumer demand for organic products over the past few decades, likely due to the reduced risk of human, animal, and environmental exposure to toxic materials.[18] Organic agriculture maintains and replenishes soil production and fertility without the use of synthetically produced fertilizers, pesticides, growth regulators, and livestock feed additives. Organic agriculture provides many benefits including long-term sustainability, soil health, water health, air and climate change mitigation, preserved biodiversity, and ecological conservation.[19] The term "organic" is a labeling term for food or other agricultural products that have been produced using "cultural, biological, and mechanical practices that support the cycling of on-farm resources, promote ecological balance, and conserve biodiversity in accordance with USDA organic regulations."[20] The National Organic Program (NOP) is a part of USDA Agricultural Marketing Service (AMS) and is responsible for USDA Organic standards and the accreditation of organic certifying agents.[21] To be in accordance with USDA standards, the agricultural practices employed must enhance water and soil quality; conserve environmental corridors; and avoid use of synthetic fertilizer, sewage sludge, irradiation, and genetic engineering.[22] Only those products that have been certified as meeting all USDA requirements for organic production and handling may use the USDA Organic Seal.[23]

Transitioning into USDA Certified Organic production is no simple task. The infrastructure and time required to changeover is a major undertaking. For instance, to transition a traditional dairy farm to organic practices,

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[18] "*Organic Agriculture," USDA National Institute of Food and Agriculture: Organic Agriculture, accessed February 17, 2021, nifa.usda.gov/topic/organic-agriculture.*

[19] *Food and Agriculture Organization of the United Nations, "Organic Agriculture: What Are the Environmental Benefits of Organic Agriculture?" FAQ, FAO Organic Agriculture, accessed February 9, 2021, www.fao.org/organicag/oa-faq/oa-faq6/en.*

[20] *"The National Organic Program" (USDA Agricultural Marketing Service, 2016), www.ams.usda.gov/sites/default/files/media/TheNationalOrganicProgramNov2016.pdf.*

[21] Ibid.

[22] Ibid.

[23] Ibid.

the pasture and cropland that provides food to the cattle must be managed organically for at least 36 months, the cattle must be fed solely organic feed and receive organic health care for at least 12 months, and all animals over six months of age are required to forage from grazing for their food.[24] In Southeastern Wisconsin, two percent of farms grow food organically with most of the USDA certified organic farms located in Walworth and Washington Counties.[25]

Michael Fields Agricultural Institute near East Troy helps educate and provide resources to producers and agricultural communities so they can be more environmentally, economically, and socially healthy.[26] Some of their programming includes educating producers on how to grow organically and sustainably in not only the Southeastern Wisconsin Region, but throughout Wisconsin. Efforts to increase the amount of USDA certified organic farms could positively affect the environment and health of communities in Southeastern Wisconsin.

***Agricultural Producers***

As reported in the 2017 USDA Agricultural Census, the Region is home to 5,908 agricultural producers. An agricultural producer is an individual or entity that produces an agricultural commodity through participation in the day-to-day labor, management, and field operations (one farm may have more than one producer). Table 2.10 provides demographic information for agricultural producers (farmers) in the Region in 2017. Just 8 percent of farmers in the Region are under 35 years old, 60 percent are between 35 and 64 years old, and 32 percent are over the age of 65 years old. About 23 percent of farmers in the Region are new and beginning farmers (farmers with 10 or fewer years of experience). Most of the farms in the Region are owned and not leased; 2,161 farms are operated by full owners, 1,030 farms are operated by part owners, and 330 farms are operated by tenants. Only about 2 percent of farmers are people of color. In addition, over 90 percent of the farms in the Region are defined as "family owned" farms by the USDA.[27] This distribution reflects the overall agricultural land tenure distribution in Wisconsin.

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[24] *Northeast Organic Farming Association of Vermont, "Guidelines for Organic Certification of Dairy Livestock" (USDA Agricultural Marketing Service), accessed February 18, 2021, www.ams.usda.gov/sites/default/files/media/Dairy%20-%20Guidelines.pdf.*

[25] *USDA National Agriculture Statistics Service, Agricultural Census (2017).*

[26] *"Michael Fields Agricultural Institute," Michael Fields Agricultural Institute, accessed March 18, 2022, www.michaelfields.org.*

[27] *Family Farms, National Institute of Food and Agriculture, accessed September 1, 2022, www.nifa.usda.gov/grants/programs/family-small-farm-program/family-farms.*

#257004 – Table 2.10 – Agricultural Producers in Southeastern Wisconsin: 2017
110-1249
MLP/mid
4/1/2021

## Table 2.10
## Agricultural Producers in the Region: 2017

| Agricultural Producers | Kenosha | Milwaukee | Ozaukee | Racine | Walworth | Washington | Waukesha | Region |
|---|---|---|---|---|---|---|---|---|
| Sex | | | | | | | | |
| Male | 456 | 95 | 319 | 658 | 978 | 692 | 588 | 3,786 |
| Female | 229 | 49 | 186 | 380 | 586 | 304 | 352 | 2,086 |
| Age | | | | | | | | |
| Under 35 | 47 | 21 | 38 | 124 | 141 | 80 | 34 | 485 |
| 35 to 64 | 416 | 102 | 318 | 620 | 905 | 609 | 559 | 3,529 |
| 65 and Older | 222 | 21 | 149 | 294 | 518 | 307 | 347 | 1,858 |
| Race | | | | | | | | |
| American Indian/Alaska Native | 2 | -- | -- | 1 | 2 | -- | -- | 5 |
| Asian | 4 | 22 | 14 | 3 | 1 | 7 | 3 | 54 |
| Black or African American | 2 | 14 | -- | 1 | -- | -- | 2 | 19 |
| Native Hawaiian/Pacific Islander | -- | -- | -- | -- | -- | 1 | -- | 1 |
| White | 677 | 108 | 491 | 1,030 | 1,559 | 987 | 929 | 5,781 |
| More than one race | -- | -- | -- | 3 | 2 | 1 | 6 | 12 |
| Other Characteristics | | | | | | | | |
| Hispanic, Latino, Spanish Origin | 8 | -- | 5 | 6 | 18 | 1 | 16 | 54 |
| With Military Service | 53 | 5 | 38 | 70 | 126 | 55 | 85 | 432 |
| New and Beginning Farmers | 136 | 57 | 124 | 240 | 383 | 213 | 170 | 1,323 |
| Total Producers | 705 | 144 | 507 | 1,040 | 1,565 | 1,007 | 940 | 5,908 |

Note: The Census of Agriculture reports demographic data on up to four producers (decision makers) per farm. Additional producers are counted and included in the total.

*Source: USDA National Agriculture Statistics Service, Agricultural Census (2017)*

PRELIMINARY DRAFT

Based on the preceding demographic information, farm succession will be a serious concern in our current food system. Over the next couple of decades, an estimated 70 percent of U.S. farmland will be passed to a new generation of farmers, will go unused, or it will be converted to non-farm uses.[28] It is essential to plan for the succession of our farms, to ensure that we keep farmland viable and to continue food production for our communities.

Sufficient internet access is also a concern for agricultural producers. Farmers often use the internet to purchase agricultural inputs, market agricultural activities, to conduct business with non-agricultural entities, and much more. Rural broadband and internet access is essential to agricultural producers; it allows them to stay up to date with commodity markets, communicate with customers and colleagues, and to access up-to-date information about agricultural practices. Broadband access in the Region is shown on Map 2.7, which shows that many rural parts of the region have broadband access. However, up to 19 percent of the farms in the Region lack internet service. It should also be noted that the coverage shown on Map 2.7, which was developed by the Federal Communications Commission (FCC), may be overstated. If even only one property in a census block has access, all properties within that census block are considered to have access in the method used by the FCC.

Migrant Seasonal Workers

Each year migrant seasonal workers[29] come to Southeastern Wisconsin to help plant, harvest, and package the Region's agricultural products. In 2021, the Wisconsin Department of Workforce Development (DWD) determined that there were 251 migrant seasonal workers employed in the Region. [30] As evidenced by the age distribution of the Region's agricultural producers, migrant seasonal farm workers may become an increasing important part of the regional food system.

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[28] Ibid.

[29] *A migrant worker is defined as any person who temporarily leaves a principal place of residence outside of Wisconsin and comes to Wisconsin for not more than 10 months in a year to accept seasonal employment in the planting, cultivating, raising, harvesting, drying, packing, packaging, processing, freezing, grading, or storing of any agricultural or horticultural commodity in its manufactured state.*

[30] *The DWD was aware of these workers because they were recruited with migrant worker agreements and were eligible for protection under Sections 103.90 through 103.97 of the* Wisconsin Statutes*. The* Statutes *provide employment standards that migrant worker employers must meet, including housing standards for migrant worker labor camps, which are specified in Chapter DWD 301 of the* Wisconsin Administrative Code*.*

## Map 2.7
## Broadband Access in the Region: 2021

**Household Broadband Subscriptions (2021)**

Census Tracts Where Fewer Than 50% of Households Have a Home Broadband Subscription

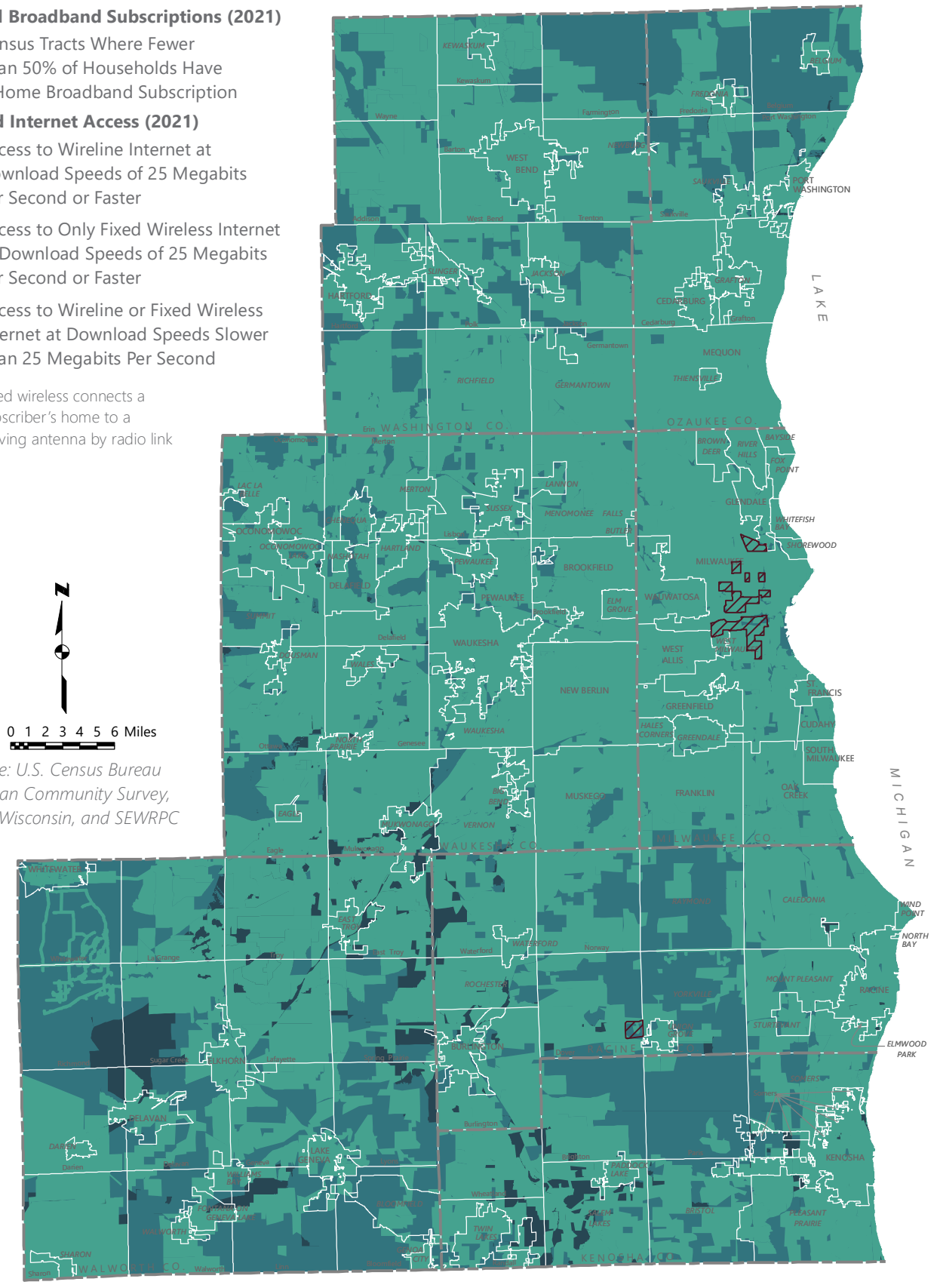
**Broadband Internet Access (2021)**

Access to Wireline Internet at Download Speeds of 25 Megabits Per Second or Faster

Access to Only Fixed Wireless Internet at Download Speeds of 25 Megabits Per Second or Faster

Access to Wireline or Fixed Wireless Internet at Download Speeds Slower Than 25 Megabits Per Second

Note: Fixed wireless connects a subscriber's home to a serving antenna by radio link




*Source: U.S. Census Bureau American Community Survey, PSC of Wisconsin, and SEWRPC*

One of the challenges employers must face every year is estimating the amount of migrant seasonal labor that may be needed. Employers may be reluctant to contract with more than the minimum number of migrant workers they estimate they will need, because Wisconsin law requires employers to pay certain minimums to workers regardless of the harvest. The result is reliance on uncommitted workers to fill the labor demand that occurs in a normal year. Migrant workers travel to Wisconsin without job commitments in the hope that they will find seasonal work, often arriving early to be first in line for jobs, without housing arrangements. Rural housing markets often experience pressure because of the low cost, short-term occupancy housing needs of migrant workers that do not receive employer-provided housing.[31]

Many of the uncommitted migrant workers that arrive in this State rely on public assistance or assistance from organizations that provide services to migrant workers, such as United Migrant Outreach Services (UMOS); however, resources are stretched thin and if the growing season is late, supportive services are often not able to meet the demand. While the number of migrant farm workers that come to the Region without a work agreement is currently not documented, the needs of these workers must be considered when looking at the well-being of the labor force in the food system. As recommended in the regional housing plan, the Wisconsin Department of Workforce Development should develop a method to document the number of migrant agricultural workers that come to the Region without a work agreement to help quantify the potential need for assistance and temporary housing for workers and their families.

The National Farmworker Jobs Program (NFJP) is a federal program meant to address the chronic seasonal unemployment and underemployment experienced by migrant and seasonal farmworkers.[32] This program provides funding to help migrant and seasonal farmworkers and their families achieve economic self-sufficiency with services and resources to prepare for jobs with better pay.[33] The H-2A Temporary Agricultural Program provides a legal means to bring foreign-born workers to the U.S. to perform seasonal farm labor on a temporary basis (for a period of up to 10 months). In order to participate in this program, employers must certify that efforts to recruit U.S. workers were not successful and the employers must provide housing for their workers and pay for their workers domestic and international transportation. Under the H-2A program, employers must pay the higher of the applicable State or federal minimum wage,

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[31] *State law does not require employers to provide housing. Though most of the employers in the Region provide housing, a small percentage of migrant workers are not provided with employer housing.*

[32] *U.S. Department of Labor, "Migrant and Seasonal Farmworkers," accessed March 18, 2022, www.dol.gov/general/topic/training/migrantfarmworkers.*

[33] Ibid.

the prevailing wage in that region and occupation (as determined by the U.S. Department of Labor) or the regional average farm wage observed in the NASS FLS. The regional average farm wage observed in the NASS FLS is also known as the Adverse Effect Wages Rate (AEWR). In 2021, Wisconsin's AEWR was $14.72 per hour, which is within one of the higher AEWR brackets.[34] There were 153 H-24 workers in the Region in 2021.

***Farm Financing***

The Federal government provides financial assistance to farmers to help assure sufficient and dependable lending in rural areas, where agriculture is most prominent. Federal farm loan programs also often aim their assistance at beginning farmers and historically disadvantaged groups. The Farm Service Agency (FSA) is the primary Federal lender in the USDA. The FSA issues direct loans to farmers who cannot otherwise qualify for credit and guarantees the repayment of loans made by other lenders.[35] The Farm Credit System (FCS) is another federally related lender that is cooperatively owned and funded by the sales of bonds in the financial markets.[36] The FCS consists of 72 independent and customer-owned financial institutions that provide financing and related services to farmers, ranchers, fishers, cooperatives, and more. Congress governs FCS banks and lending associations and solely allows service of agriculture-related borrowers.[37] Other types of lenders do not directly involve the government in their funding or operations; those other lenders may include commercial banks, insurance companies, individual lenders, and more.[38]

Smaller-scale farms are facing significant financial challenges throughout the United States, and Southeastern Wisconsin is no exception. The past policies that supported smaller-scale farmers have since been replaced by policies supporting large-scale operations.[39] Policies used to ensure that farmers would be paid a fair price for their production and that farmers were not overproducing. Today, farm policies are

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[34] *USDA Economic Research Service, "Farm Labor," accessed March 18, 2022, www.ers.usda.gov/topics/farm-economy/farm-labor#wages.*

[35] *Jim Monke, "Agricultural Credit: Institutions and Issues" (Congressional Research Service, 2018), fas.org/sgp/crs/misc/RS21977.pdf.*

[36] Ibid.

[37] Ibid.

[38] Ibid

[39] *"Agribusiness Devastating Family Farmers, Rural Communities, Environment," ActionAid USA, accessed January 11, 2022, www.actionaidusa.org/work/agribusiness-family-farmers.*

no longer limiting overproduction to the same extent, which has forced farmers to farm as many acres as possible to keep up with their financial obligations. Farm prices and income have continued dropping in recent years, as farm debt rises, which only is worsened by overproduction. As a result, farmers may have to sell their crops for far less than it costs to produce them. Severe weather associated with climate change, foreign trade, and falling commodity crop prices have also contributed to the crises farmers are experiencing throughout the United States. While many of these issues affect both large-scale and small-scale farmers, smaller farms have fewer financial resources to deal of the effects.

The result of these changes has caused a "get big or get out" sentiment that permeates the entire industry. Historical farm size data shows this trend. As shown on Table 2.11 average farm sizes have increased considerably between 1954 and 2017 at the regional, State, and national levels. The average farm size in the Region increased by 83 percent between 1954 and 2017, which is greater than the State's increase of 50 percent and about the same as the national increase of 82 percent. While the average size of farms has been increasing, the number of farms in the Region decreased by 72 percent between 1954 and 2017. That is more than the State and nation's decrease in farms, which were both closer to 57 percent. Supporting small-scale farms is extremely important to protecting the food supply chain and ensuring that family farms can support themselves and their communities.

***Introduction to the Farm Bill***

Approximately every five years the Federal government reviews the food and farm landscape of the United States and renews an omnibus bill called the Farm Bill.[40] The Farm Bill is a package of legislation that impacts farming livelihoods, how food is grown, and what kinds of foods are grown; it is the primary agricultural and food policy legal resource of the Federal government. The Farm Bill was first drafted in 1933, during the Great Depression and Dust Bowl, to address the needs of farmers when hunger and poverty were widespread.[41] Over time, as needs have shifted the government has shifted allocation of funds and the types of programming that this bill provides. The largest share of the Farm Bill budget goes to the Supplemental Nutrition Assistance Program (SNAP); other key programs include the Food Insecurity Nutrition Incentive, Food Distribution Program on Indian Reservations, Emergency Food Assistance Program, Farm Loans,

[40] *Julie Kurtz and Farm Aid, "Farm Bill 101," Fact Sheet, Farm Aid, accessed February 22, 2021, www.farmaid.org/issues/farm-policy/farm-bill-101.*

[41] Ibid.

#261998-2 – Table 2.11 – Farm Size Changes in the Region, State, and Nation: 1954-2017
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## Table 2.11
## Farm Size Changes in the Region, State, and Nation: 1954 – 2017

| | Farms | | | Average Farm Size (Acres) | | |
|---|---|---|---|---|---|---|
| **County** | 1954 | Percent Change | 2017 | 1954 | Percent Change | 2017 |
| Kenosha | 1,385 | -70.0 | 415 | 106 | 76.4 | 187 |
| Milwaukee | 1,065 | -91.9 | 86 | 44 | -- | (D) |
| Ozaukee | 1,234 | -74.4 | 316 | 105 | 79.0 | 188 |
| Racine | 1,704 | -64.1 | 611 | 101 | 106.9 | 209 |
| Walworth | 2,113 | -55.5 | 941 | 149 | 36.9 | 204 |
| Washington | 2,245 | -74.3 | 578 | 111 | 96.4 | 218 |
| Waukesha | 2,669 | -78.5 | 574 | 106 | 60.4 | 170 |
| Region | 12,415 | -71.6 | 3,521 | 108 | 83.3 | 198[a] |
| State | 153,558 | -57.8 | 64,793 | 147 | 50.3 | 221 |
| Nation | 4,782,416 | -57.3 | 2,042,220 | 242 | 82.2 | 441 |

Note: (D) Withheld to avoid disclosing data for individual operations.

[a] *Milwaukee County is excluded from the calculation of the Region's average farm size due to lack of data.*

*Source: USDA National Agricultural Statistics Service, Agricultural Census (2017) & SEWRPC*

National Organic Program, and Disaster Assistance Programs.[42] A few issues normally dominate Farm Bill spending—nutrition, crop insurance, conservation, and commodities.[43]

The current Farm Bill is called the Agricultural Improvement Act of 2018.[44] In total, the Farm Bill is projected to cost $428 billion over the five years of its life (2018-2023), according to the Congressional Budget Office's estimates.[45] Figure 2.4 shows an estimated 76 percent will be allocated to nutrition programs (e.g., SNAP), 9% will be allocated to crop insurance programs (e.g., Price Loss Coverage Program), 7 percent will be allocated to commodities programs (e.g., Whole Farm Revenue Protection Program), 7 percent will be allocated to conservation programs (e.g., Conservation Stewardship Program), and 1 percent will be allocated to other programs (e.g., horticulture, forestry, rural development, credit, research).[46] For more information on the Agricultural Improvement Act of 2018, visit: www.usda.gov/farmbill.

The Farm Bill has immense influence over food production in the United States. It influences what and how food is grown, it incentivizes or restricts certain behaviors, and it provides federal subsidies for commodity crops. All of these, in turn, can affect our communities, the environment, food safety, trade, and the economy.

***Urban Agriculture***

In urban spaces land use is highly competitive, and community support for urban agriculture can be mixed. Using land for food production may not be a high priority issue for many members of a community; however, the Region is home to disparities in food access and urban agriculture can help enhance access to food within urban areas, improve food literacy through education and training, expand access to traditional culinary cultures and cuisines, and inspire others to do the same.[47]

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[42] Ibid.

[43] Ibid.

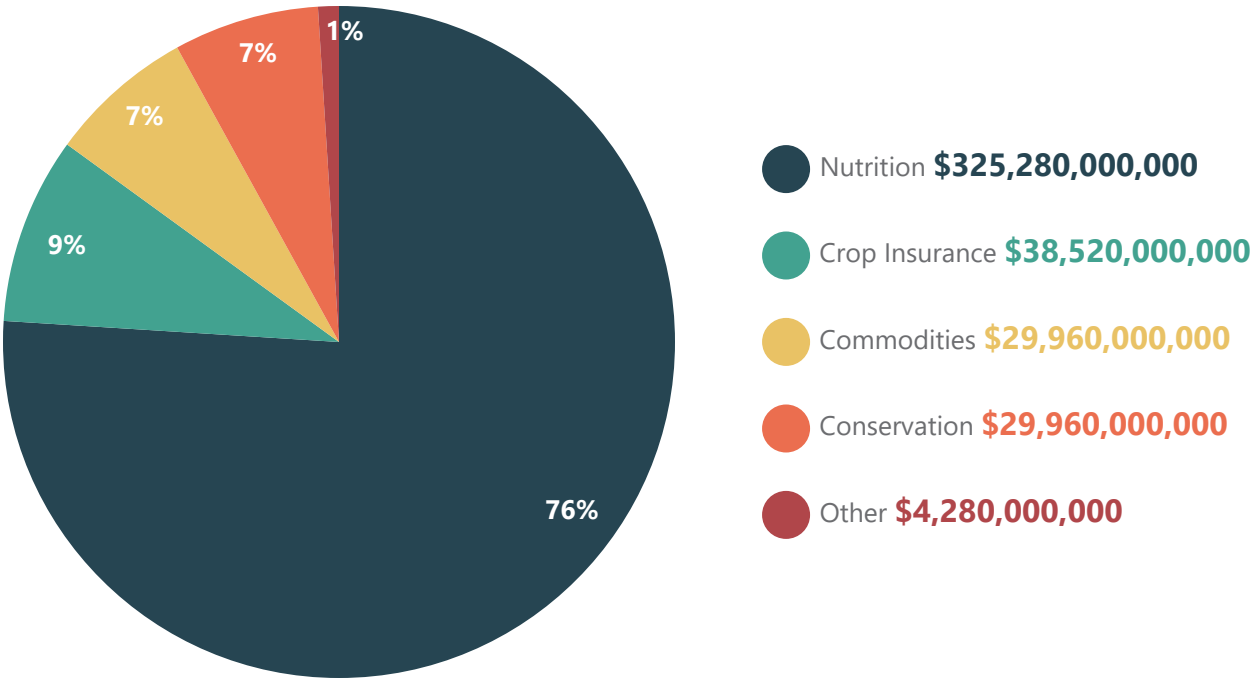
[44] *Agricultural Improvement Act of 2018, Public Law No. 115-334 (2018).*

[45] *USDA Economic Research Service Based on Congressional Budget Office, Direct Spending Effects for the Agricultural Improvement Act of 2018 (2018 Farm Bill), December 11, 2018.*

[46] Ibid.

[47] *Campilan, Dindo & Drechsel, P. & Joecker, D. (2001). Monitoring and evaluation and its adaptation to urban and peri-urban agriculture. Urban Agriculture Magazine. 5. Table 1; What Is Urban Farming? Greensgrow: Growers of Food, Flowers, and Neighborhoods (blog), accessed January 25, 2021, www.greensgrow.org/urban-farm/what-is-urban-farming.*

**Figure 2.4**
**Projected U.S. Farm Bill Distribution by Type of Programming**




*Source: Modified from USDA Economic Research Service based on Congressional Budget Office,* Direct Spending Effects for the Agriculture Improvement Act of 2018, *December 11, 2018, and SEWRPC*

There are many different forms of alternative agriculture, and many of these can be found in urban areas. This is likely due to the need for inventive uses of limited space in urban areas. Some creative and resourceful types of urban agriculture include backyard gardens, community gardens, rooftop gardens, green walls, aquaculture (i.e., growing fish), hydroponics (i.e., growing plants without soil), and aquaponics (i.e., plants are fed nutrients by fish waste). These methods are a great supplement to, not a replacement for, traditional rural agriculture. This mutually beneficial relationship can help farmers steward the land and bring sufficient food to the market, while also strengthening urban agriculture efforts within more populated areas with a greater need.

Urban agriculture and social goals seemingly go hand in hand. Although improved access to food and increased local food production are often goals of urban farms, job training, education, community development, and improved green space are other positive outcomes of urban farms on their communities. Though these goals are often integral to the mission of urban agriculture initiatives, the limited amount of available skilled farm labor and high volunteer turnover can at times be limiting to the actual production of food on these farms.

Community Gardening

If desired by residents, community gardens are a wonderful way for community members to connect with one another and the earth, while also producing their own fresh and locally grown food. Community gardens can be a great tool in increasing equitable access to healthy food in urban areas. People who participate, or have family members who participate, in community gardens are far more likely to have a higher fresh fruit and vegetables intake than those without a gardening household member.[48] Community gardens can also provide access to fresh foods for other community members or local food pantries and banks. In addition, community gardens increase property values in the blocks that surround them, which could have a positive impact on public tax revenue as a result.[49]

[48] *Julie C. Dawson and Alfonso Morales, eds., Cities of Farmers: Urban Agriculture Practices and Processes (University of Iowa Press, 2016) (referencing Alaimo et al. 2008; Blair, Giesecke, and Sherman 1991; Corrigan 2011; Teig et al. 2009; and Twiss et al. 2003).*

[49] *Been, Vicki and Voicu, Ioan. "The Effect of Community Gardens on Neighboring Property Values." NYU, Law and Economics Research Paper No. 06.09 (June 18, 2007). Retrieved March 21, 2019, from papers.ssrn.com/sol3/papers.cfm?abstract_id=889113##.*

Commission staff conducted an inventory of the urban agriculture occurring in the Region for the regional food system plan. This was completed largely by speaking with people involved in urban agriculture in the Region, researching online, reviewing UW-Extension programs and resources, and by using tools like www.communitygarden.org and the community garden database that Groundwork MKE created for City of Milwaukee. This may not be an all-encompassing inventory of urban agriculture in the Region, but it provides some insight into the great work being done to increase and encourage growing fresh food for our urban communities. This inventory resulted in a list of over 200 urban farms and community gardens. Community gardens accounted for over 70 percent of the urban agriculture initiatives in the Region. As shown on Map 2.8, most of the community gardens and urban farms in the Region are in Milwaukee County and the City of Milwaukee. The zip codes and neighborhoods with the most community gardens include:

- 53212 – 24 urban farms and gardens
- 53206 – 22 urban farms and gardens
- 53208 – 15 urban farms and gardens

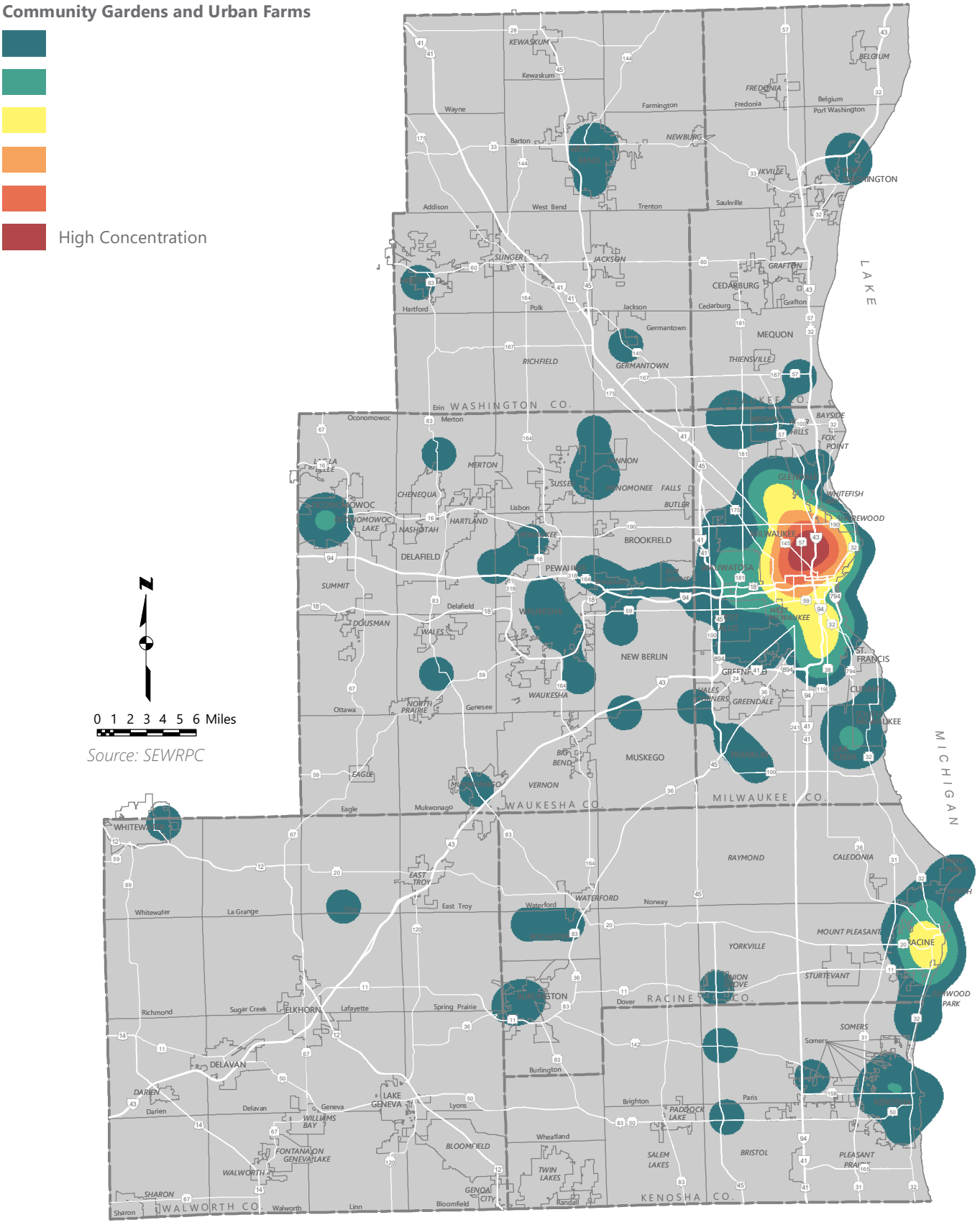
Land Use Regulations and Zoning Barriers to Urban Agriculture

Urban agriculture is heavily influenced by land use regulations such as zoning, which can present barriers to some types of urban agriculture. Historically, zoning has been used to separate uses of land that were deemed incompatible (e.g., urban land use and agricultural use). Zoning ordinances may restrict or prohibit agricultural activities, especially in residentially zoned areas, to reduce the chance for nuisance to occur. However, urban agriculture may be a way to provide fresh and healthy food to communities experiencing food insecurity. Some examples of barriers include regulations involving accessory structures, keeping of animals that would be compatible with an urban setting, and a lack of accommodation for desirable uses such as community gardens. Zoning may also impact the number of employees permitted and other aspects of management that could limit production for commercial urban agriculture operations.[50] Additionally, changes in policy or zoning occur frequently and can alter the continued operations of urban agriculture initiatives (although this is generally to the benefit of urban farms as more things become permitted).[51] To

[50] *Julie C. Dawson and Alfonso Morales, eds., Cities of Farmers: Urban Agriculture Practices and Processes (University of Iowa Press, 2016), 118.*

[51] Ibid.

## Map 2.8
## Community Gardens and Urban Farms in the Region: 2021



Land acquisition is another barrier to equitable participation in urban agriculture. Policies that allow local governments to establish land banks and conservation easements, or allow the use of vacant city lots, would provide an avenue for residents to get involved in growing food that might not have otherwise had access to land. Soil quality in urban areas may also be an issue. The soil may have been so altered by human activity (e.g., building construction, parking lots, brownfield sites, etc.) that it may be unsafe.[52] This issue is often mitigated by using imported soil to grow in pots and raised beds, and compost to continuously improve the quality of that soil. Unfortunately using pots and raised beds can expose plants to temperature stress more than in-ground planting, which limits plant growth and productivity of urban farms.

Vertical Agriculture

One potential way to retrofit existing structures in an urban environment to grow food is through vertical agriculture. Vertical agriculture is a type of controlled environment agriculture that typically uses hydroponics (i.e., growing plants in water instead of soil). Hydroponic farming is gaining traction to ensure healthier plants and higher yields, because the producer has greater control over the variables and inputs that are required for growing food such as space, water, light, temperature, and nutrient levels. Vertical agriculture is growing in popularity to address food insecurity, especially in urban areas. Beyond providing locally produced, fresh food, vertical agriculture can reduce distribution chains, lower emissions, offer higher-nutrient food, reduce land use, and reduce water usage and contamination. Efforts to increase vertical agricultural operations in the Region should be encouraged, not only for their potential to increase access to healthy and fresh foods, but also for their potential to be beneficial to the local economy in the form of job creation and keeping money circulating locally.

The Century City Business Park in Milwaukee has created an opportunity for vertical farming and has access to a talented and diverse workforce in addition to an established transportation network. The City of Milwaukee has been working with the Business Improvement District #37 (The Corridor), Northwest Side Community Development Corporation (NWSCDC), and the Milwaukee 7 Regional Economic Development Partnership to recruit companies to Century City, including companies that would be involved in the food system. In May 2021, Planet to Plate announced the launch of Hundred Acre Farm, which will be a 5,000 square-foot controlled environmental system with vertical hydroponics that will grow fresh greens year round.[53] Hundred Acre's goal is to improve access to fresh, healthy food while also partnering with Building2Learn, MSOE, Milwaukee Public Schools and the 30th Street Corridor to provide educational

[52] Ibid., 109.

[53] *"Hundred Acre - Milwaukee, WI," accessed February 3, 2022, hundred-acre.org.*

opportunities to Milwaukee-area students.[54] Another new indoor hydroponic farm was announced in early 2022.[55] Square Roots, in partnership with Gordon Food Service, will be using hydroponic systems built into refurbished shipping containers to grow herbs and salad mixes year-round in the City of Kenosha. This farm will greatly increase the amount of fresh local produce entering our urban communities—more than 2.4 million packages of produce annually.[56]

Although vertical farming may help to solve the issues of farmland access and weather inconsistency, shorten supply chains, and may produce higher yields of fresh, local food, it may be more expensive than traditionally farmed produce. Growing food via vertical agriculture requires a significant up-front investment to prepare the space for growing food—often reaching millions of dollars to begin a vertical farming operation. One way producers can offset these costs (even if just a little bit) is by using empty warehouses, abandoned buildings, or recycled shipping containers to make efficient use of urban space and lower facility costs.

Depending on the type of growing (e.g., hydroponic versus soil-based), the operational costs of vertical agriculture can also significantly raise the price of produce per pound. Hydroponic growing systems require significant inputs such as energy for artificial lighting, nutrient solutions, temperature and humidity control, pH tools, labor, and equipment such as shelves, water pumps, and pipes. Although these operations may increase the amount of food being generated in urban areas that often experience a higher rate of low-income and low-access food insecurity, all of these costs may end up making the produce generated through vertical agriculture inaccessible to these communities.

There are communities that are starting to develop creative ways to combat this issue. An example is the Jersey City Housing Authority. The Housing Authority partnered with AeroFarms to provide free, nutritious

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[54] Ibid.

[55] *Hope Kirwan, "New Indoor Farm Opens in Kenosha Using Refurbished Shipping Containers, Hydroponics | Wisconsin Public Radio," January 27, 2022, www.wpr.org/new-indoor-farm-opens-kenosha-using-refurbished-shipping-containers-hydroponics.*

[56] Ibid.

food to residents most in need by opening two vertical farms within public housing sites.[57] The Jersey City vertical farming program will be funded by the City to increase access to fresh, healthy, locally produced food, as well as provide onsite healthy eating education.[58] In addition to the public housing sites, the program will have eight additional vertical farms throughout Jersey City located in senior centers, schools, and municipal buildings, which will grow 19,000 pounds of free vegetables annually.[59] A potential recommendation for this plan could be for County and local governments to consider implementing a similar type of program to increase food access in food deserts.

Regional Initiatives

Southeastern Wisconsin is home to countless organizations and government agencies that are strengthening the Region's urban areas by providing increased access to healthy foods and revitalizing formerly vacant and underutilized land. Just a few examples include work done by community organizations such as the Walnut Way Conservation Corp, local governments such as the City of Milwaukee's HOME/Grown program, and State institutions such as the University of Wisconsin Division of Extension.

Urban agriculture is one of the topic areas included in the regional food asset maps presented in Appendix A (under preparation) of this report and described in Chapter 1, *Introduction*. The community organizations and government agencies that are undertaking initiatives in urban agriculture are included in the asset maps. The asset maps focus on organizational and institutional assets related food in each of the seven counties and how they can connect to collectively strengthen initiatives throughout the Region.

## 2.3 PROCESSING

Food processing typically involves turning raw agricultural products into products for intermediate or final consumption by applying labor, machinery, energy, or specialized knowledge (e.g., turning raw tomatoes

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[57] *"Jersey City Vertical Farming Program to Open in Two Public Housing Locations, Targeting Most Vulnerable Residents; City Council Approval Slated for Feb 24th Meeting," Insider NJ, February 24, 2021, www.insidernj.com/press-release/jersey-city-vertical-farming-program-open-two-public-housing-locations-targeting-vulnerable-residents-city-council-approval-slated-feb-24th-meeting; Doyinsola Oladipo, "Jersey City Pilots Indoor Vertical Farming to Benefit Communities," News, Bloomberg, October 26, 2021, www.bloomberg.com/news/articles/2021-10-26/jersey-city-brings-vertical-farms-to-public-housing.*

[58] Ibid.

[59] Ibid.

into tomato paste).[60] Federal law groups the food processing sector into two broad categories: meat processors and "all other food processors." Some processors use food products as inputs for further processing and manufacturing (e.g., turning tomato paste into tomato sauce); those products are "value-added."[61] In this plan, the term "processing" will refer to all activities that transform one food product into another form of that food product (e.g., freezing, dehydrating, packaging, etc.).

Food processing requires infrastructure, and that infrastructure must appropriately meet the community's needs. Access to local food processing infrastructure can create great opportunities for the local economy and community. For example, value-added products such as cheese curds can bring a much better price to producers than raw agricultural products. In addition, increasing local food processing infrastructure availability can allow new businesses to open, create jobs for the community, and increase access to locally produced and processed foods.

**Shared Kitchen Spaces and Food Incubators**

There are several reasons an entrepreneur might be interested in shared kitchen space. Typically, entrepreneurs use shared kitchen spaces when they simply do not have the space or equipment to conduct the business and food preparation they desire, or if they do not have the capital to get the private space to do so. Shared kitchen spaces range from large commissary kitchens open to many different types of food entrepreneurs to using a restaurant kitchen space in the off-hours. They can range widely in size, availability of equipment and storage, and format of rental (e.g., hour, day, week, or month). There are several benefits to using shared kitchen spaces—one being that you only need to pay for the space when you are actively using it, so you do not have large-scale overhead costs that come with maintaining the space and equipment yourself. Shared kitchen spaces often provide all the space, equipment, utilities, pest control, and security needed for entrepreneurs and innovators to expand their food businesses. They can also provide a space to connect with other entrepreneurs and small business owners.

There are several local food incubators in the Region, largely in the Milwaukee area. Some examples of local food incubators and accelerators include:

[60] *USDA Economic Research Service, "Manufacturing," 2020, www.ers.usda.gov/topics/food-markets-prices/processing-marketing/manufacturing.*

[61] Ibid.

- **FaB Wisconsin** runs and accelerator program that helps food and beverage businesses by providing resources, workshop training, mentorship, grants, packaging materials, industry-related equipment, and knowledge necessary to help grow small businesses.

- **Upstart Kitchen** (Milwaukee, WI) is the first 24/7 commercial kitchen and business incubator in the city.

- **Sherman Phoenix** (Milwaukee, WI) provides mentorship and coaching to help entrepreneurs of color grow their businesses and, in turn, create jobs that support the local economy.

- **MKEKitchen** (Milwaukee, WI) is a shared commercial kitchen space that provides cooking classes, space, and equipment for local food entrepreneurs.

While there are some great examples of local food incubators and accelerators in the Region, there is certainly room for many more to create better opportunities for our local food entrepreneurs. Supporting community kitchens, shared kitchen spaces, and food-related business incubators can create more opportunity for entrepreneurs in the Region.

**Food and Drug Administration Regulations**

The Food and Drug Administration (FDA) regulates all foods and beverages produced and distributed in the United States, except for those solely regulated by the USDA (i.e., meat, poultry, and eggs). The FDA ensures that the foods and beverages consumed are "safe, wholesome and properly labeled."[62] The FDA also has authority over imported foods and beverages—even before they arrive in the U.S. The FDA regulates food and beverages primarily to prevent adulteration (contamination), food-borne illness, and misbranding. The Food Safety and Inspection Service (FSIS) is an agency within the USDA that ensures the safety and quality of meat, poultry, and egg products. FSIS operates under the authority of the Federal Meat Inspection Act, the Poultry Products Inspection Act, and the Egg Products Inspection Act. This agency sets the safety and quality standards, inspects, and regulates all raw and processed meat, poultry, and egg products sold or purchased in interstate commerce.[63] Meat processing refers, specifically, to livestock and

[62] *Center for Food Safety and Applied Nutrition, "Guidance for Industry: Food Labeling Guide," U.S. Food and Drug Administration (FDA, February 5, 2020), www.fda.gov/regulatory-information/search-fda-guidance-documents/guidance-industry-food-labeling-guide.*

[63] *Oran B. Hesterman, PhD, Fair Food, 6.*

poultry slaughter, processing, and rendering.[64] Processing involves all the steps required to turn a live animal into meat for sale and consumption, including slaughtering, butchering, packaging, and value-added processing. Meat processing is a complex and highly regulated industry; meat processors are subject to federal inspection to ensure and maintain food safety.[65]

**Labeling and Packaging**

By operating under the authority of the Federal Food, Drug, and Cosmetic Act (FD&C Act), the Fair Packaging and Labeling Act, and the Nutrition Labeling and Education Act (NLEA), the FDA governs food and beverage packaging and labeling in the U.S.[66] The NLEA amended the FD&C Act; as a result, the FDA now requires food products to follow much more stringent labeling requirements and expects food labels containing nutrition content claims to comply with strict requirements. The NLEA protects consumers from relying on misbranding and false nutrition and health claims. The sale of misbranded food products occurs when the container is misleading or improperly labeled.[67] For instance, the FDA prohibits excessive "slack fill," which is the difference between the actual container capacity and the volume of the food product it holds.[68]

The portion of a food product label that a consumer will most likely see at the store is the principal display panel (PDP). The PDP must show the name of the product and the net quantity of the contents.[69] The information panel is next to the PDP and includes nutrition information and a statement of ingredients.[70]

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[64] *USDA Economic Research Service, "Manufacturing."*

[65] *Oran B. Hesterman, PhD, Fair Food, 6.*

[66] *National Conference of State Legislatures, "Federal Food Safety Laws," 2009, www.ncsl.org/research/agriculture-and-rural-development/federal-food-safety-laws.aspx.*

[67] *21 U.S.C. §343(d) ("A food shall be deemed to be misbranded … (d) … If its container so made, formed, or filled as to be misleading.").*

[68] *21 CFR 100.100; 21 CFR 130.12; 21 CFR 130.14 (A container that does not allow the consumer to folly view its contents shall be considered … misleading if it contains nonfunctional slack-fill. Slack-fill is the difference between the actual capacity of a container and the volume of product contained therein.").*

[69] *The Fair Packaging and Labeling Act, 15 U.S.C. §§1451-1461; 21 CFR 101(A).*

[70] *21 CFR 101.4 (Statement of Ingredients); 21 CFR 101.5 (Name & Address of Manufacturer, Packer, or Distributor); 21 CFR 101.9 (Nutrition Labeling Regulations); 21 CFR 101.12 (Serving Size).*

The FDA does not pre-approve labels but will enforce the law if an improper label is used.[71] However, the USDA requires the label to be pre-approved for meat and poultry products under its authority.[72]

Food that is not packaged according to specific FDA regulations is considered adulterated and prohibited from being sold to consumers.[73] Federal law considers packaging materials "indirect food additive[s]" and has specific regulations that detail what may be used as packaging.[74] Indirect food additives may only be used under the express conditions of good manufacturing practice, meaning, the quantity:

- Does not exceed the amount reasonably required to accomplish the intended effect in the food
- Shall not exceed any prescribed limitations
- Shall not be intended to accomplish any physical or technical effect in the food except as permitted by regulation
- The article that contacts food shall be of a purity suitable for its intended use[75]

In summary, food packaging is regulated to protect consumers from misbranded, misleading, or adulterated food products, and food labeling is regulated to assure that consumers are not misled, and so that consumers have adequate information to make an informed decision on their food choices.

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[71] *"Packaging, Labeling, Transporting, Storing," Food Law Resources, North Dakota State University (NDSU), accessed June 21, 2021, www.ag.ndsu.edu/foodlaw/processingsector/packaging-labeling ("It is the responsibility of the manufacturer or importer of a food to comply with current food labeling regulations").*

[72] *9 CFR 317.4 (Labels for meat and poultry products must be pre-approved by USDA); 9 CFR 317 (Including nutritional labeling); 9 CFR 381 (Including product name, ingredients, quantity of contents, weight, handling instructions, additives, manufacturer identification, date of packaging, and nutritional labeling for poultry products).*

[73] *21 CFR 175; 21 CFR 176; 21 CFR 177; 21 CFR 178 (A substance that is not specified in these regulations may not be used for packaging food).*

[74] *21 CFR 174-178 (An "indirect food additive" is a material that comes into contact with food as a part of packaging, holding, or processing, which was not intended to be added directly to, become a component of, or have a technical effect in or on the food product).*

[75] *"Packaging, Labeling, Transporting, Storing," Food Law Resources, North Dakota State University (NDSU).*

## 2.4 FOOD AND BEVERAGE MANUFACTURING

The Milwaukee 7 (M7)—the seven-county regional economic development partnership of Southeastern Wisconsin—has identified several industry clusters (concentrations of related industries that share markets, suppliers, and worker skills) as significant to the success of the Region. These industry clusters, including the food and beverage manufacturing cluster (F&B), offer Southeastern Wisconsin competitive strengths, assets, and supply chain advantages in the global economy and can be positioned for increased investment and growth from within and outside the Region. Food and beverage processing are a part of the manufacturing sector, covering commercial manufacturing that starts with raw agricultural products and then transforms them into ingredients for further processing or into edible products. This subsector includes animal food manufacturing, grain and oilseed milling, sugar and confectionery product manufacturing, fruit and vegetable preserving and specialty food manufacturing, dairy product manufacturing, animal slaughtering and processing, seafood product preparation and packaging, bakeries and tortilla manufacturing, other food manufacturing, and beverage manufacturing.

F&B is a thriving industry in Southeastern Wisconsin, especially in the Milwaukee area. Nationally, F&B growth is projected to be strong through 2025 in both employment and output, based on demand for functional, organic, and locally grown foods. The Region's F&B assets align well with expanding domestic and international markets, which is likely one of the reasons why Wisconsin ranks 5th nationally for food and beverage manufacturers.[76]

The Region exhibits supply-chain advantages in growing a competitive F&B cluster, given its proximity to the vast quantities of crop-based, dairy, and animal products generated throughout Wisconsin. These agricultural outputs continue to drive a regional strength in ingredient manufacturing, ranging from seasonings to enzymes. Agricultural products are the State's second-highest export category, and Wisconsin ranks 12th among U.S. states for agricultural exports. In 2018, Wisconsin exported $3.5 billion in agricultural products to 143 countries. This cluster also has the advantage of a formal cluster organization, the Food and Beverage Wisconsin (FaB) Network, composed of more than 270 firms working together to enhance cluster growth by focusing on the areas of industry leadership, talent, innovation, food safety, business development, and supply chain management. FaB programming includes a career awareness

[76] *"Milwaukee 7 Regional Economic Development Partnership: Food & Beverage Manufacturing," Choose Milwaukee, accessed June 15, 2021, www.choosemilwaukee.com/index.php?submenu=FoodBeverageManufacturing&src=gendocs&ref=FoodBeverageManufacturing&category=LeadingIndustries&link=FoodBeverageManufacturing.*

program at a public high school, tailored technical college curricula, a career resource center, industry directory, and a small business accelerator program.

Southeastern Wisconsin's F&B cluster is large, concentrated, and growing in export activity. The core of the cluster—food manufacturers, processors, and artisans—includes over 300 firms employing approximately 17,000 people, creating one of the strongest concentrations among major U.S. markets. The Region is also home to more than 8,000 workers in industry segments that support the core, including food products machinery manufacturing and food and beverage distribution. Approximately 33 percent of the U.S. value of agricultural products is produced within a 500-mile radius of Milwaukee.[77]

**Economic Indicators**

There are several economic indicators that further demonstrate the importance of the F&B sector to the regional economy, including location quotient (LQ), wages, projected job growth, and gross regional product (GRP).

LQ is a way of quantifying how concentrated a particular industry is in a region as compared to the nation. It can reveal what makes a particular region "unique" in comparison to the rest of the Country. If an LQ is equal to 1.0 that means the industry employment share for the Region is the same as that of the nation. An LQ greater than 1.0 indicates an industry with a greater share of the Region's employment compared to the nation. A high location quotient in a particular industry may present opportunities for additional growth of that industry, or related industries, because of competitive advantages such as existing skilled labor pool, suppliers, facilities, or transportation hubs in the region.

The Region has a strong LQ for F&B overall at 1.36. Table 2.12 shows that some of the particularly strong F&B sub-sectors include other food manufacturing,[78] sugar and confectionary product manufacturing, animal food manufacturing, fruit and vegetable preserving and specialty food manufacturing, and bakeries and tortilla manufacturing. Table 2.12 also projects continued strong LQ in these sub-sectors over the next few years; however, the sugar and confectionary product manufacturing subsector LQ has declined since 2015 and is projected to continue to decline over the next few years.

[77] Ibid.

[78] *Includes snack food manufacturing, coffee and tea manufacturing, flavoring syrup and concentrate manufacturing, seasoning, and dressing manufacturing, and all other food manufacturing.*

## Table 2.12
## Location Quotient (LQ) for the Food and Beverage Manufacturing Sector in the Region: 2015, 2020, and 2025

| Subsector | 2015 | 2020 | 2025 (Projected) |
|---|---|---|---|
| Animal Food Manufacturing | 0.92 | 1.51 | 1.84 |
| Grain and Oilseed Milling | 0.26 | 0.10 | 0.07 |
| Sugar and Confectionary Product Manufacturing | 2.85 | 2.03 | 1.84 |
| Fruit and Vegetable Preserving and Specialty Food Manufacturing | 1.36 | 1.65 | 1.78 |
| Dairy Product Manufacturing | 0.80 | 0.85 | 0.94 |
| Animal Slaughtering and Processing | 0.97 | 0.99 | 0.92 |
| Seafood Product Preparation and Packaging | 0.17 | 0.38 | 0.57 |
| Bakeries and Tortilla Manufacturing | 1.15 | 1.40 | 1.54 |
| Other Food Manufacturing | 2.89 | 2.80 | 2.93 |
| Beverage Manufacturing | 0.93 | 0.95 | 0.97 |

*Source: EMSI Labor Market Analytics, 2020*

Table 2.13, which shows the total existing and projected F&B jobs by sub-sector, also reflects this growth. This is positive news for the Region's workers. Figure 2.5 shows that each of these sub-sectors have average annual earnings of over $65,000 except for baking and tortilla manufacturing. These jobs may also have low barriers to entry for those residents that may be underemployed or unemployed, many of whom may be residing in areas of the Region with concentrations of low-income households. Some of these areas are in proximity to developments such as Century City in the City of Milwaukee, which has land ready for industrial development and existing food and beverage-related businesses.

Other indicators of the importance of the F&B sector to the Region's economy can be found in the sector's contributions to the gross regional product (GRP)[79] and export sales. Data show that the F&B GRP for Southeastern Wisconsin was $2.3 billion in 2020 (2.1 percent of the total GRP), and F&B has experienced considerable growth. The F&B GRP grew by almost 60 percent between 2011 and 2020 compared to about 21 percent growth in the total GRP for the Region over the same period. In addition, at $6,172,860,848, the F&B sector accounted for 5.4 percent of the Region's total export sales in 2020. Bolstering export sales is vitally important to the regional economy because it brings new monies to the Region, which in turn supports resident-serving industries. Export sales for F&B subsectors are shown in Table 2.14.

## 2.5 DISTRIBUTION

After processing, the next stage in the food system is distribution. Food distributors are the bridge between food producers and processors and point-of-sale and consumption. Typically, food distributors gather food products from producers and processors, store the products in warehouses, and ultimately transport them to the place where they will either be sold or consumed.[80] Food and beverage distribution companies can range in size from one-truck operations to large, national corporations. The methods of food distribution are continuously changing and improving with technological advances and as demand changes.[81]

[79] *GRP is final market value of all goods and services produced in a Region.*

[80] *Kelly Driver and JH Bloomberg School of Public Health, "Johns Hopkins Food System Primer: Food Distribution," Johns Hopkins Bloomberg School of Public Health, accessed April 14, 2021, www.foodsystemprimer.org/food-distribution.*

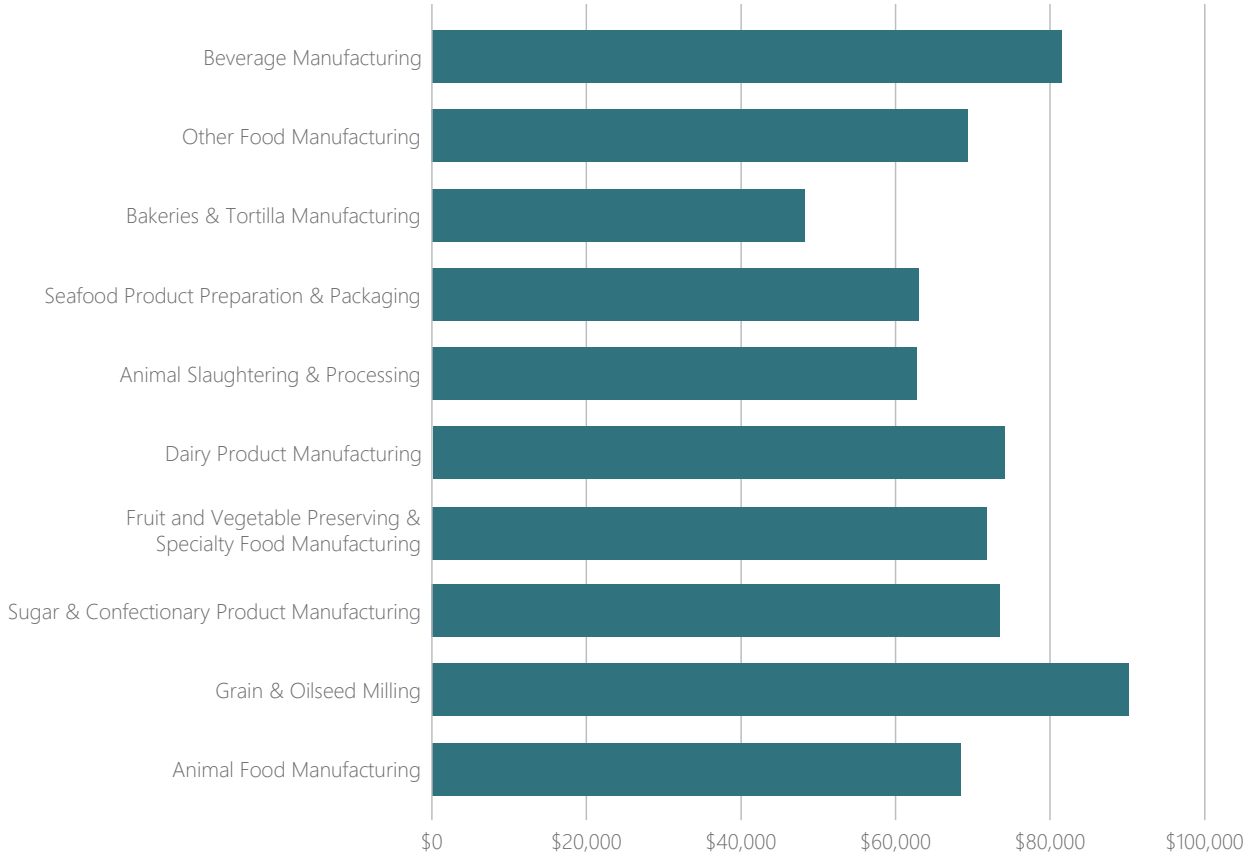
[81] *Philip Ackerman-Leist, Rebuilding the Foodshed: How to Create Local, Sustainable, and Secure Food Systems, The Community Resilience Guide Series (Chelsea Green Publishing, 2013).*

## Table 2.13
## Change and Expected Change in Food and Beverage Manufacturing Jobs in the Region: 2015, 2020, and 2025

| Subsector | 2015 Jobs | 2020 Jobs | 2025 Jobs (Projected) |
|---|---|---|---|
| Animal Food Manufacturing | 363 | 660 | 882 |
| Grain and Oilseed Milling | 108 | 41 | 27 |
| Sugar and Confectionary Product Manufacturing | 1,431 | 998 | 849 |
| Fruit and Vegetable Preserving and Specialty Food Manufacturing | 1,612 | 1,887 | 1,955 |
| Dairy Product Manufacturing | 753 | 871 | 983 |
| Animal Slaughtering and Processing | 3,261 | 3,542 | 3,308 |
| Seafood Product Preparation and Packaging | 42 | 85 | 114 |
| Bakeries and Tortilla Manufacturing | 2,501 | 2,937 | 3,171 |
| Other Food Manufacturing | 3,927 | 4,295 | 4,834 |
| Beverage Manufacturing | 1,373 | 1,730 | 1,843 |
| Total | 15,370 | 17,047 | 17,966 |

*Source: EMSI Labor Market Analytics, 2020*

**Figure 2.5**
**Average Earnings per Food and Beverage Manufacturing Sub-Sector in the Region: 2020**




*Source: EMSI Labor Market Analytics, 2020.*

#258194 – Table 2.14 – Regional Food and Beverage Exported Sales: 2020
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## Table 2.14
## Regional Food and Beverage Exported Sales: 2020

| Subsector | Exported Sales ($) |
|---|---|
| Animal Food Manufacturing | 403,539,033 |
| Grain and Oilseed Milling | 34,954,103 |
| Sugar and Confectionary Product Manufacturing | 392,439,378 |
| Fruit and Vegetable Preserving and Specialty Food Manufacturing | 577,686,666 |
| Dairy Product Manufacturing | 481,360,413 |
| Animal Slaughtering and Processing | 1,499,849,943 |
| Seafood Product Preparation and Packaging | 27,589,558 |
| Bakeries and Tortilla Manufacturing | 329,943,600 |
| Other Food Manufacturing | 1,579,855,005 |
| Beverage Manufacturing | 845,643,149 |
| Total | 6,172,860,849 |

*Source: EMSI Labor Market Analytics, 2020*

The range of food distribution models includes wholesale distributors, food service distributors, specialty distributors, and redistributors. Wholesale distributors typically buy a wide variety of products in bulk. In contrast, specialty distributors typically focus on a specific product type and carry a limited range of products. Redistributors usually purchase products from more prominent distributors and then transport those products to smaller, typically privately owned, food service establishments. Many major retailers have taken on their own distribution model as self-distributors, meaning they manage their own fleets of trucks and maintain their own warehouses.

**Employment**

In the Region in 2020, the grocery and related product merchant wholesaler industry group provided 5,840 jobs with an average earning per job of $73,739. Figure 2.6 shows the distribution of jobs per type of wholesale food distributor by North American Industry Classification System (NAICS) code. The type of wholesale food distributor that had the highest average earnings per job was dairy product (except dried or canned) merchant wholesalers, shortly followed by meat and meat product merchant wholesalers at $100,459 and $95,930 per year, respectively.

**Freight Transportation**

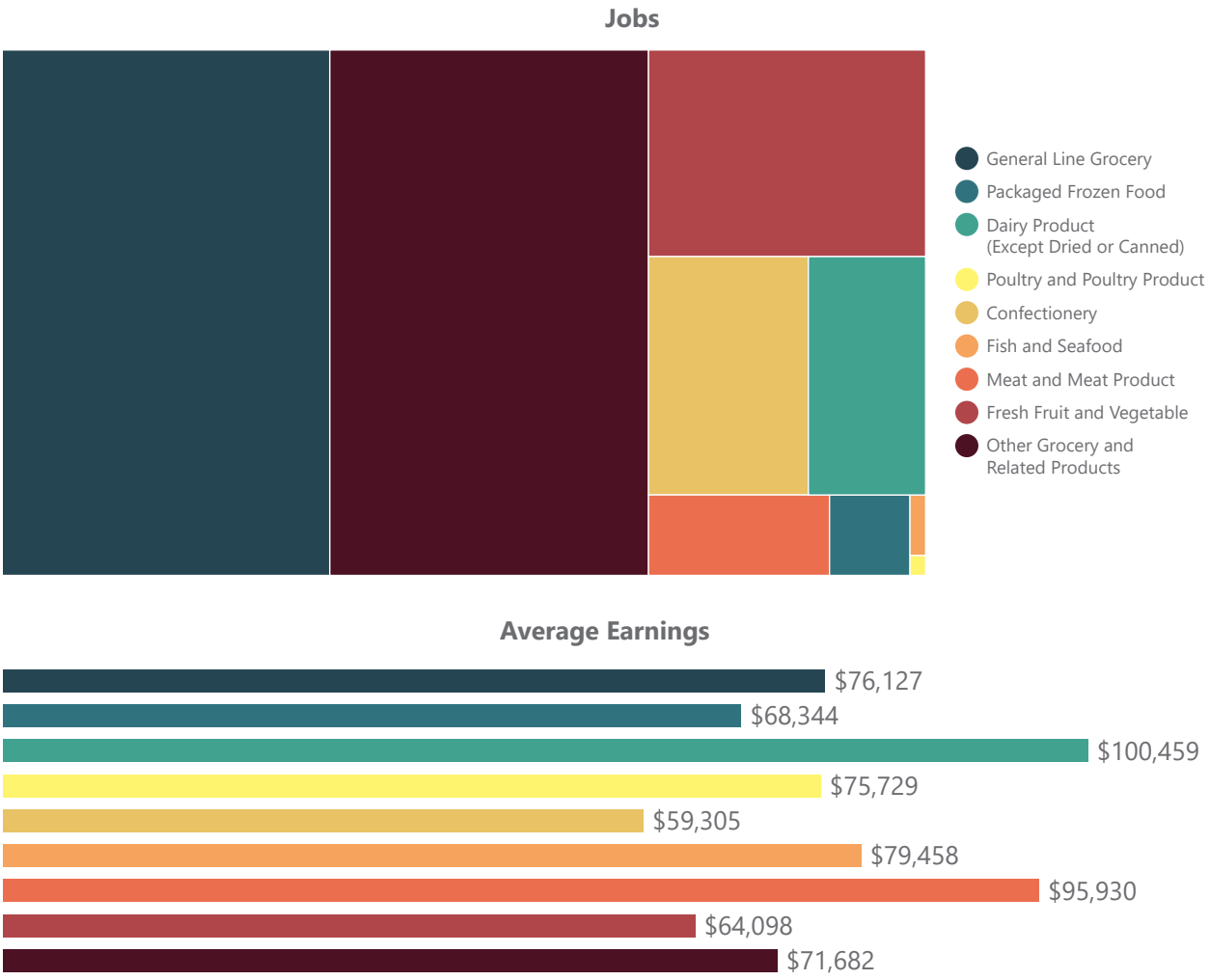
Regardless of where one purchases or receives food, it has likely traveled great distances from where it was produced. The term "food miles" refers to the distance that foods travel from where they are grown to where they reach a consumer. In the U.S., the average distance that a food product travels (from production to consumption) is 1,500 miles.[82]

The environmental impacts, sanitary standards compliance, and shortages in the driver-workforce are some challenges to food transportation. In recent years, consumers have become more aware of the effects of fossil fuel-powered vehicles on our environment. As a result, consumer demand for locally produced food has grown. The impact of greenhouse gas (GHG) emissions on the climate are important to understand to mitigate those effects. Long-distance and large-scale food transportation currently uses 10 kcal of fossil fuel energy per every 1 kcal of food energy that is transported.[83] Certain forms of transportation pollute more

[82] *Oran B. Hesterman, PhD, Fair Food, 7.*

[83] *"How Far Does Your Food Travel to Get to Your Plate?," Cultivating a Healthy Food System (CUESA), 2009, cuesa.org/learn/how-far-does-your-food-travel-get-your-plate ("Kcal" is the scientific term that represents 1000 true calories of energy and represents the amount of heat needed to raise the temperature of water by one degree Celsius).*

**Figure 2.6**
**Jobs by Type of Wholesaler Food Distributor in the Region: 2020**




*Source: EMSI and SEWRPC*

than others. For example, air freight generates nearly 50 times more carbon dioxide than sea freight.[84] Despite the potential environmental impacts, long-distance food transportation has benefits. It can help feed densely populated areas, provide out-of-season variety, and allow regions to focus on their agricultural strengths.[85] The impact of the food system on our climate will be discussed in greater detail in Chapter 4, *Environmental Stewardship*. Consumer access and transportation is discussed in Chapter 3, *Consumers*.

The FDA FSMA rule on the Sanitary Transportation of Human and Animal Food advanced the FDA's efforts to protect consumers from food contaminated during transportation. The Sanitary Food Transportation Act of 2005 requires the FDA to establish sanitary transportation methods to ensure traveling food does not become adulterated (i.e., containing poisonous, harmful, or unsafe substances). FSMA expanded upon the SFTA by establishing requirements for vehicles and transportation equipment, transportation operations, records, training, and waivers. FSMA requires vehicles and transportation equipment to be designed and maintained to ensure that it cannot cause the food it transports to become unsafe for consumption. It also requires that the measures taken during transportation ensure food safety (e.g., adequate temperature control and prevention of cross-contamination).

FSMA applies to any party who partakes in the transport of food in the U.S. by motor or rail vehicle, and any party who transports food that will be consumed or further distributed in the U.S. from other countries. However, these requirements do not apply to food transported by ship or air due to limitations of the law. FSMA also requires personnel involved in transporting food products to be appropriately trained in food safety protocols and training documentation.[86] The FDA may waive the requirements of this rule if it determines that "the waiver will not result in the transportation of food under conditions that would be unsafe for human or animal health, or contrary to the public interest."[87] There are also several exemptions from this rule, including:

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[84] *Hannah Ritchie, "Very Little of Global Food Is Transported by Air; This Greatly Reduces the Climate Benefits of Eating Local," Our World in Data, January 28, 2020, ourworldindata.org/food-transport-by-mode.*

[85] *Kelly Driver and JH Bloomberg School of Public Health, "Johns Hopkins Food System Primer: Food Distribution," Johns Hopkins Bloomberg School of Public Health, accessed April 14, 2021, www.foodsystemprimer.org/food-distribution.*

[86] *Center for Food Safety and Applied Nutrition, "FSMA Final Rule on Sanitary Transportation of Human and Animal Food," Guidance & Regulation, fda.gov (FDA, February 19, 2021), www.fda.gov/food/food-safety-modernization-act-fsma/fsma-final-rule-sanitary-transportation-human-and-animal-food.*

[87] Ibid.

- Transportation operations that have less than $500,000 in average annual revenue
- Transportation activities performed by a farm
- Transportation of food that is transshipped through the U.S. to another country
- Transportation of food that is neither consumed nor distributed in the U.S.
- Transportation of compressed food gases or food contact substances
- Transportation of human food byproducts for use as animal food without further processing
- Transportation of food that is completely enclosed by a container and that does not require temperature control
- Transportation of live food animals (other than molluscan shellfish)[88]

***Driver Shortages***

Shortages in the CDL truck driver workforce are affecting many industries, including the food and beverage industry. Our entire food system relies heavily on this workforce—a lack of drivers holds up the supply chain, affecting points-of-sale and ultimately consumers. One of the reasons for this driver shortage is the aging population of the workforce. According to the American Trucking Association (ATA), the average age for the trucking industry was 46 in 2018. As those workers retire, the industry must seek new workers to fill the gap. However, attracting new workers to the industry has been an issue. Historically, women have not been as involved in the CDL truck-driving workforce as men. In 2018, only about 6 percent of truck drivers were women.[89] In addition, many people choose other occupations, even when qualified for trucking jobs, because of perceptions related to the job such as extended periods away from home.

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[88] *Center for Food Safety and Applied Nutrition, "FSMA Final Rule on Sanitary Transportation of Human and Animal Food," Guidance & Regulation, fda.gov (FDA, February 19, 2021), www.fda.gov/food/food-safety-modernization-act-fsma/fsma-final-rule-sanitary-transportation-human-and-animal-food.*

[89] *Bob Costello and Alan Karickhoff, "Truck Driver Shortage Analysis" (American Trucking Association, July 2019).*

In 2018, the trucking industry was short roughly 60,000 drivers. Based on the employment trends, the shortage in 2023 is expected to reach over 100,000.[90] Through 2028, the trucking industry will need to hire an average of nearly 110,000 workers per year to keep up with the demand for drivers, with only 25 percent of that need arising from industry growth.[91] Because of this ongoing shortage in the workforce, many trucking companies have instituted higher wages and more at-home time. *Trucking Moves America Forward*, a long-term industry-wide movement, is an example of an initiative to create a more positive image of the industry by showing the rewards and importance of the career path for potential drivers.[92]

***Regional Freight Transportation Infrastructure***

Several modes of freight transportation are critical to ensuring consumer access to food in all areas of the Region, as well as transporting the Region's agricultural commodities and food products to other parts of the nation and the world. Statistics for the nation as well as the Milwaukee area show that shipping food by truck is by far the dominate mode of transporting food; however, rail and water are also vital components in the food transportation network.

In support of the regional food system, the VISION 2050 Freight Transportation Element recommends a multi-modal freight transportation system that will help to ensure food access and economic growth. This includes recommendations related directly to components of the freight network in Southeastern Wisconsin such as strategic capacity expansion improvements to arterial streets and highways that will reduce congestion on the Regional Highway Freight Network (see Map 2.9); developing a new truck-rail intermodal facility; developing truck size and weight regulations in Wisconsin consistent with neighboring states; constructing the Muskego Yard bypass for freight trains traveling through downtown Milwaukee; addressing the shortage of truck drivers; addressing safety and security needs; and supporting efforts outside the Region that improve freight movement to and from the Region (such as addressing highway and rail congestion in the Chicago area). In addition to the Freight Transportation Element recommendations, the overall VISION 2050 goal of significantly increasing transit service, expanding bicycle and pedestrian facilities, and maintaining the road network in a state of good repair will reduce conflicts between freight trucks and trains and other users of the transportation system.

[90] Ibid, 4.

[91] Ibid, 5.

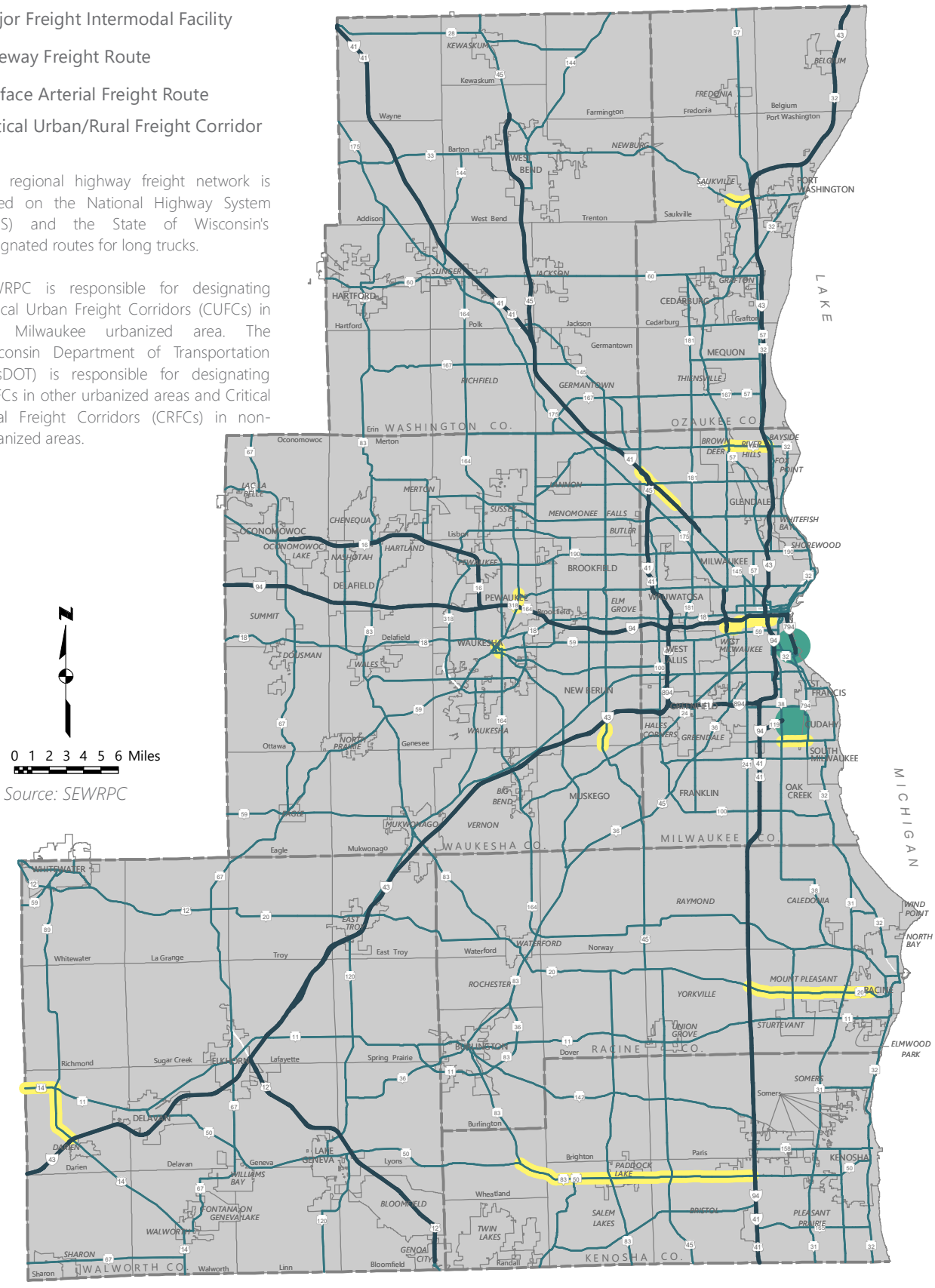
[92] Ibid.

## Map 2.9
## VISION 2050 Freight Transportation Element

- Major Freight Intermodal Facility
- Freeway Freight Route
- Surface Arterial Freight Route
- Critical Urban/Rural Freight Corridor

Note: The regional highway freight network is based on the National Highway System (NHS) and the State of Wisconsin's designated routes for long trucks.

SEWRPC is responsible for designating Critical Urban Freight Corridors (CUFCs) in the Milwaukee urbanized area. The Wisconsin Department of Transportation (WisDOT) is responsible for designating CUFCs in other urbanized areas and Critical Rural Freight Corridors (CRFCs) in non-urbanized areas.




Source: SEWRPC

As this plan was being prepared, the Agricultural Maritime Export Facility was under construction at Port Milwaukee. The facility was developed in partnership between Port Milwaukee and the Delong company along with funding from the U.S. Maritime Administration and Wisconsin Department of Transportation. Once completed, it is expected to handle $40 million worth of Dry Distillers Grain with Solubles (DDGS) annually[93] and increase agricultural product exports to international markets.

**Food Hubs**

As the regional food hub concept has gained traction in the local food movement, confusion as to what a food hub is has grown as well. The working USDA definition of a food hub is "a centrally located facility with a business management structure facilitating the aggregation, storage, processing, distribution, and/or marketing of locally/regionally produced food products."[94] It is considered a working definition because there is currently no one complete definition of food hubs. Food hubs create opportunities for better access to locally produced foods. While food hubs can take many different forms, they all must have knowledge of and adherence to state and federal laws and regulations, strong producer and retailer relationships, and adequate infrastructure (e.g., distribution vehicles and workspace).

Food hubs are not just beneficial to consumers. The USDA Regional Food Hub Resource Guide identifies some of the various roles and impacts that food hubs may have on a community, including increasing market access for local producers, adding value to the current food distribution system, having positive economic, social, and environmental impacts, and fueling entrepreneurial spirit in the community.[95] Unlike other distribution models, food hubs operate from a place of partnership; they often work closely with local producers and see those producers as valued partners, rather than expendable suppliers.[96] The USDA offers grant funding for local and regional food hubs, and there are other funding opportunities through food system grants, local food system councils, and local economic development councils.[97]

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[93] *DDGS are a major coproduct from the production of ethanol from grain. DDGs are typically used as a protein-rich animal feed. USDA Economic Research Service.*

[94] *Jim Barham, "Getting to Scale with Regional Food Hubs," USDA Blog Archives: Food and Nutrition, Farming (blog), accessed April 20, 2021, www.usda.gov/media/blog/2010/12/14/getting-scale-regional-food-hubs.*

[95] *James Barham et al., "Regional Food Hub Resource Guide" (USDA Agricultural Marketing Service, 2012).*

[96] Ibid.

[97] *Rural Health Information Hub, "Food Hubs - RHIhub Food Access Toolkit," Food Hub Toolkit, accessed April 20, 2021, www.ruralhealthinfo.org/toolkits/food-access/2/production-processing-distribution-models/food-hubs.*

Food hubs may contribute to helping solve some of the issues that arise with long-distance food distribution or transportation. Because food hubs typically source from local or regional areas, they can significantly reduce food miles, along with the amount of energy needed to transport food. Food hubs also contribute to reducing food waste; by working with food system stakeholders and by adjusting to market conditions quickly, food hubs are often able to coordinate processing and distribution of what would otherwise be excess food. A regional food hub, or multiple food hubs, could positively impact the food supply chain of Southeastern Wisconsin. By moving towards a more localized food system, when possible, we can ensure that our food is the freshest and healthiest, and we can ensure that we are reducing the harmful impacts of long-distance food distribution on our environment.

The USDA Food Hub directory does not identify any Food Hubs within the Region; however, the Wisconsin Food Hub Cooperative (WFHC) is committed to building a collaborative and vibrant local food system throughout Wisconsin. The WFHC is a farmer-led cooperative owned by producers and the Wisconsin Farmers Union. It helps local farmers get connected with retail, institutional, and food service sectors by providing marketing, sales, aggregation, and logistical support.

## 2.6 POINT OF SALE

After distribution, the next stage in the food system is point-of-sale, or the moment food finds its way to consumers. Consumers most often purchase their food from grocery retailers, the food service industry (including restaurants), and various direct-to-consumer models (e.g., CSAs, farm stands, and farmers' markets).

### Grocery Retail

The USDA Economic Research Service (ERS) provides information on food retail sales and growth, the share of sales per retail type, and the industry structure. Almost 116,000 traditional food stores across the Country sold approximately $688 billion of retail food and nonfood products in 2018.[98] In the U.S. in 2019, the average number of grocery items carried in the average supermarket was 28,112 and the median weekly

[98] *USDA Economic Research Service, "Retail Trends," 2021, www.ers.usda.gov/topics/food-markets-prices/retailing-wholesaling/retail-trends.*

sales per supermarket was $554,958.[99] As shown in Figure 2.7 grocery stores (except convenience stores) had the largest share of sales at about 92 percent, followed by convenience stores (without gasoline) at 4.5 percent. Other types of specialty food accounted for the remaining 3.3 percent.[100]

There have been steady increases in food retail sales over the past decade, largely due to the increase in large grocery chains such as Walmart and Kroger.[101] Food retailers have experienced great consolidation over the past few decades, likely due to the economic uncertainty that goes with owning and operating a grocery store—often operating on a profit margin of less than 2 percent after taxes. Because of this small profit margin, food retailers are often hesitant to develop in "uncertain markets."[102] As a result, supermarkets and large grocery chains have begun focusing development in suburban areas due to the existence of higher-income consumers, land availability, and convenient highway access.[103] For consumers, the convenience of being able to purchase everything needed under one roof is often a major factor in deciding to shop at supermarkets and full-service grocers. Supermarkets and full-service grocery stores often offer the widest range of food products, often offer them at lower prices than smaller or specialty food retail outlets and may have other services such as pharmacies. While the range of offerings and the lower prices are often attractive to consumers, accessing these stores often requires access to a vehicle or other form of transportation, along with time for travel since they are may be located outside of city centers. As of 2021, there were more than 300 supermarkets in the Region. The locations of supermarkets in the Region in relation to fixed-route transit service is presented in Chapter 3. Chapter 3 also includes mapping of convenience stores.

Today, there are "local, state, and federal incentives" that aim to increase supermarkets and full-service grocers in areas with inadequate food access, particularly access to healthy and fresh food retail.[104] One

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[99] *FMI - The Food Industry Association, "Supermarket Facts," accessed May 13, 2021, www.fmi.org/our-research/supermarket-facts.*

[100] *USDA Economic Research Service, "Retail Trends."*

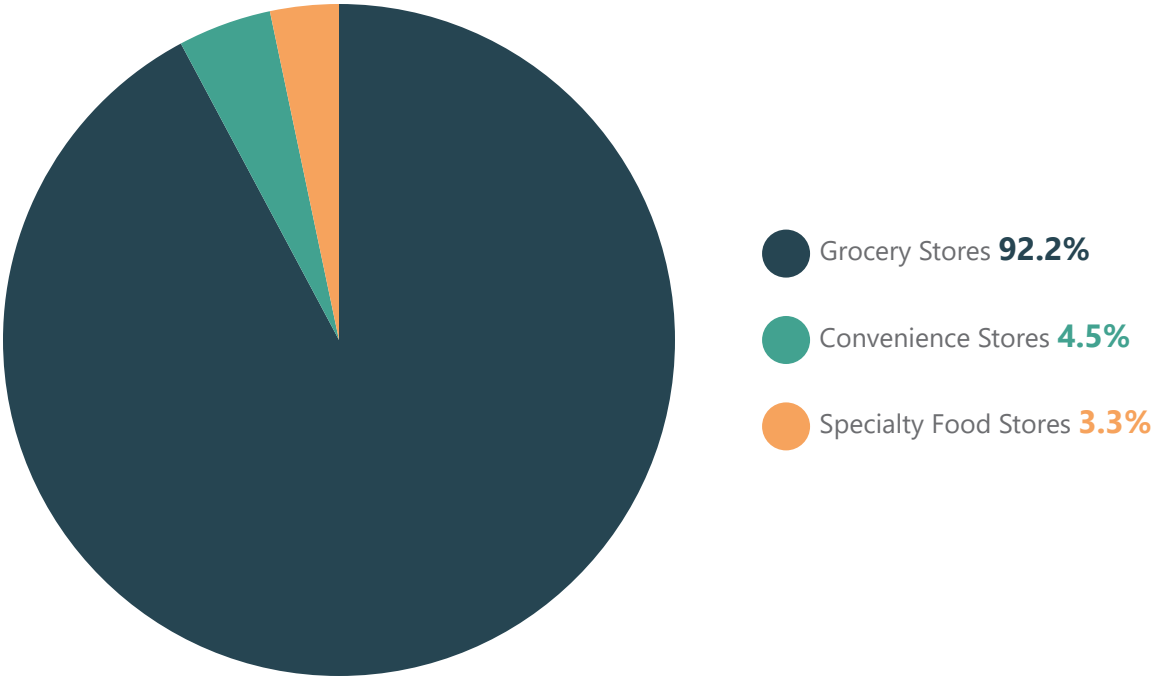
[101] Ibid.

[102] *Lindsey Day-Farnsworth, ed., "Chapter 4. Distribution: Supplying Good Food to Cities," in Good Food, Strong Communities: Promoting Social Justice through Local and Regional Food Systems, 75 (University of Iowa Press, 2017).*

[103] Ibid.

[104] Ibid.

**Figure 2.7**
**National Food Retail Sales by Type: 2018**




*Source: Modified from USDA Economic Research Service,* Retail Trends, *2021, ers.usda.gov/topics/food-markets-prices/retailing-wholesaling/retail-trends, and SEWRPC*

possible way to increase the amount of grocery stores in underserved areas would be to incentivize grocers with tax incentives.[105]

One such incentive, arising from the Federal Healthy Food Financing Initiative—the Healthy Food for All Americans Act (HFAAA)—would benefit low-income rural and urban communities that are experiencing limited access or lack of access to nutritious food by allowing tax credits and grants for activities that provide access to healthy food in food deserts (food deserts identified by the USDA are shown on Map 1.1 in Chapter 1).[106] The HFAAA would also allow tax credits for operating a new grocery store or renovating an existing store within a food desert, authorizes grants for a portion of the construction costs of building a permanent food bank in a food desert, and authorizes grants for a portion of the annual operating costs of temporary access providers (e.g., mobile markets, farmers markets, and food banks).[107] The goal of this incentive would be to eliminate food deserts throughout the United States.

If grocery stores cannot be attracted to the Region's food deserts, another strategy to address access would be programs to encourage convenience stores to carry healthy foods. As shown on the mapping in Chapter 3, many of the areas that lack supermarkets in the Region have an abundance of convenience stores.

***Employment***

In the Region in 2020, the food and beverage stores industry subsector provided 20,754 jobs with an average earning per job of $32,958 per year. Within that subsector, the grocery stores industry group provided 18,051 jobs with an average earning per job of $32,568 per year, the specialty food stores industry group provided 1,717 jobs with an average earning per job of $37,190 per year, and the beer, wine, and liquor store industry group provided 986 jobs with an average earning of $32,732 per year. Figure 2.8 shows the distribution of jobs by the type of store based on the North American Industry Classification System (NAICS) code.

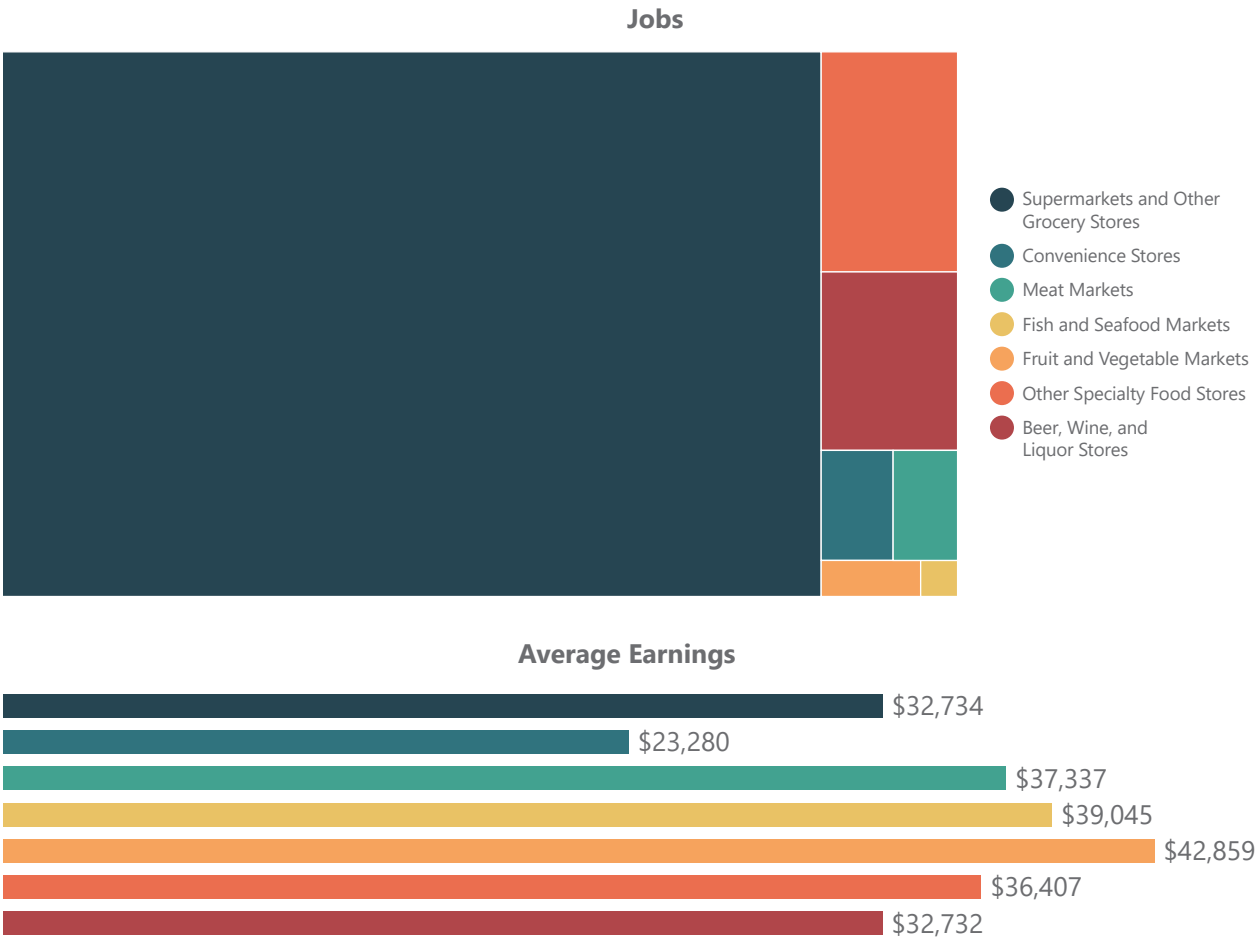
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[105] *"Food Deserts* - Food Empowerment Project," accessed November 8, 2021, foodispower.org/access-health/food-deserts (noting that, on the national level, the "Let's Move" campaign to combat childhood obesity included a $400 million investment from the government focused on providing tax breaks to supermarkets opening in food deserts).*

[106] *Tim Ryan, "H.R.1717 - 116th Congress (2019-2020): Healthy Food Access for All Americans Act," legislation, August 9, 2019, 2019/2020, www.congress.gov/bill/116th-congress/house-bill/1717.*

[107] Ibid.

**Figure 2.8**
**Jobs by Type of Grocery Retail Establishment in the Region: 2020**




*Source: EMSI and SEWRPC*

**Food Service Industry**

There are both commercial and non-commercial food service establishments. Commercial includes any facilities that serve meals and snacks for immediate consumption including full-service restaurants, fast food restaurants, caterers, cafeterias, and any other "places that prepare, serve, and sell food to the general public for a profit."[108] Non-commercial food service establishments may include schools, nursing homes, and other institutional facilities, and will be discussed in Chapter 3. Of the $1.77 trillion worth of food sold in 2019 (including food service and retailing), $969.4 billion was supplied by food service establishments.[109] Full-service and fast-food restaurants comprise the two largest segments of the commercial food service market, constituting 73.1 percent of all food-away-from-home sales nationwide in 2019.[110] While the number of full-service restaurants remained mostly unchanged between 2000-2015, the number of quick-service restaurants—commercial establishments where consumers order and pay for the food at a counter—grew by almost 20 percent.[111] More details about the distribution of food establishments, including mapping of fast-food restaurants, are discussed in Chapter 3.

***Employment***

The Bureau of Labor Statistics (BLS) estimates that there were approximately 11.9 million people employed in the food service industry nationwide in 2018. Prior to the COVID-19 pandemic, the Census Bureau's American Community Survey (ACS) estimated that the industry had been growing at a rate of 0.49 percent annually.[112] Despite an estimated 1.1 percent 10-year projected job growth in the food service industry (2018-2028), food service industry employees were down 3.1 million from expected levels in 2020.[113] On average, employees in the food service industry made $22,426 per year in 2018, but wages were distributed

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[108] *USDA Economic Research Service, "Food Service Industry," 2020, www.ers.usda.gov/topics/food-markets-prices/food-service-industry.*

[109] *USDA Economic Research Service, "Market Segments," 2020, www.ers.usda.gov/topics/food-markets-prices/food-service-industry/market-segment.*

[110] Ibid.

[111] *Patrick W. McLaughlin, "Growth in Quick-Service Restaurants Outpaced Full-Service Restaurants in Most U.S. Counties," Amber Waves, accessed May 26, 2021, www.ers.usda.gov/amber-waves/2018/november/growth-in-quick-service-restaurants-outpaced-full-service-restaurants-in-most-us-counties.*

[112] *"Restaurants & Food Services," DATA USA, datausa.io/profile/naics/restaurants-food-services#io.*

[113] *"National Statistics: Restaurant Industry Facts at a Glance," National Restaurant Association, 2021, restaurant.org/research/restaurant-statistics/restaurant-industry-facts-at-a-glance.*

less evenly than the national average.[114] Despite making up 53 percent of the food service workforce, women make an average salary of $6,699 less than their male counterparts (1.35 times less).[115]

In this Region in 2020, there were 63,862 jobs within the food services and drinking places subsector, with an average earning of $20,705 per year. Within that subsector, the special food services industry group provided 4,380 jobs with an average earning per job of $28,580, the drinking places (alcoholic beverages) industry group provided 5,026 jobs with an average earning per job of $18,770, and the restaurants and other eating places industry group provided 54,457 jobs with an average earning per job of $20,251. The types of jobs that fall within that subsector include food service contractors, caterers, mobile food services, drinking places (alcoholic beverages), full-service restaurants, limited-service restaurants, cafeterias, grill buffets, and buffets, and snack and nonalcoholic beverage bars. The most numerous jobs in the Region in 2020 were full-service restaurants and limited-service restaurants providing 25,119 and 25,623 respectively. Figure 2.9 shows the distribution of jobs based on their North American Industry Classification System (NAICS) code.

***COVID-19 and the Food Service Industry***

Food services and drinking places is one of the Region's largest industry sectors; however, within the first month of the COVID-19 pandemic, job losses were at 47 percent.[116] The Wisconsin Policy Forum released a report in July 2022 that showed trends in various industries throughout the COVID-19 pandemic.[117] Wisconsin's restaurant and food services industry is still down 9 percent, and in Milwaukee County, it is down 11.8 percent. The 9 percent decrease in employment in this industry in Wisconsin is larger than the 6 percent decrease that occurred nationally in the same subsector.[118] In an effort to help the food service industry, the U.S. Small Business Administration (SBA) administered the Restaurant Revitalization Fund (RRF) that was a part of the American Rescue Plan. As of July 2021, 2,095 Wisconsin restaurants received funding in the amount totaling $379,302,899, which is about 1.3 percent of the total RRF net approvals for the United

[114] *"Restaurants & Food Services," DATA USA (noting that the food service industry has a wage GINI of 0.482, which is more than the national average of 0.478).*

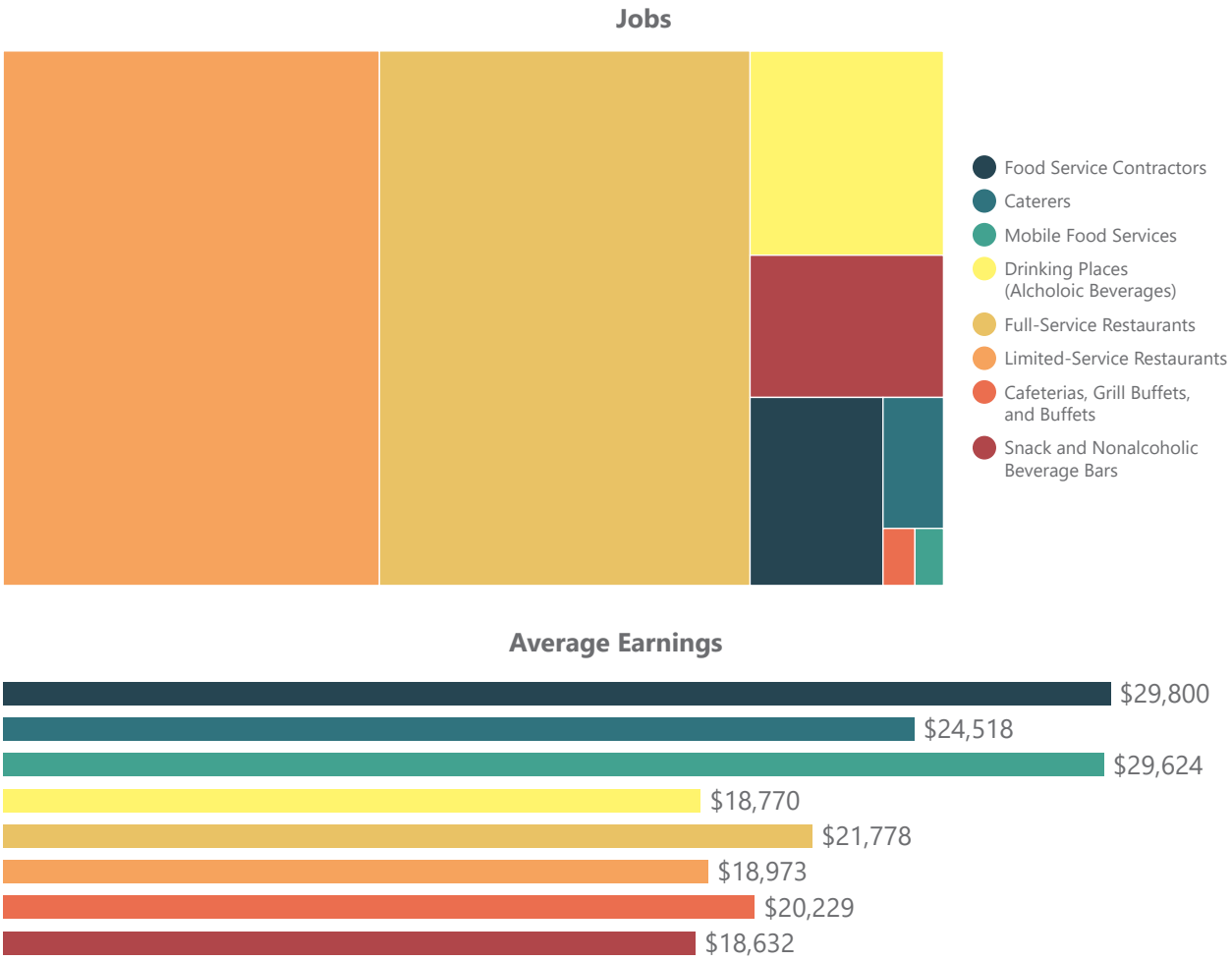
[115] Ibid.

[116] *Wisconsin Policy Forum, "An Uneven Recovery for Wisconsin Jobs," July 2022, wispolicyforum.org/wp-content/uploads/2022/07/Focus_22_15_JobsOutlook.pdf.*

[117] Ibid.

[118] Ibid.

**Figure 2.9**
**Jobs by Type of Food Service Establishment in the Region: 2020**




*Source: EMSI and SEWRPC*

States.[119] Less than 40 percent of Wisconsin restaurant applicants received RRF funding, which shows that the need was greater than the available funds.[120]

Another U.S. Small Business Administration (SBA) program—the Paycheck Protection Program (PPP)—helped businesses keep their workforce employed during the COVID-19 crisis.[121] In Wisconsin, a total of a total of 15,601 loans totaling over $1.2 billion were disbursed to businesses in the Accommodation and Food Service sector.[122] The Accommodation and Food Services sector comprises establishments providing customers with lodging and/or preparing meals, snacks, and beverages for immediate consumption. The North American Industrial Classification System (NAICS) combines both accommodation and food services establishments into one sector because the two activities are often combined at the same establishment. The PPP ended on May 31, 2021.[123]

In 2020, Governor Tony Evers' Administration invested $1.99 billion in federal funds to help Wisconsin residents, businesses, and communities respond to and recover from COVID-19. These funds were made available from the Wisconsin Coronavirus Relief Fund which was provided to the State through the federal Coronavirus Aid, Relief, and Economic Security (CARES) Act. Of the nearly $2 billion in funding, $150 million was allocated towards personal protective equipment and sanitizing supplies.[124] As of April 2021, a total 5,176,550 personal protective equipment and sanitizing supplies were allocated in this Region.[125]

**Direct-to-Consumer**

In many places, farmers may choose to sell their products directly to consumers, through roadside farm stands, farmers' markets, and community supported agriculture programs. This option has been gaining popularity in recent years; as the local food movement grows, many consumers are choosing to enjoy seasonal foods and support local farms, and many producers are opting to conduct business without a third

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[119] *"Restaurant Revitalization Fund (RRF) Report, Approvals through 06/30/2021," 6.*

[120] Ibid.

[121] *"Paycheck Protection Program." Accessed August 30, 2022. www.sba.gov/funding-programs/loans/covid-19-relief-options/paycheck-protection-program.*

[122] Ibid.

[123] Ibid.

[124] *"DOA," accessed August 25, 2022, doa.wi.gov/Pages/COVIDRelief-Investments.aspx.*

[125] Ibid.

party. Direct-to-consumer sales can positively impact the economy and environment by supporting local farms, contributing to farmland tenure, preserving farmland, and reducing food miles.

Some farmers choose to sell to consumers via roadside stands. Some challenges to operating a roadside farm stand include lack of exposure, pricing, land use regulations, and staff availability. Location is important when deciding whether to operate a roadside stand; stands operating in more rural and less-traveled areas may have to rely more on a dedicated customer base rather than the spontaneous passersby. In addition, producers must pay attention to the local zoning and land use regulations. Some farms operate self-service stands, which often operate off an honor system (payment in a money box). There are however downsides to not staffing a roadside stand; inability for customers to make change and confusion can lead consumers to skip stopping altogether, while producers may be worried about consumers straying from the honor system in place. Despite the challenges, this business model can be a terrific way to boost farm income, and to connect either directly or indirectly with consumers in the community.

Farmers' markets have been a popular venue for shopping for years. Farmers' markets offer fresh produce that is currently in season, as well as many value-added products such as jams, baked goods, honey, and more. Because the food is in season, the prices are often a bargain, and the nutritional value is often at its most optimal level. As food is harvested, stored, or transported, its nutritional value reduces along with its flavor.[126] As of 2021, there were an estimated 71 farmers markets operating throughout the Region, which are mapped in Chapter 3.

***Community Supported Agriculture (CSA)***

Community supported agriculture (CSA) is also a popular direct-to-consumer option for consumers who wish to buy locally produced, seasonal food, direct from a farmer. Community supported agriculture is a highly flexible model of food production and distribution in which the growers and the consumers share the risks and benefits of farming.[127] A typical CSA model consists of a farm that offers a certain number of "shares" (i.e., a membership or subscription) to the public that interested consumers may purchase to receive a "share" of seasonal produce on a regular basis throughout the harvest season.[128]

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[126] *Stephanie Osmanski, "Learn About Some (of the Many) Benefits of Shopping at a Farmers Market," Green Matters, May 1, 2020, www.greenmatters.com/p/farmers-markets-benefits.*

[127] *USDA National Agriculture Library, "Community Supported Agriculture," Alternative Farming Systems Information Center, accessed February 22, 2021, www.nal.usda.gov/afsic/community-supported-agriculture.*

[128] Ibid.

CSAs are beneficial because the farmers gain better financial security, the consumers gain better access to local food, and they both benefit from the direct marketing—resulting in a stronger producer-consumer relationship.[129] Upfront payment of shares allows farmers to invest in themselves—equipment, seeds, and any other upfront growing costs—without having to take out high-risk and high interest loans.[130] Beyond providing an avenue to access high quality, fresh, nutritious, and locally grown food, CSAs directly connect consumers to producers in a way that strengthens the local food system, builds community, supports local business, and stimulates the local economy.[131] There are at least 14 farms in the Region that have CSA programs, however there is opportunity to encourage other farms to start their own CSA programs to better connect with their consumers and to increase the amount of locally grown food available in the Region.

***Farm Fresh Atlas***

The Farm Fresh Atlas, developed by REAP Food Group, is a resource that provides information about Wisconsin farms, farmers' markets, restaurants, stores, and other businesses that sell locally produced food and use sustainable production and business practices. Each farm listed in the Atlas pledges that it: (1) is cooperatively or family-owned; (2) is committed to reducing the application of synthetic pesticides and fertilizers; (3) operates in a way that protects and sustains the region's land and water resources; (4) treats animals with care, respect, and access to the outdoors; (5) provides safe, fair working conditions for employees; and (6) sells Wisconsin products that they have grown or helped produce on their farm. Each business or organization listed in the Atlas pledges that it: (1) is locally and cooperatively or family-owned or is a non-profit organization whose mission is to promote a sustainable regional food system; (2) operates in a way that protects and sustains the region's land and water resources; (3) provides safe and fair working conditions for employees; and (4) sells or advocates for products grown on Wisconsin farms, or sells products made by their business using raw materials grown on Wisconsin farms, or uses fair trade, sustainable, and/or organic ingredients in their products. This resource was created and is continuously updated to ensure that more people can be connected to local food. To use this resource, visit: farmfreshatlas.org.

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[129] Ibid.

[130] *Abigail Harper, "Benefits of Community Supported Agriculture," Michigan State University Extension, February 20, 2020, www.canr.msu.edu/news/principles_and_benefits_of_community_supported_agriculture.*

[131] Ibid.

## 2.7 SUPPLY CHAIN

Two important aspects of the regional food supply chain are the transportation system and labor force. As discussed in Section 2.5, the regional freight transportation network and arterial street and highway system are critical components of the regional food system, providing the basis for delivering shipments to stores and restaurants, allowing movement of raw materials and goods to the Region's F&B manufacturers, and allowing movement of the Region's agricultural commodities and food products to other parts of the nation and the world. In general, the street and highway system perform well compared to other metropolitan areas across the Country. Travel time delay and congestion costs for auto commuters in Milwaukee are below the averages of other peer metro areas, allowing for relatively reliable shipments and commutes to work. However, the Region's street and highway system faces a funding shortfall that will restrict the new construction, reconstruction, and maintenance projects moving forward. Addressing this funding situation to allow arterial streets and highways to be reconstructed in a timely manner is a major challenge facing the regional food system.

Another challenge is transportation to work for those who may not be able to drive, which may particularly impact the lower-wage workers and employers in the Region's food system. Currently, the Region is served by several individual transit systems, with the Milwaukee County Transit System (MCTS) being by far the largest in the Region. MCTS provides a robust level of service per capita compared to peer metro areas but has experienced a troubling decline in ridership over the last decade. MCTS is also by far the largest transit system of the Milwaukee metro area's peers not supported by dedicated funding. Other peer metro area transit systems without dedicated funding provide substantially less service per capita, suggesting that without additional funding Milwaukee's transit levels are in jeopardy of shrinking. In addition, Southeastern Wisconsin also faces a challenge connecting residents to jobs in adjoining counties, lacking a regional transit agency with the ability to provide transit services across city and county boundaries. A comprehensive transit system would increase access to employers and more equitable access to employment for residents.

The Region also faces significant labor force challenges. More than half of the Region's population falls between the ages of 25 and 64, which are prime working years. However, the number of residents age 65 and older is projected to increase significantly, reflecting the aging of the Baby Boomer generation. The entire Baby Boomer population will have reached 65 by the year 2030, creating a need for replacement workers. Coupled with the overall population growing at a slower pace than jobs, this means there could be significant challenges in filling jobs in the regional food system. This may be particularly true for employers in lower paying sectors such as retail and food service, and sectors currently struggling to fill

positions such as trucking. As discussed in Section 2.2, the phenomenon is also impacting farming. Many of the Region's, and nation's, farmers are reaching retirement age and farm succession will be critical over the coming years and decades.

There are global factors that may create even greater short term supply chain issues, such as the COVID-19 pandemic and international affairs that have ripple effects through the regional food system. This is evidenced in recent increases in the cost of food consumed at home, which has seen annual increases of 3.5 percent in 2020 and 3.5 percent in 2021, and 11.4 percent in 2022, compared to the 20-year historical average of 2.5 percent.[132] Similar cost increases have also occurred for food consumed away from home (restaurants, etc...).

While these issues may be beyond the geographic scope of the Region, a resilient local economy and transportation system would make the regional food system better prepared to face the potential challenges. One of the prime objectives of VISION 2050 is to present a plan that, if implemented, would help the Region compete with the rest of the nation for new workers by making the Region a more attractive place to live. The plan hinges on a compact, walkable development pattern that would preserve the Region's most important natural features and support public transit service. VISION 2050 recommends more than a doubling of transit service, as well as maintaining the Region's street and highway system, maintaining and improving the regional freight transportation network, and enhancing the regional bicycle and pedestrian network. In addition, VISION 2050 identifies potential funding options to implement these transportation system recommendations. Chapter 5 of this report, Recommended Plan, carries forward VISION 2050 recommendations, and recommendations from other plans, such as the Comprehensive Economic Development Strategy for Southeastern Wisconsin, that would help to improve regional food system resiliency if implemented.

## 2.8 CONSUMPTION

Consumer demand is a large part of what directs food system policies and planning; producers and manufacturers cultivate and make the foods that consumers enjoy eating and accept payment based on what the average consumer is willing to pay. Because consumers are such a major part of the food system, and because planning efforts often affect consumers more directly than other stakeholders in the food

[132] *U.S. Bureau of Labor Statistics Consumer Price Indexes (not seasonally adjusted) and forecasts by USDA, Economic Research Service, July 25, 2022.*

system, consumers will be discussed in greater detail in Chapter 3, *Consumers*. Topics discussed in Chapter 3 include population data, economic information, food access and security, health and nutrition, and education and food literacy.

## 2.9 FOOD WASTE

Despite so many people struggling with food insecurity and hunger, between 30 and 40 percent of the U.S. food supply is thrown away as waste.[133] In fact, food takes up more space in U.S. landfills than anything else.[134] This is largely due to food spoilage—either real or perceived.[135] The fear of potential foodborne illness is often compounded by confusing labels such as "sell by," "use by," "expires on," and "best by."[136] Additionally, many Americans often impulsively buy more food than they actually need and throw out leftovers or food scraps that could either be consumed or composted. Food waste has harmful environmental consequences, such as wasting the water and energy that was used to produce it and increasing greenhouse gases that result from food production and transportation—approximately 11 percent of the world's GHG emissions.[137]

While landfills and wastewater treatment plants handle most food waste, they are not ideal; these types of food waste holding or treatment centers often bury or destroy the valuable nutrients left in food scraps, and they continue to contribute to GHG emissions and other environmental problems.[138] The food waste in landfills also causes nitrogen pollution, which can lead to devastating environmental reactions such as algae

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[133] *Center for Food Safety and Applied Nutrition, "Food Loss and Waste," FDA (FDA, February 23, 2021), www.fda.gov/food/consumers/food-loss-and-waste.*

[134] *"Food Waste in America in 2021: Statistics & Facts," Recycle Track Systems, 2021, www.rts.com/resources/guides/food-waste-america (noting that food is the single largest component taking up space inside U.S. landfills, making up 22 percent of municipal solid waste).*

[135] Ibid.

[136] Ibid, *(noting that more than 80 percent of Americans discard perfectly good food due to expiration label confusion).*

[137] Ibid.

[138] *Steve Ventura, ed., "Chapter 8. It All Starts with the Soil," in Good Food, Strong Communities: Promoting Social Justice through Local and Regional Food Systems (University of Iowa Press, 2017), 143.*

blooms, hypoxia, smog, acid rain, and ultimately—dead zones.[139] Dead zones are areas of water bodies where there is reduced oxygen levels, typically due to algae growths or blooms; the algae consumes oxygen and blocks sunlight from underwater plants and when the algae dies, the oxygen in the water is consumed.[140] The reduced oxygen levels make that area of the water unsustainable for aquatic life.[141] Some types of these algae blooms are large and may produce toxins that are very harmful. Harmful algae blooms, or blue-green algae, can cause many environmental and community health issues through water contamination.[142]

**Food Waste Reduction or Re-Use**

The U.S. Environmental Protection Agency (EPA) has established a Food Recovery Hierarchy, which prioritizes actions that can be taken to reduce food waste. The Food Recovery Hierarchy is shown in Figure 2.10. The most preferred methods used to reduce food waste are source reduction, or to reduce the volume of surplus food generated, followed by feeding hungry people by donating extra food to food banks, soup kitchens, and shelters.[143] There may be concerns with using the term "food waste" when diverting excess or surplus food to hungry people because it has a connotation with being unwanted or undesirable food options. One way to combat this understanding may be looking at this diverted food as excess food or surplus food rather than "food waste." The terms "food waste" and "surplus food" may be used interchangeably throughout this section. Source reduction strategies aim to reduce food waste through means such as gleaning (farm waste), meal planning (grocery waste), and reducing portion sizes (plate waste).

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[139] *"Food Waste in America in 2021: Statistics & Facts," Recycle Track Systems; Rodney Vance, "Food Waste Can Have a Large Impact on Your Nitrogen Footprint," Blog, February 21, 2017, www.usda.gov/media/blog/2015/04/22/food-waste-can-have-large-impact-your-nitrogen-footprint.*

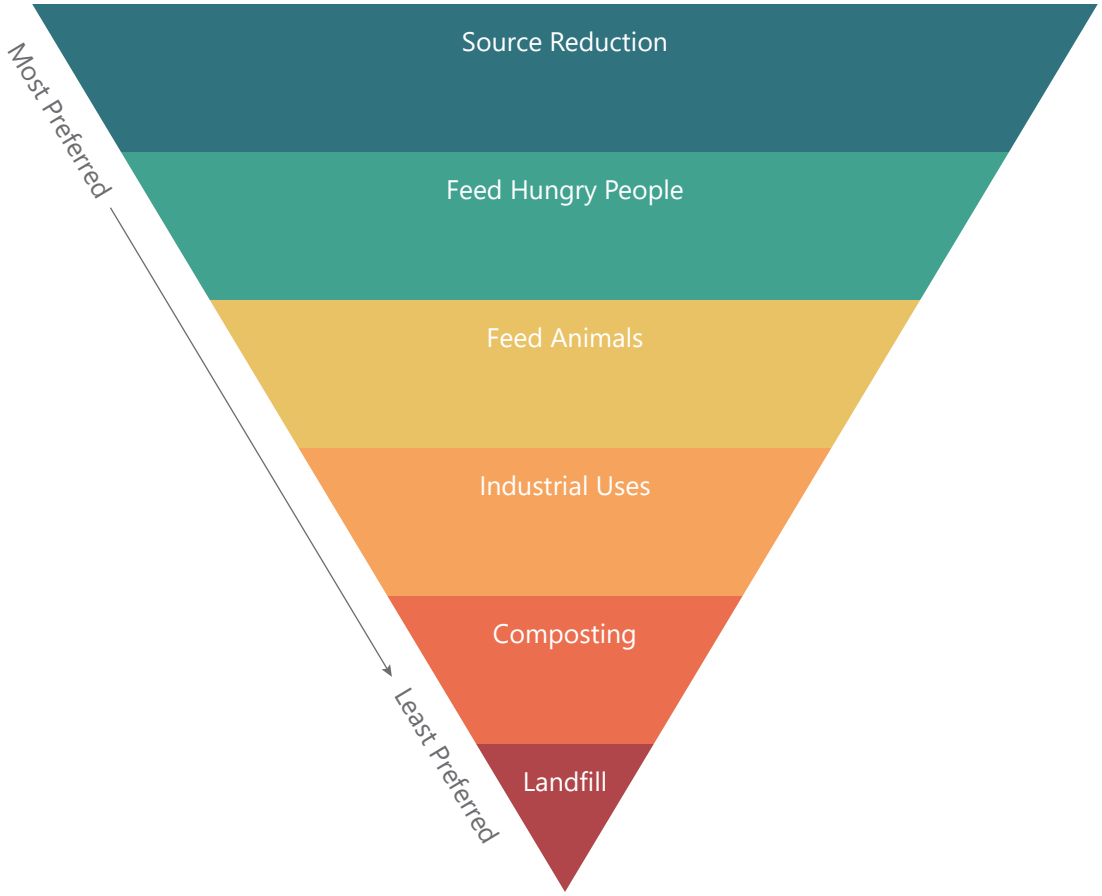
[140] *OW US EPA, "The Effects: Dead Zones and Harmful Algal Blooms," Overviews and Factsheets, March 12, 2013, www.epa.gov/nutrientpollution/effects-dead-zones-and-harmful-algal-blooms.*

[141] Ibid.

[142] Ibid.

[143] *OLEM US EPA, "Food Recovery Hierarchy," Overviews and Factsheets, US EPA, 2015, www.epa.gov/sustainable-management-food/food-recovery-hierarchy.*

**Figure 2.10**
**U.S. EPA Food Recovery Hierarchy**




*Source: Modified from OLEM US EPA,* Food Recovery Hierarchy, *Overviews and Factsheets, US EPA, 2015, epa.gov/sustainable-management-food/food-recovery-hierarchy, and SEWRPC*

Gleaning is a source reduction strategy in which people, typically volunteers, go out and harvest fields for remaining food products after the initial commercial harvest, or in fields that for whatever reason, would be left unharvested.[144] Gleaning has been a practice for increasing access to food for centuries; growers traditionally would leave product in their fields to be collected by those who were in need.[145] Challenges to introducing gleaning programs include unpredictable workforce (i.e., volunteer), potential liability to the landowner and potential risk of harm for the workforce, and other unanticipated events (e.g., weather, disease, pests).[146] The potential benefits of introducing gleaning policies and programming include creating jobs, reducing emissions, saving water, diverting food waste, and introducing an approximate $1,330,000 net financial benefit for the State of Wisconsin.[147] Food that is not suitable for hungry people or animals, such as liquid fats, oils, grease, and solid meats, may be rendered, converted to biofuel, or sent to an anaerobic digester to generate biogas.[148]

Composting is another strategy to deal with food waste that creates a nutrient-rich soil additive. Recycling unused food or scraps and other organic waste through composting reduces food waste, enhances, and repairs damaged soil, and aids in plant growth. "Composting is a natural biological process in which microorganisms obtain material and energy from organic matter."[149] Composting food waste connects the last step of the food system cycle, consumption, with the first stage, food production, by providing the soil with the necessary nutrients to grow high-quality, fresh food. There are two typical methods of processing biodegradable materials: through aerobic composting or through anaerobic digestion. Both processes produce solid, liquid, and gaseous biomaterials.[150] Aerobic composting produces compost, water, and volatilized gases by using oxygen to accelerate the rate of decomposition.[151] Anaerobic digestion is typically

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[144] *"ReFED Solution Database: Gleaning," ReFED, 2021, insights-engine.refed.com/solution-database/gleaning.*

[145] Ibid.

[146] Ibid.

[147] Ibid.

[148] *OLEM US EPA, "Suitable Management of Food: Industrial Uses for Wasted Food," Overviews and Factsheets, US EPA, 2015, www.epa.gov/sustainable-management-food/industrial-uses-wasted-food.*

[149] *Steve Ventura, ed., "Chapter 8. It All Starts with the Soil," in Good Food, Strong Communities: Promoting Social Justice through Local and Regional Food Systems (University of Iowa Press, 2017), 144.*

[150] *Craig Coker, "Aerobic Composting and Anaerobic Digestion," BioCycle, March 28, 2014, www.biocycle.net/aerobic-composting-and-anaerobic-digestion.*

[151] Ibid.

done within a closed container or vessel and produces digestate (which is high in nitrogen) and biogas.[152] Figure 2.11 shows the main differences between the two forms of processing biodegradables. Composting can be done at home, or through larger-scale composting programs.

**Food Waste in Southeastern Wisconsin**

ReFED, a national nonprofit organization working to end food loss and waste across the U.S., estimates that 2.85 million surplus food tons were generated across sectors in Wisconsin in 2019.[153] Of that total, 62.7 percent was generated by the manufacturing sector, 17.5 percent was generated by the residential sector; 7.4 percent was generated by the farm (produce) sector; 6.5 percent was generated by the food service sector; and 5.9 percent was generated by the food retail sector.[154] There were several causes of surplus food in Wisconsin, including trimmings and byproducts, excess, spoiled, not harvested, date label concerns, buyer rejections, mistakes and malfunctions, food safety, and other causes. The destinations for this surplus food ranged widely, as shown in Figure 2.12.

The U.S. Environmental Protection Agency (EPA) created an interactive Excess Food Opportunities Map that identifies sources of excess food as well as locations for potential recipients of excess food (typically community and privately run compost facilities). Table 2.15 shows the number of composting and anaerobic digestion facilities in each county in the Southeastern Wisconsin Region, based on the EPA Excess Food Map tool. To access the tool, please visit: geopub.epa.gov/ExcessFoodMap.

Reducing food waste is a matter of developing policies and solutions to address the issue. Businesses, organizations, consumers, and government agencies can all contribute to reducing the overall amount of food that is wasted, which can help conserve natural resources and feed the hungry. The Federal Bill Emerson Good Samaritan Act protects food donors and recovery organizations, who donate in good faith, from any criminal or civil liability that may arise from the age, packaging, or condition of donated food.[155] At the State level, all 50 states have passed their own form of liability laws. In Wisconsin, *State Statute* 895.51

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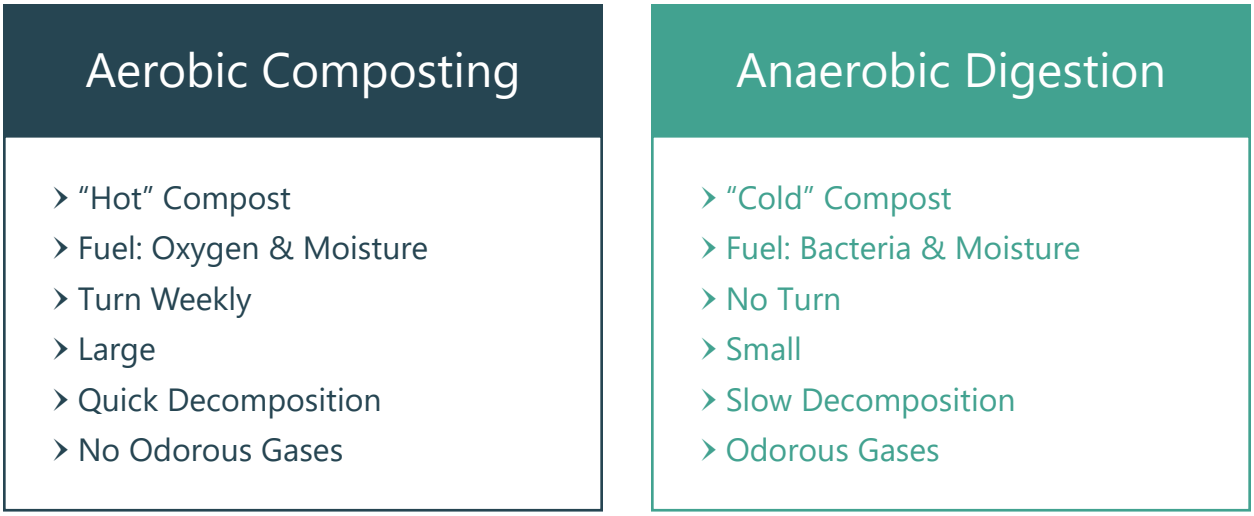
[152] Ibid.

[153] *"ReFED Food Waste Monitor," Food Waste Monitor Tool, ReFED, 2021, insights-engine.refed.com/food-waste-monitor?break_by=sector&indicator=tons-surplus&state=WI&view=detail&year=2019.*

[154] Ibid.

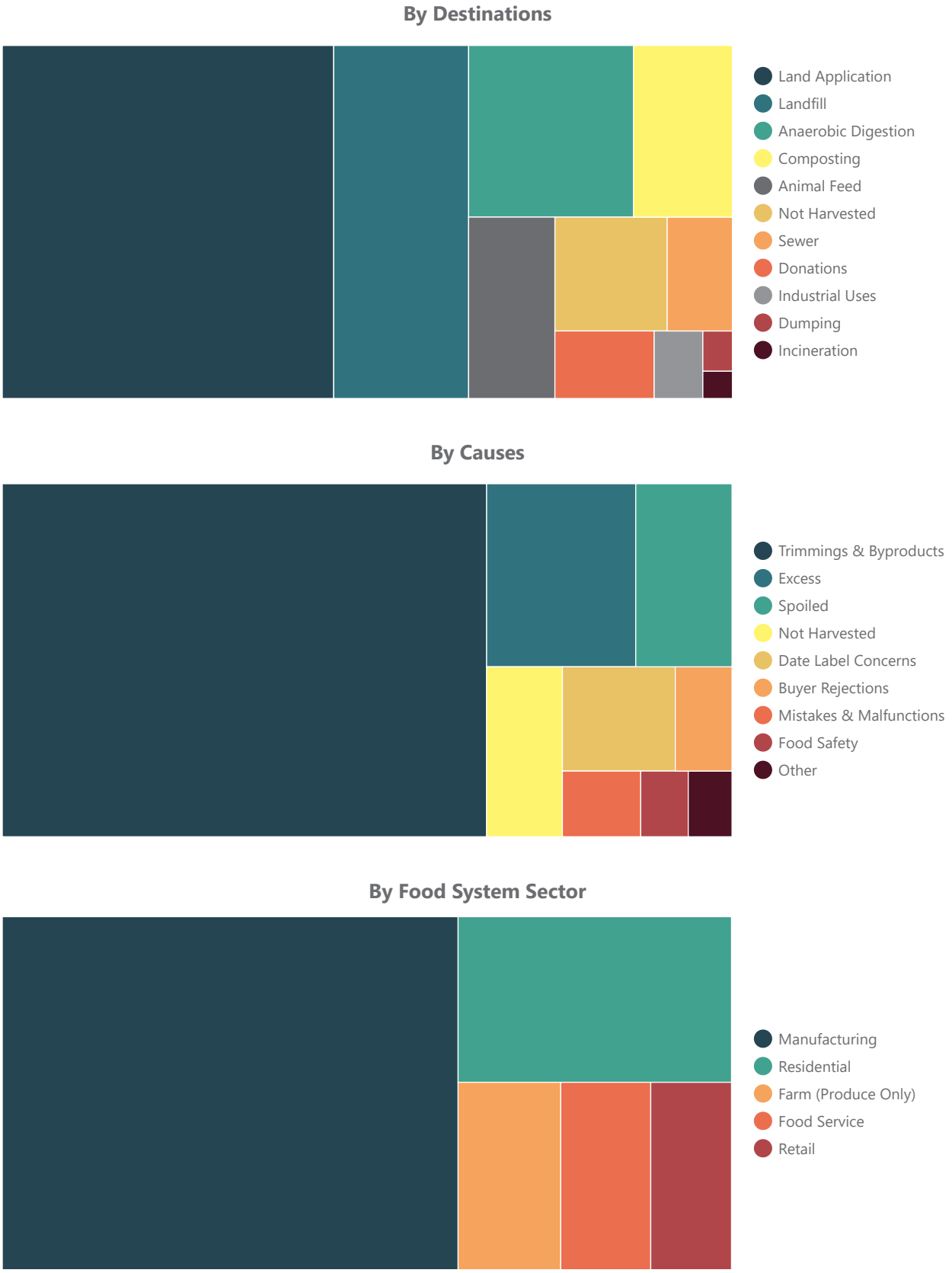
[155] *"Fighting Food Waste," accessed November 8, 2021, www.ncsl.org/research/agriculture-and-rural-development/fighting-food-waste.aspx.*

**Figure 2.11**
**Aerobic Composting vs. Anaerobic Digestion**




*Source: Sarah Worp,* Aerobic vs Anaerobic Composting Systems, *CompostNow, 2020, compostnow.org/blog/aerobic-vs-anaerobic-composting-systems, and SEWRPC*

**Figure 2.12**
**Surplus Food Tons Generated by All Sectors in Wisconsin (2019)**




*Source: Modified from ReFED,* Food Waste Monitor, *2021, insights-engine.refed.com/food-waste-monitor?view=overview&year=2019, and SEWRPC*

#257846 – Table 2.15 – EPA Excess Food Mapping: Facilities per County
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9/1/2022

## Table 2.15
## EPA Excess Food Mapping: Facilities per County

| County | Number of Composting Facilities | Number of Anaerobic Digestion Facilities |
|---|---|---|
| Kenosha | 2 | 2 |
| Milwaukee | 6 | 4 |
| Ozaukee | 3 | 2 |
| Racine | 2 | 2 |
| Walworth | 6 | 2 |
| Washington | 5 | 4 |
| Waukesha | 8 | 4 |
| Region | 32 | 20 |

*Source: geopub.epa.gov/ExcessFoodMap*

also provides protection to "[a]ny person engaged in the processing, distribution, or sale of food products, for profit or not for profit, who donates or sells, at a price not to exceed overhead and transportation costs, qualified food to a charitable organization, food distribution service, or governmental unit is immune from civil liability for the death of or injury to an individual caused by the qualified food donated or sold by the person."[156] Though Federal tax incentives exist, they are often hard to claim and states can implement tax incentives to offset the costs of food donations. Several states offer a tax incentive, deduction, or credit for food donations.[157]

## 2.10 CONCLUSIONS

The background information presented in this chapter establishes the foundation for the rest of this Regional Food System Plan by presenting information on food systems generally, and in the context of Southeastern Wisconsin specifically. This chapter explores the stages of the food system that include agricultural production, processing and manufacturing, distribution, consumption, and food recovery and waste. Conclusions that can be drawn from the information presented in this chapter that will inform plan recommendations follow.

- A sustainable food system ensures adequate nutrition for all in a way that protects economic, social, and environmental interests for the future. The stages of the food system are:
    - **Production:** Growing or harvesting food (typically in the form of farming).
    - **Processing:** Turning raw food products into products for human consumption (e.g., turning raw tomatoes into tomato paste, or packaging fresh produce).
    - **Distribution:** Transporting food from one place to another.
    - **Point-of-Sale:** The moment where food is purchased to be consumed or processed into another product.

[156] *"Wisconsin Legislature: 895.51," accessed November 8, 2021, docs.legis.wisconsin.gov/statutes/statutes/895/ii/51.*

[157] *Fighting Food Waste," accessed November 8, 2021, www.ncsl.org/research/agriculture-and-rural-development/fighting-food-waste.aspx.*

- **Consumption:** Eating food.

- **Food Waste:** Throwing excess food away.

- VISION 2050 implementation status was reviewed in 2020 and it was found that some of the development trends since 2010 have helped to implement the recommendation to preserve productive agricultural tends and some have not. Preserving and maintaining productive farmlands serves to promote compact urban development that is recommended in VISION 2050. However, the effects of the changing development pattern and decline in density have put increased pressure on farmland. More farmlands must be converted to non-agricultural uses to accommodate the same number of homes than would be needed under a more compact development pattern, such as that recommended by VISION 2050.

- Most farms in this Region are family owned and/or operated. Many of the farms in the Region are smaller farms that may also have relatively low sales figures suggesting that they could be hobby farms or farmed by workers with another principal occupation.

- It is essential to plan for the succession of our farms, to ensure that we keep viable farmland viable and to continue food production for our communities.

- Most of the food grown in the Region is commodity crops such as corn, wheat, and soy. Encouraging farms in the Region to grow food that will go to local communities could positively influence the health of our communities, our environment, and ultimately the economy.

- There is a significant amount of urban agriculture occurring throughout the Region, much of it in the form of community gardens. Some challenges that arise are land use regulations and land availability.

- Food and beverage manufacturing is a thriving industry in the Region, especially in the Milwaukee area.

- The Vision 2050 Freight Transportation Element recommends a multi-modal freight transportation system that will help to ensure food access and economic growth. In addition to that recommendation, the overall Vision 2050 goal of significantly increasing transit service, expanding

bicycle and pedestrian facilities, and maintaining the road network in a state of good repair will reduce conflicts between freight trucks and trains and other users of the transportation system.

- Food hubs can be a great way to connect local producers, processors, manufacturers, distributors, and consumers. They can also contribute to helping solve issues that arise with long-distance food distribution or transportation such as food contamination, harmful emissions, and labor shortages.

- There is a demand for more direct-to-consumer food retail opportunities in the Region. As the local food movement grows, many consumers wish to purchase their food directly from producers through farmers markets, farm stands, and community supported agriculture programs.

- Around 1/3 of the food produced in the world is wasted. The EPA Food Recovery Hierarchy aims to reduce food waste through various means, though the most preferred methods to reduce food waste are source reduction, or to reduce the volume of surplus food generated, followed by feeding hungry people by donating extra food to food banks, soup kitchens, shelters, etc.