



# Upper Midwest and Northern Minnesota Cold Storage Assessment Report

Empowering Local and Regional Meat Processing in the Upper Midwest Region



Prepared by the Agricultural Utilization Research Institute for the United States Department of Agriculture, Agriculture Marketing Service

(21-TSMMSD-MN-008/AURI No. 22023)

May 2024

## Acknowledgments

The Agricultural Research Institute (AURI) and The United States Department of Agriculture, Agricultural Marketing Services (USDA-AMS) would like to extend gratitude to all meat and poultry processors in the five-state region, finance working group members, regional advisory task force members, and other industry stakeholders that contributed to the efforts of the Empowering Local and Regional Meat Processors in the Upper Midwest Project.

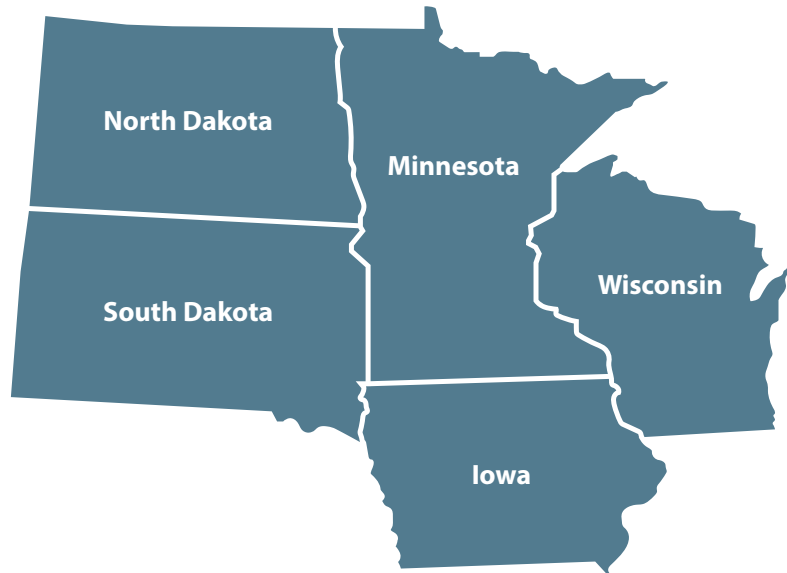
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## Background

In September 2021, the Agricultural Utilization Research Institute (AURI) and the United States Department of Agriculture, Agricultural Marketing Service (USDA-AMS) signed a multi-year cooperative agreement focused on the Upper Midwest's small meat and poultry processors. For purposes of this agreement, the Upper Midwest is defined as the following five states: Iowa, Minnesota, North Dakota, South Dakota, and Wisconsin.



The five-state project explored opportunities to strengthen industry resiliency and create solutions to position the meat and poultry processors for success. The project was entitled Empowering Local and Regional Meat Processing in the Upper Midwest and was designed as a regional pilot that could be emulated in other regions in the country.

A regional advisory task force provided guidance related to the pilot's main pillars of work, which included understanding the financial barriers facing small meat and poultry processors, conducting a needs assessment to guide technical assistance and business development support, and developing multiple solutions to assist the industry in overcoming barriers. The task force included industry representatives across the five-state region and convened quarterly during the pilot to advise AURI and USDA-AMS staff. Deliverables were completed in 2022 and 2023, and reporting was completed in early 2024.

The [needs assessment](#) highlighted access to cold storage as a critical challenge. Following the guidance of the regional advisory task force, AURI and USDA-AMS selected the topic of cold storage as one for further study. To address this challenge, AURI engaged Axiom to examine cold storage demand and bottlenecks in the five-state region – findings from this research are summarized in Part A of this report. AURI also engaged a trio of partners to examine local economic development considerations for cold storage in northern Minnesota – findings from this work are summarized in Part B of this report. These partners included Greater Bemidji, Next Up Brands, and ARCO.

As a final note of introduction, AURI has a long history of supporting the meat industry to drive innovation forward. In addition to maintaining a USDA-inspected meat laboratory available for client use, AURI's meat science team offers resources and assistance related to food safety and HACCP planning, scale-up, product formulation and validation, packaging guidance, and troubleshooting. In 2022, the organization was named a technical assistance provider through the USDA-AMS Meat and Poultry Processing Technical Assistance Network (MPPTA).

## Part A. 5-State Region Cold Storage Assessment

### Introduction

In 2023, AURI engaged Axiom to examine cold storage demand and bottlenecks in the five-state region. In addition to a secondary source review, Axiom interviewed a total of 15 respondents in the region representing the following interested parties:

- Meat processors
- Meat inspectors
- State meat processing associations
- Cold storage financiers
- Cold storage logistics
- Meat science faculty

Cold storage is necessary for the distribution of perishable foods, including meat products, in the Upper Midwest five-state region. Access to cold storage is critical for meat processors to maintain product quality, extend shelf life, assure food safety, avoid post-harvest losses, and reduce transportation bottlenecks during peak periods of production.

Larger regional independent meat processors particularly need more cold storage capacity. These processors often serve high-volume customer segments such as retail, hospitality, food service, and institutions. They desire cold storage in closer proximity to their facilities, which would provide easier access and lower transportation costs.

Cold storage is not readily available to most independent processors in the Upper Midwest for numerous reasons. Existing cold storage space is largely contracted by national processors resulting in limited availability. Moreover, the region is a low priority for cold storage facility expansion, as investors and capital sources target high-population areas when developing new facilities.

While most cold storage capacity is concentrated in metropolitan areas, a business case can be made for cold storage development outside of urban centers. This study focuses on understanding and overcoming regional bottlenecks for cold storage expansion.

### Scope

The purpose of this study is to understand existing cold storage capacity and validate the market need and feasibility of additional cold storage capacity in the five-state region.

The overarching goals of the project are threefold, including:

- Validate the market need for additional cold storage in Iowa, Minnesota, North Dakota, South Dakota, and Wisconsin.
- Estimate the amount of existing commercial freezer space in the five-state region.
- Identify the need for additional cold storage in the next 5-7 years.

### Limitations

All data in this report is derived exclusively from secondary sources and in-depth interviews with representatives from the five-state region. The data focuses on present and future needs for cold storage among independent meat processors in the region. The five-state region study does not include information about optimal size, space, and configuration for new cold storage, detailed cost information about the construction of these facilities, current freezing and refrigeration equipment, energy-saving technologies, or utility rate structure. This information is, however, included in the northern Minnesota study.

# Project Methodology

## Project Process

Researchers utilized a series of five activities to conduct this study and report findings (Figure 1). First, a secondary source review from available online resources was conducted to gather information on cold storage needs in the United States, including the Midwest. Following the secondary source review, researchers developed a detailed moderator guide to organize and prioritize the key questions to achieve the project's desired goals. Next, the team identified participants for in-depth interviews to provide commentary on their experience in the cold storage sector. All participants were located in the Upper Midwest region and included four independent meat processors with high volume and fast-growing businesses that need additional cold storage; two meat processor association executive directors; three land-grant university staff members; one regional cold storage financier; one cold storage/logistics director who works for one of the nation's leading frozen food manufacturers; and four state meat inspectors. Cold storage facility locations and independent processors were identified and mapped.

Figure 1. Project Methodology



Several key research questions were examined throughout this process:

- Examine current and future cold storage needs primarily for meat projects but also for other perishable products such as fruits, vegetables, and dairy.
- Determine the need for cold storage among meat processors. Does this need differ between very small, small, and large meat processors? How is it expected to change in the future?
- If additional cold storage is needed, how will processors satisfy that need? Will they seek out third-party contracted cold storage or construct their own?
- What considerations impact their decisions? How do seasonality, logistics, and cost weigh into processors' plans?

## Detailed Findings

### 1.0 Secondary Source Review Results

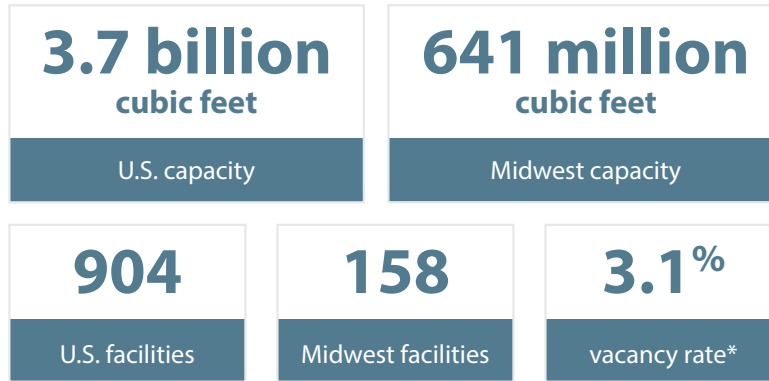
Researchers conducted online searches to better understand the U.S. and regional cold storage landscape. The Appendix provides a complete list of secondary sources and references.

### 1.1 National Cold Storage Current Capacity

United States cold storage capacity was estimated at 3.7 billion cubic feet of refrigerated storage in 2022, up 2.2 percent from 2020 <sup>(1,2,3)</sup>. The overall vacancy rate for cold storage in the U.S. is estimated to be 3.1% and is projected to decrease in the future. Cold storage is either public-owner-occupied or private-leasable. Of note, private-leasable space is primarily freezer space, rather than refrigerated <sup>(4)</sup>. Table 1 is a summary of the total number of facilities and capacity in the U.S. and Upper Midwest region. In addition, it provides the percent vacancy rate in the U.S., which is expected to decrease in the future based on factors for continued cold storage growth described throughout the report. Researchers counted the number of facilities in the five-state region to determine the total. Noteworthy, from the data source, only the number of facilities per state was represented. The data did not directly separate each region with the number of facilities per region.

Table 1. Summary of the Number of Facilities and Amount of Capacity for the U.S. and Upper Midwest

Summary of the Number of Facilities and Amount of Capacity for the U.S. and Midwest



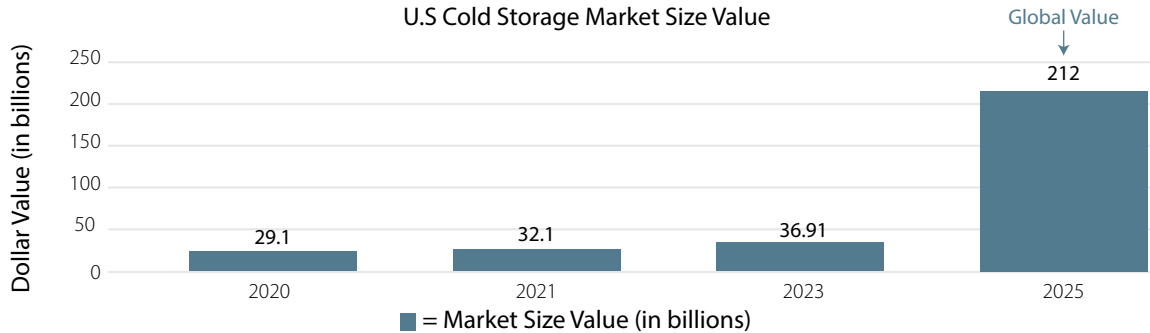
\*likely to decrease in the future

Image Source: <https://www.meatpoultry.com/articles/22993-covid-19-meat-plant-map>

### 1.2 Cold Storage Market Growth

The 2023 U.S. cold storage market size was valued at \$36.91 billion, compared to \$29.1 billion in 2020 and \$32.1 billion in 2021<sup>(2)</sup>. The 2025 global cold storage market is projected to be valued at \$212 billion<sup>(3)</sup> (Table 2).

Table 2. U.S. Cold Storage Market Size Value

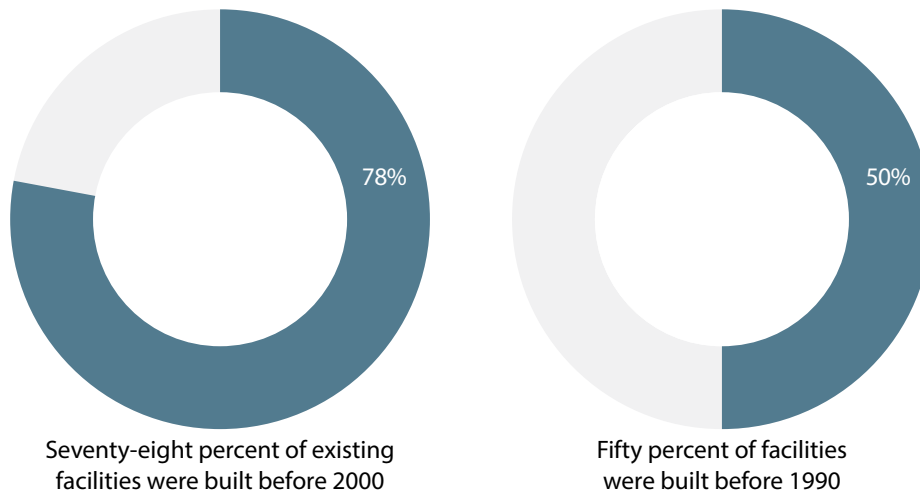


According to one source, the compound annual growth rate (CAGR) in the U.S. is forecasted at 13.6% from 2023-2030<sup>(5)</sup>. This growth is a result of growing cold storage automation, such as advanced temperature monitoring devices to maintain the ideal temperature of food or beverage products, and the increased popularity of e-commerce purchasing of fresh and perishable products online. At the time of this study in 2022, researchers tallied 12 speculative projects in the U.S. totaling 3.3 million square feet in eight markets. Unfortunately, none of these projects are in the five-state area<sup>(2,6)</sup>. Of the projected 3.3 million square feet, Texas accounts for 2.7 million square feet of cold storage, or 82% of the total.

According to 2021 data, cold storage construction is projected to reach \$18.6 billion by 2027, an increase of 13.8%<sup>(1)</sup>. There is no observed slowdown in growth or leasing interest despite rising costs. For example, labor and construction costs for three 300,000-square-foot facilities in Charleston, South Carolina, were originally estimated at \$60 million. These projects cost \$100 million by the time they were completed, yet all three facilities were leased before construction was finished<sup>(3)</sup>.

### 1.3 Cold Storage Growth Drivers

The U.S. cold storage inventory is aging and inefficient. Seventy-eight percent of existing facilities were built before 2000, while 50% were built before 1990 <sup>(1,4)</sup>.

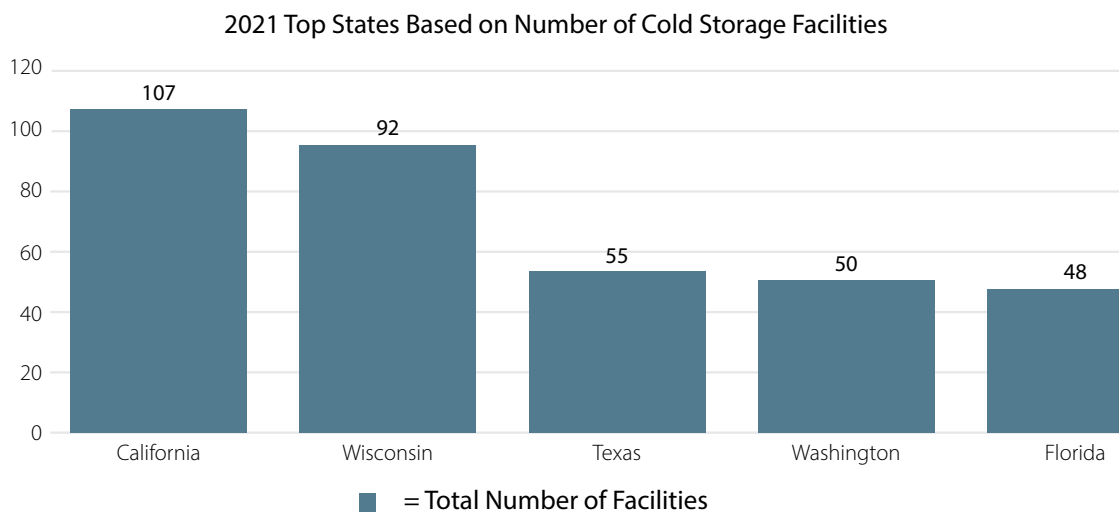


Certain business segments are seeing growth that is also driving growth in the cold storage sector. Home delivery and e-commerce grocery shopping are projected to increase to 21.5% by 2025 compared to 13% in 2021 <sup>(2)</sup>. Some sources believe this segment’s share could be as high as 35% in the coming years <sup>(2,6,7)</sup>. In 2021, according to the USDA, U.S. imports have increased by 27% for meat and 15% for dairy <sup>(3,8)</sup>. Pharma may also be a key driver due to medicines and vaccines requiring refrigerated storage <sup>(3,4)</sup>.

### 1.4 Cold Storage Locations

According to a non-USDA source, the top five states for cold storage space based on cubic feet are California, Florida, Arizona, Texas, and Georgia <sup>(2)</sup>. Sunbelt cities such as Los Angeles, Dallas-Fort Worth, and Atlanta lead the nation. Chicago is the only Midwestern location in the top 10 <sup>(7,8,13,14)</sup>. According to the USDA, the top five states for cold storage space based on the number of facilities are California, Wisconsin, Texas, Washington, and Florida <sup>(8)</sup>.

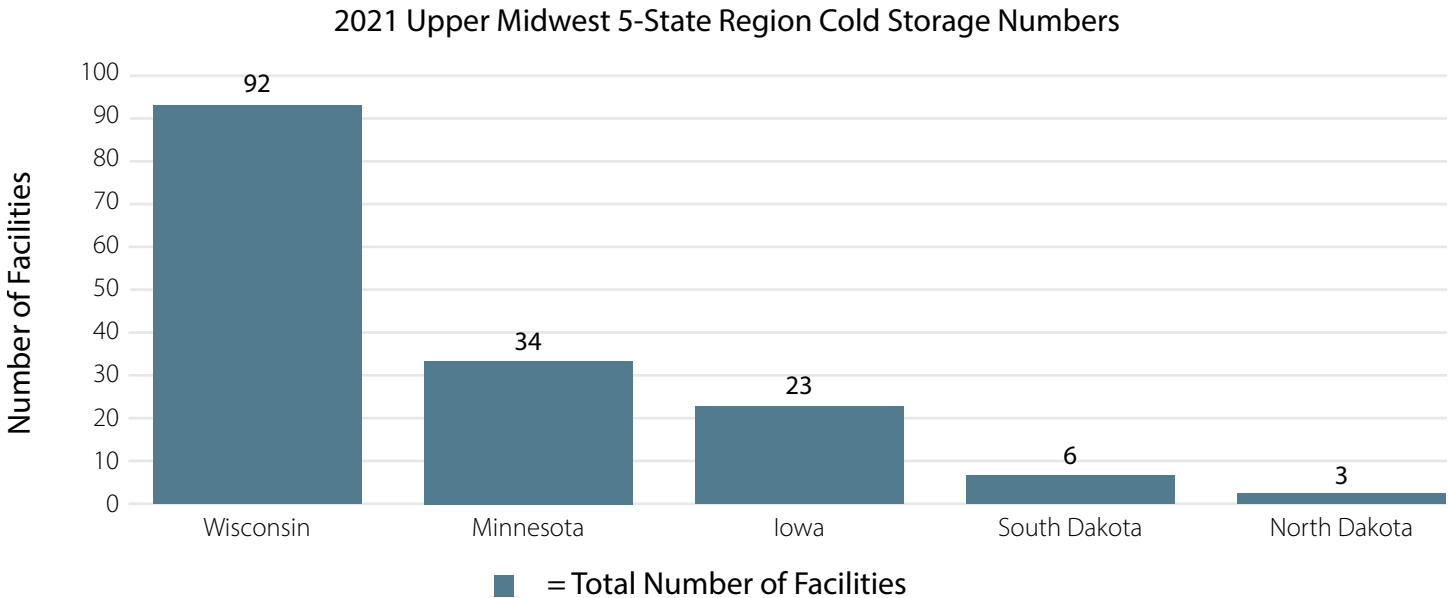
Table 3. 2021 Top States Based on Number of Cold Storage Facilities <sup>(8)</sup>





- California – 107 total facilities with total usable (refrigeration and freezer) space of 611,341,000 cubic feet
- Wisconsin – 92 total facilities with total usable space of 365,721,000 cubic feet
- Texas – 55 total facilities with total usable space of 361,451,000 cubic feet
- Washington – 50 total facilities with total usable space of 456,820,000 cubic feet
- Florida – 48 total facilities with total usable space of 304,959,000 cubic feet

Table 4. 2021 Upper Midwest 5-State Region Cold Storage Numbers <sup>(8)</sup>



- Wisconsin – 92 total facilities with total usable space (refrigeration and freezer) space of 365,721,000 cubic feet
- Minnesota – 34 total facilities with total usable space of 140,138,000 cubic feet
- Iowa – 23 total facilities with total usable space of 109,376,000 cubic feet
- South Dakota – 6 total facilities with total usable space of 18,021,000 cubic feet (freezer space not reported by USDA)
- North Dakota – 3 total facilities with total usable space of 7,800,000 cubic feet (freezer space not reported by USDA)

## 1.5 Cold Storage Outsourcing

Given the growth in key sectors, there is significant investor interest in leasable contract refrigeration facilities. CBRE, a real estate firm, annually surveys investors to understand their interests as they relate to specific industry sectors <sup>(2)</sup>. Investor interest in cold storage grew from 7% in 2018 to 39% in 2022 <sup>(2,6)</sup>. Seventy-two percent of cold storage capacity is outsourced to the public refrigerated warehouse industry <sup>(2)</sup>. Commercial cold storage logistics firms accounted for 34% of total cold storage leasing in 2022, up slightly from 31% in 2021 <sup>(2)</sup>. Processors outsource cold storage to these warehousing and logistics firms as it eliminates operational and capital costs <sup>(3)</sup>. Key cold storage warehousing companies include Americold Logistics, AGRO Merchants, Burris, Cloverleaf, Henningsen, Lineage, Nordic, Preferred Freezer Services, U.S. Cold Storage, Wabash, and others <sup>(3)</sup>.



## 1.6 Cold Storage Consolidation

Two publicly traded U.S. companies dominate the cold storage market in the United States. Lineage Logistics and Americold accounted for 71% of market share in 2022 vs. 61% in 2019<sup>(2)</sup>. Meanwhile, regional players are consolidating. Iowa-based Cloverleaf merged with Arkansas-based Zero Mountain to create an entity with 140 million cubic feet of cold storage capacity across nine states<sup>(9)</sup>. Iowa-based West Liberty Foods and South Dakota-based Vertical Cold Storage will build a \$199.6 million, 327,000-square-foot cold storage facility near Kansas City on the site of a former Air Force base<sup>(10,11)</sup>.

## 1.7 Upper Midwest Cold Storage Current Capacity

In the five-state Upper Midwest region, there are currently 158 cold storage facilities with 641 million cubic feet of capacity representing 11% of U.S. cold storage capacity. Data from 2021 outlines the total number of cold storage facilities in the upper Midwest region (Figure 2<sup>(8)</sup>) by state. Furthermore, Figure 3<sup>(8)</sup> highlights the total cold storage space by state. Wisconsin leads in total cold storage capacity due to its proximity to Chicago, a major distribution hub for both food and meat products. In addition to the consolidation-driven investments by Midwestern players mentioned in the section above, Minnesota-based Jonny Pops created Vortex Cold Storage, which constructed a new 170,000-square-foot facility in Albert Lea, Minnesota, valued at \$40 million<sup>(12)</sup>.

Figure 2. Total Number of Cold Storage Facilities in the Upper Midwest Region 2021

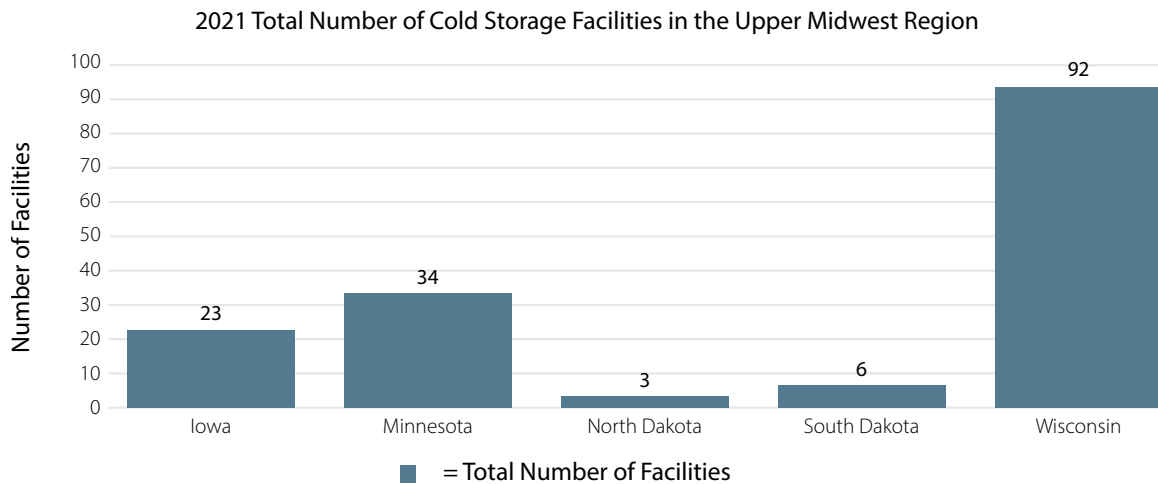
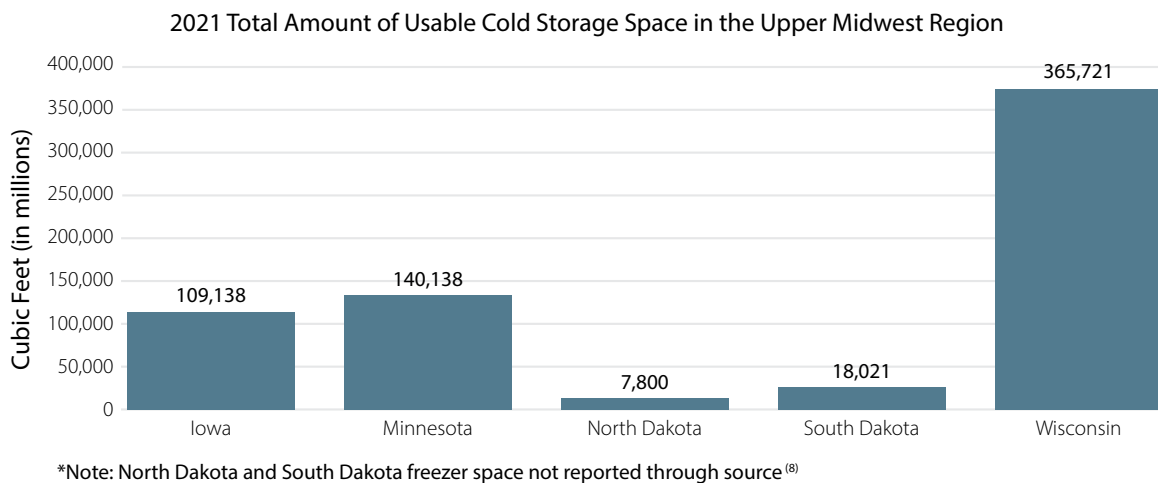


Figure 3. Total Usable Cold Storage Space in the Upper Midwest Region 2021



## 2.0 Interview Results

After completing the secondary source review, the project team interviewed several cold storage industry experts, as well as experts in the meat processing sector. The interviews provided additional information related to the demand for cold storage, potential customers of cold storage, and their decision-making considerations. In total, 14 interviews were completed with 15 individuals (see list below). For a complete list of questions, refer to the moderator's guide located in the Appendix.

- Four independent meat processors seeking additional cold storage
- Two meat processor association leaders
- Three university faculty members
- One regional cold storage financier
- One national food manufacturer cold storage/logistics manager
- Four state meat inspectors

In-depth interviews were conducted between May and July 2023. The interviews were conducted virtually and lasted approximately one hour each. For background, the participating processors operate high-volume and fast-growing meat businesses. These processors identified an acute need for additional cold storage due to market expansion goals. Following the interview phase, researchers categorized and summarized major themes for the five-state region.

### 2.1 The Need for Additional Cold Storage

Cold storage facilities focus on large processors and brands, not small processors, or small volume users. The smallest meat processors, of which there are many in the region, have no plans to utilize off-site storage despite the lack of space within their own facilities. These processors traditionally use cooler and freezer equipment on-site, although outdated or inefficient. Refrigerated transportation options, known as "reefer trailers," offer a potential solution. These refrigerated trailer systems provide a drop-in solution for processors squeezed for space or facing expensive equipment upgrades. But for many smaller processors, products are typically stored in their private customers' home freezers rather than needing to be stored on-site.

Twelve out of the 15 interviews provided a thoughtful response to the need for additional cold storage in the region. Seven of the 12 indicated there is a need including three meat processors, one land grant university, one state meat association director, one state meat inspector, one cold storage financier, and one cold storage logistics manager. Respondents in Iowa, North Dakota, and South Dakota indicated a real need for additional cold storage capacity to accommodate seasonal production ramp-ups or a desire to produce more value-added product offerings. Two independent regional meat processors noted a need for off-site storage as their businesses expand to accommodate increased customer demand. These businesses discussed challenges associated with proximity and accessibility. Access challenges include refusal to carve out capacity for small-volume users, seasonal pressures from other sectors, and generally low vacancy rates at cold storage facilities.

### 2.2 Cold Storage Products and Seasonality Bottlenecks

All respondents listed a variety of perishable products utilizing refrigerated and freezer cold storage space. While many products are finished or ready-to-eat, many in the meat and poultry sector are carcasses in need of further processing. Additionally, product inventories often reflect seasonality such as accommodating fresh produce during the growing season.



Regional meat processors highlighted several seasonal bottlenecks impacting cold storage capacity. When combined, these bottlenecks can span up to nine months of the year for some processors.

- Summer—grilling (steaks, sausage, ground meat), farmers' markets
- Back to School— institutional only
- Fall— hunting, post-harvest livestock finishing (roasts, sausage)
- Holiday—Thanksgiving, Christmas (turkeys, hams, roasts, specialty meats)
- Spring— pre-planting livestock finishing (steaks, roasts, ground meat)

### 2.3 Regional Cold Storage Locations

Despite being aware of several cold storage facility locations throughout the region, respondents noted current cold storage locations present challenges for all sizes of meat and poultry processors. Locations tend to favor larger population centers, major highway access, and proximity to large processing facilities and distribution facilities. If a facility is nearby, often the space is fully contracted. Additionally, there is a need for refrigerated transport systems to and from existing and future cold storage sites. Interestingly, high-volume processors with their own freezer truck fleets indicated a need for additional refrigerated transport system services, while other processor respondents were unaware of existing services. This lack of access and knowledge hinders growth. There is also potential to develop hub-and-spoke facility models if refrigerated transportation is available. Iowa cold storage appears to be experiencing a growth spurt and is likely to continue due in part to new meat packing capacity coming online and distribution centers. For these reasons, Iowa respondents were the most bullish and knowledgeable about the need for additional cold storage and the opportunities it could bring to the five-state region. In sum, responses prioritized cold storage locations near processing facilities. For further information regarding cold storage locations in the five-state region, please refer to section 3.0 in this report.



## 2.4 Characteristics of Small Processors and their Decision-Making Processes

The United States Department of Agriculture defines a “very small” plant as 10 or fewer employees, with less than \$2.5 million in sales. A “small” plant is defined as having 11-499 employees. Meat processors of this size focus on custom processing versus retail. Finished product storage space is not only needed for aging the meat, but also awaiting customer pick-up of their meat. These processors typically meet their on-site needs by repairing or retrofitting their freezer space and augmenting it with temporary storage, such as reefer trailers. Considerations related to investing in new facilities or contracting off-site storage are either out of view for these smaller processors or deemed out of reach. Nonetheless, there are smaller processors interested in new investment or off-site storage options should they become available. If the opportunity arises, they are more likely to invest \$20,000 to \$40,000 dollars, while investments of \$200,000 to \$400,000 are rare. Processors expressing an interest in additional cold storage options offer a combination of diverse product offerings and serve multiple market channels, or they aspire to expand and further diversify their operations.

Small processors face numerous challenges related to their facilities when considering upgrades or expansion, regardless of whether these directly relate to cold storage capacity. Key barriers include landlocked and aging facilities, lack of access to capital, labor shortages, and challenging regulations accompanying facility updates. For example, some processors are located on main streets with little or no space to expand their existing footprint. Others are constrained by labor availability, so even if they want to expand, they cannot confidently do so given the uncertainty around future access to additional employees. Facility modifications and improvements often require permitting that can trigger higher levels of regulatory compliance. New facilities would be subject to current permitting and zoning rules based on local, county, and state regulations.

Small processors understandably would prefer to turn over the inventory in cold storage on a timely basis; in other words, use their “freezer as a river, not a pond” by moving products out of the freezer as quickly as possible. Yet, this desire can be thwarted by customers who are slow to retrieve their products and rarely face a penalty for doing so. Some participants suggested processors operate their on-site cold storage space like “butcher locker plants of the old.” This tactic was used by facilities in the past and functions similarly to a lockbox at a bank. The processor’s customer (livestock producer) has a distinct space and key to retrieve meat processed from their own livestock. This practice works well for livestock producers selling direct-to-consumer. Moreover, processors can assess an additional fee to store products in this manner, quite possibly generating enough extra income to cash flow a much-desired upgrade to facilities.

The role of data in smaller processing operations is limited. Small processors tend to be reactive to changes in demand or base their decisions on years of experience. If their on-site cold storage is inadequate, they will continue to retrofit or repair as long as possible.

## 2.5 Characteristics of Larger Regional and National Processors and their Decision-Making Processes

Larger regional and national processors typically employ many more people and process significantly more animals each day than their smaller counterparts. Respondents noted that many such processors already utilize commercial cold storage. That said, the pinch point for these businesses is the transport of products from the production facility to the commercial cold storage facility. Paying for this transportation often limits the growth potential of the processor. As a result, some are opting to invest in on-site cold storage, while others expressed an interest in more contract options closer to their location.



Regional processors and cold storage logistic operators asserted their return on investment is directly related to how efficient and effective their spaces operate slaughter and production. Cold storage, for this reason, is often contracted at commercial facilities and is not considered a core business function. Investments tend to be limited by thin margins requiring a fast payback. Some respondents noted the cost of processor-owned cold storage is often comparable to commercial rates. Accordingly, investors require a 20-25% return on investment with a seven-year payback on any new construction project. One respondent shared construction costs can range from \$175-\$700 dollars per square foot, depending on location. The considerable range relates to facility size, design, and the type of product(s) being stored. A processor interested in additional cold storage must consider the associated costs. For example, is it more financially prudent to build their own facility compared to the cost of transporting products to and storing products at a warehouse further away? Thus, conducting a feasibility study can determine the appropriate venture to pursue considering the processor's circumstances. Participants suggested regional processors would benefit from a network of cold storage hubs to provide better geographic coverage and improve accessibility. In general, regional and national processors have the greatest need for increased cold storage due to processing a higher volume of products and serving a multitude of market outlets.

Larger processors tend to rely more on data to manage inventories and cold storage needs. Distributors, retailers, and food service partners tend to have a good handle on information related to future demand forecasts, needs, and volume. This feedback loop allows larger processors time to adjust production and inventories. Unfortunately, the benefits of forecasting fall flat for those processors unable to make adjustments (particularly increases in production) due to lack of access to more cold storage.

## 2.6 Factors for Implementing Additional Cold Storage

As processors look to expand, commercial cold storage can be a means to reduce capital costs, construction timelines, and regulatory requirements. Of course, this strategy is only as good as the access to cold storage in their geographic area. Many cold storage facilities are centrally located near population centers, as is logistics expertise. Therefore, logistics know-how must accompany any new cold storage facilities developed in less populated areas. Currently, to the researcher's knowledge (Axiom), a shared independent processor cold storage facility does not exist in the region. Cold storage facilities open to serving smaller processors would need to align on location and ease of access, which are extremely important factors to independent processors. Coordinated refrigerated transportation logistics could also be considered as off-site cold storage transportation is a barrier to smaller processors. The delivery and drop-off processes are time-consuming and can impact employee needs.

## 2.7 Cold Storage Pricing

Cold storage pricing information varied among respondents. Several meat processors relied upon their on-site cold storage and offered little to no insight. For those utilizing commercial cold storage or operating cold storage logistics, pricing practices varied such as monthly rates, pallet fees, and pricing per square foot. The pricing can vary based on factors such as the size of the storage facility, duration of storage, whether it is refrigerated or frozen, and any additional services provided by the facility. In Part B of this study, researchers examined the economic development considerations for cold storage in the five-state region. Actual costs are outlined in the terms of the contract agreement with the provider. The square foot price range for cold storage facility space rental started as low as \$3.02 and as high as \$18.21.

### The square foot price range for cold storage facility space rental



Annual increases are often built into these contracts between the processor and cold storage provider. Not surprisingly, the pricing for cold storage is increasing. This increase is driven by factors such as higher electricity costs, input costs, wage growth, commercial company consolidations, and economic factors like demand inelasticity (those seeking cold storage often have relatively few options). Respondents who directly work in the cold storage industry noted that while prices are ever-increasing, services are ever-decreasing, which could spur an interest in shared facilities aligned to processor needs. For more information about regional economic development considerations, including pricing per square foot, please refer to Part B of this study, page 20.

## 2.8 Beyond 2030

When asked to consider the meat processing sector's longer-term cold storage needs, responses varied. Respondents across the region took opposing views as to whether demand would continue to increase or plateau. Two respondents noted that needs are plateauing, stating "things are returning to normal" post-pandemic, and inventories are shrinking. On the other hand, one respondent stated, "There is an increased need; if processors can access it, they will use it." Furthermore, eight participants (state meat director, meat processor, cold storage financier, all of South Dakota and North Dakota participants) suggested the demand for cold storage would increase and aligned their reasoning with secondary source review findings including:

- increased investment interest in cold storage;
- increased home delivery and e-commerce purchases;
- more processing facilities coming online; and
- increased demand.

Despite a presumed need and strong investor interest, long lead times of 18 months or greater for new cold storage construction will be a challenge.

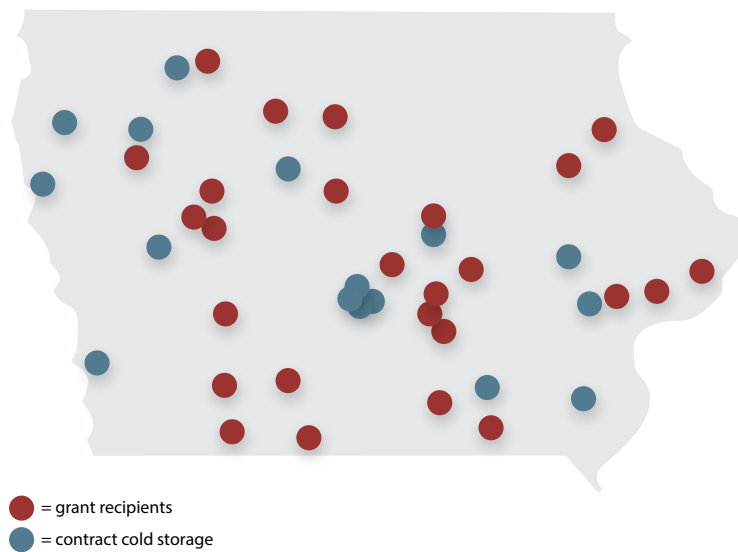
Smaller processors will continue to face capacity constraints due to inadequate cold storage. Bundling public/private financing is a potential solution. It is worth noting that the USDA invested one billion dollars in meat and poultry processing and food supply chain infrastructure through a suite of programs established in response to COVID-19 supply chain disruptions. The funding leverages opportunities and allows for additional small processor financing options to develop additional cold storage.

### 3.0 Five-State Region Cold Storage Locations

This section provides a visual representation of cold storage locations throughout the five-state region. Additionally, the locations of the independent processors who were awarded funds through recent federal grants are included, as they may be interested in further expanding cold storage capacity in the region.

Figure 4. Iowa Cold Storage Map

#### Iowa Cold Storage Map



#### Highlights

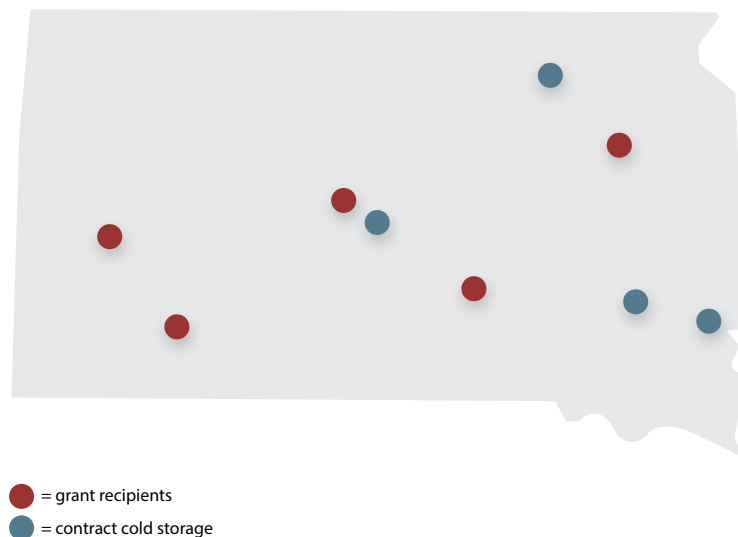
- Iowa is expanding meat processing facilities.
- Iowa has extensive transportation infrastructure involving rail and truck transport going east, west, north, and south.

#### Implications

- Iowa could be a base for hub and spoke cold storage and refrigeration transportation for South Dakota.

Figure 5. South Dakota Cold Storage Map

#### South Dakota Cold Storage Map



#### Highlights

- Cold storage is well distributed throughout the state along interstates I-90 and I-29.
- One fast growing processor has broken ground on a new cold storage facility that will open in 2024.

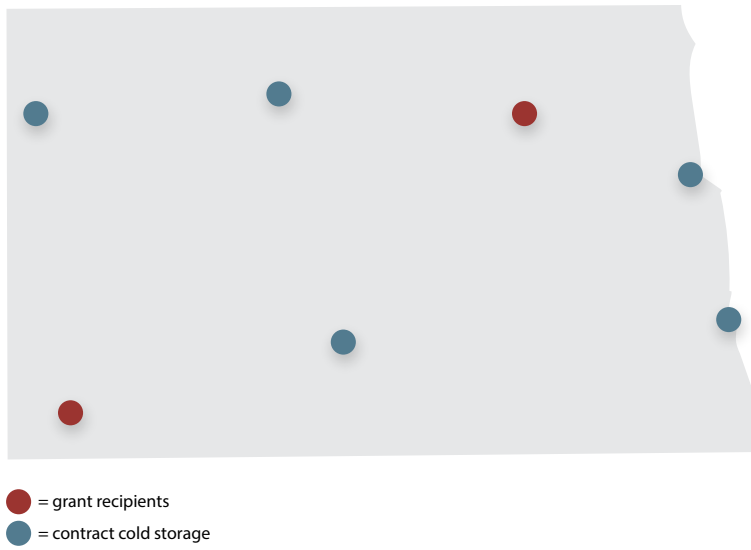
#### Implications

- Three regional processors could become anchors for shared cold storage.



Figure 6. North Dakota Cold Storage Map

### North Dakota Storage Map



#### Highlights

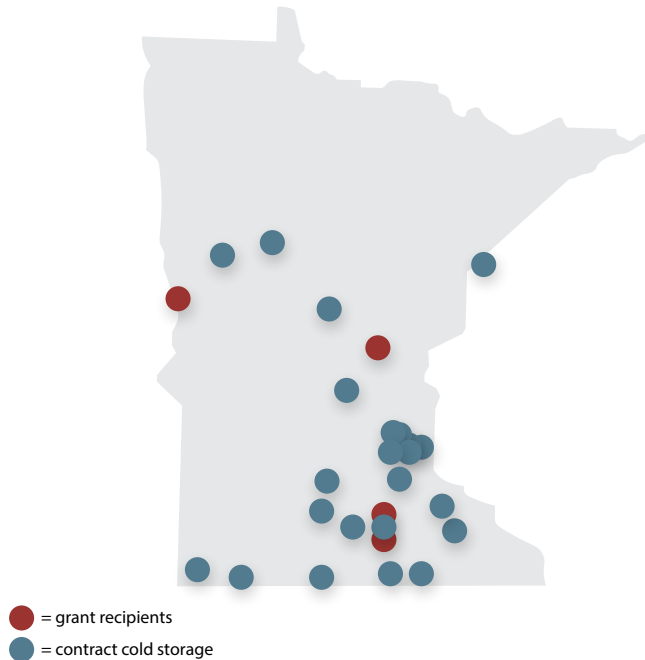
- Cold storage is well distributed along I-29 and I-94 and Hwy 2 in the north.
- Possible opportunity in Fargo with cold storage construction to house Canadian pork carcasses prior to being shipped for further processing.

#### Implications

- Possible opportunity for Grand Forks and Fargo cold storage to serve Northern MN cold storage desert with hub and spoke system and refrigerated transportation.

Figure 7. Minnesota Cold Storage Map

### Minnesota Storage Map



#### Highlights

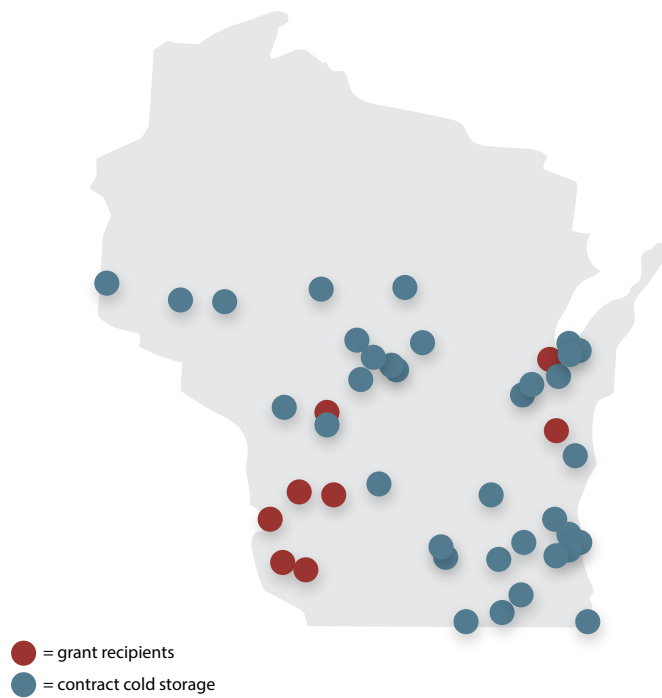
- Minnesota cold storage is predominately within the Minneapolis/St. Paul metro area or southern area of the state.
- Minnesota cited by two respondents as sub-options for cold storage and distribution options given the population base and number of food manufacturers in the state.

#### Implications

- Potential area of opportunity from St. Cloud north to the Canadian border, and on Hwy 2 from Grand Forks to Duluth.

Figure 8. Wisconsin Cold Storage Map

### Wisconsin Storage Map



#### Highlights

- Highest number of cold storage facilities in the 5-state area.
- High penetration near long-standing Chicago food distribution hub which serves the Great Lake states and east.
- Former high penetration of Chicago-based meat processors and stockyards; however, still formidable.

#### Implications

- Area of opportunity near La Crosse due to proliferation of grant ready processors.
- Could be some overlap with eastern Iowa processors.

## Part B. Northern Minnesota Cold Storage Assessment

### Purpose of Study

This study assesses the feasibility of a potential cold storage, mixed-use facility within the northern Minnesota region, including potential opportunities and challenges. Such a facility would leverage regional processing, production, packing, storage, distribution and logistics, cold chain, and retail space.



An evaluation of the current cold storage demand and facility saturation within the northern Minnesota region provides a glimpse of what the market would bear for the area. The study highlights the state of the current industry and forecasts cold storage demand and application in northern Minnesota. By drawing on these two critical areas as well as pertinent socioeconomic parameters (i.e., standard regional income requirements, population, travel/ roadway infrastructure, etc.), the study provides a detailed list of opportunities and challenges related to the feasibility of a new cold storage project within the region. Finally, the study suggests standard facility specifications and construction costs reflecting the details expressed within this feasibility study along with recommendations from industry experts. A comprehensive Appendix includes a list of current facilities within Minnesota and the surrounding states, along with relevant details of each facility.

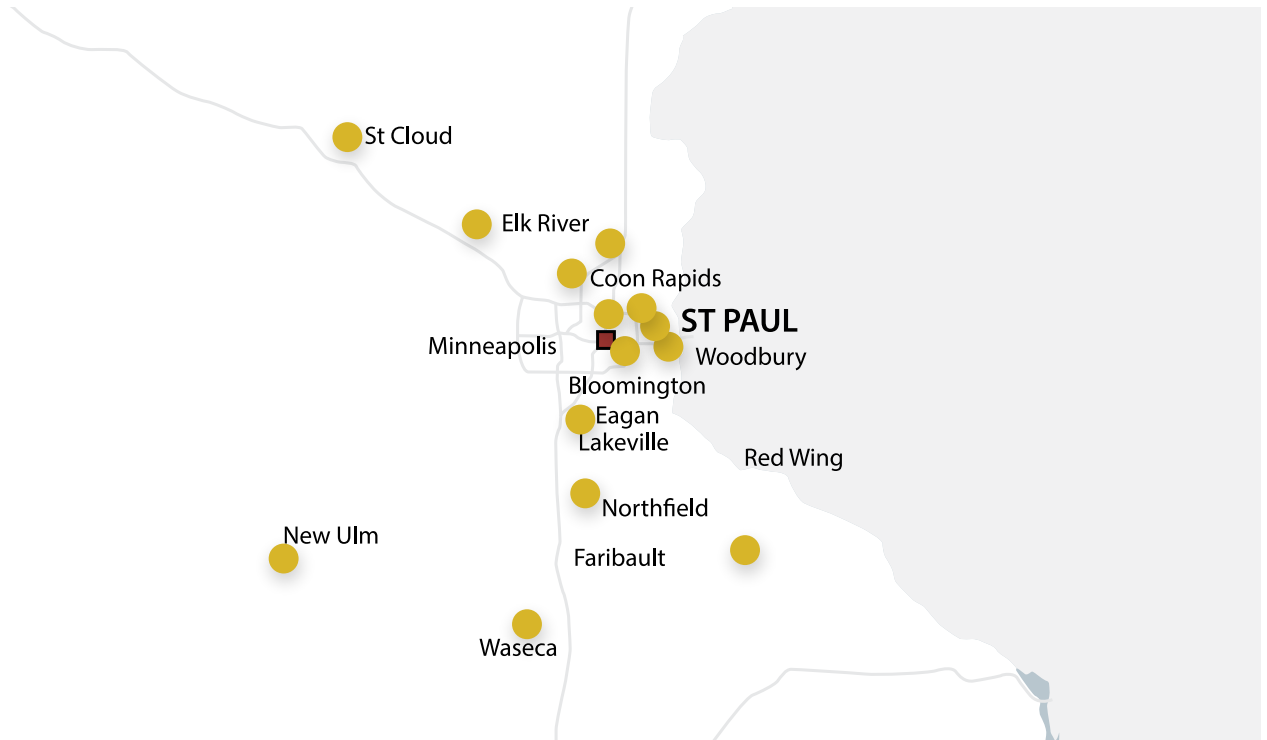
### Findings

The feasibility study determined a mixed-use cold storage facility located in northern Minnesota is feasible and potentially needed to capitalize on the expanding cold storage and logistical needs within the area and the market in general. However, the critical challenges must be further examined and addressed before developing a cold storage facility in the region.

## Current Market Utilization and Facility Saturation

A cold storage facility search was conducted for all applicable sites operating in and around Minnesota. Each location was mapped throughout the state (Figure 9). The Appendix lists specific location details for Minnesota and the surrounding states of Iowa, North Dakota, South Dakota, and Wisconsin, plus a complete Midwest overview.

Figure 9. Locations of cold storage facilities currently in Minnesota based on the defined square footage parameters



Several attributes were included within the search utilizing sourcing software from CoStart Group Data from 2023 (i.e., vacancy rates, ceiling height, number of operating docks, year built, etc.). The search yielded the following observations. Most, if not all, of the locations are concentrated in and around the Minneapolis metro area. The largest facility in operation was built in 2000. The newest facility was built in 2021 and began operations in June 2022, while the oldest facility was built in 1960. The identified locations currently have a 0% vacancy rate. It is worth noting the tallest ceiling height is 28 feet, which is just over half the current recommendations for ceiling heights for newer, more efficient facilities. These observations are summarized in Table 5.

Table 5. Property attributes of cold storage facilities in Minnesota

Property Attributes	Low	Average	Median	High
Building SF	57,238	176,628	128,275	359,914
Ceiling Height	20'	23'2"	23'6"	28'
Docks	0	10	4	42
Vacancy	0%	0%	0%	0%
Year Built	1960	1983	1985	2000
Star Rating		★★★★☆ 3.0	★★★★☆ 3.0	★★★★★ 4.0

## Food Category Utilization Summary

In March 2020, researchers (Next Up Brands and ARCO) conducted a national heat mapping project to investigate the state of the food and beverage industry and report findings. The project focused on the greatest “on-trend” needs for cold storage and warehousing. It also examined the opportunity for speculative and established contract regional project builds. The data fine-tuned the opportunities for business development and future growth in the ever-evolving national landscape.

The project resources report consisted of four main groups:

- Associations/Trade organizations (leading, nationally recognized food and beverage industry associations/trade organizations)
- Government Agencies and Universities (government and academic groups that focus within and support the food and beverage industry concentrations)
- Clients/General Industry contacts
- Other Resources/Agencies (supporting groups/contacts introduced during the data and information collection process that may be directly involved with or support the food and beverage industry)

The data collection process generated direct and indirect contacts which fed into the interview process. Data and information points were utilized to generate the results.

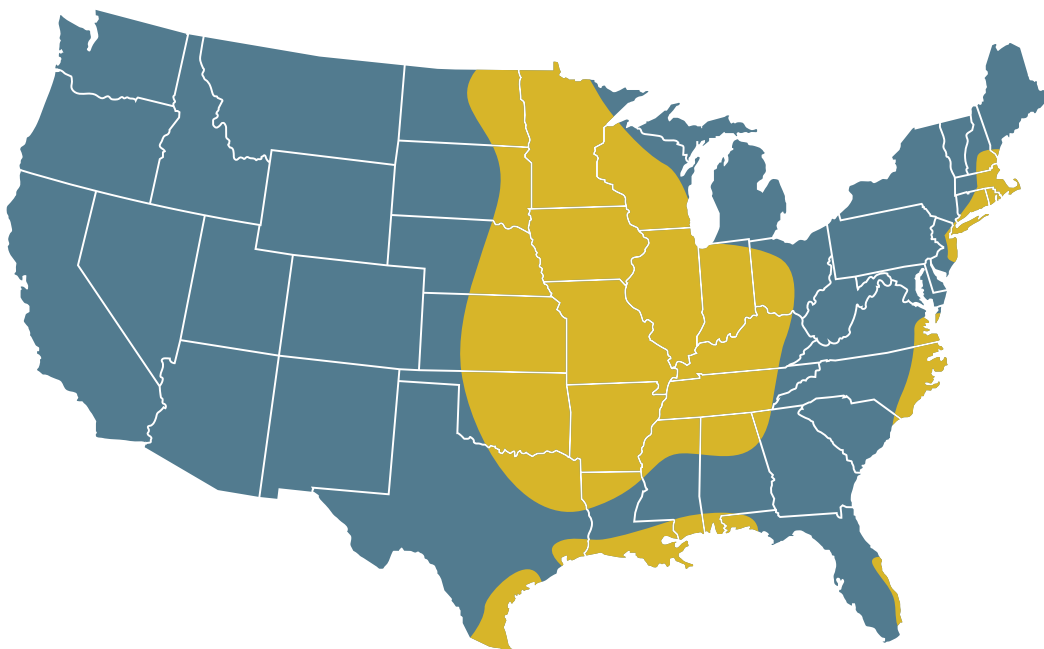
The data indicate two main areas of opportunity related to the region’s cold storage and mixed-use applications. “Proteins and Dairy,” and “Food Co-Packing/Co-Manufacturing applications.”

### Proteins and Dairy

The large, yellow-colored zone in Figure 10 reflects the “on-trend” push to establish a consolidated and regional direction for smaller, more agile protein and dairy processing facilities closer to their base production sources. The theory is that the production volume can be shifted to other small regional facilities if one “facility goes down” due to health (i.e., COVID-19), foodborne, or food safety issues (Figure 10).

Northern Minnesota’s proximity to the border, major interstates, and distribution centers in and near Canada indicate additional export promise for this area, especially given the lack of current facilities.

Figure 10. Proteins and dairy industry heat map highlighting the Midwestern zone of opportunity for cold storage, mixed-use facility application

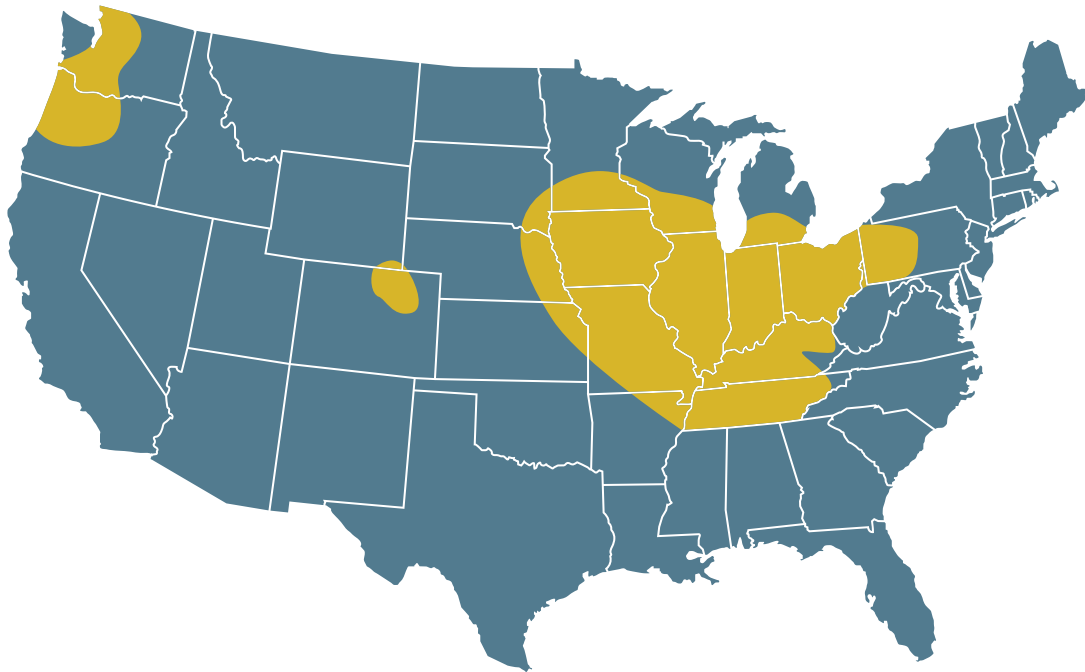


## Food Co-Packing and Co-Manufacturing:

This zone reflects large growth in food co-packing and co-manufacturing due to several factors: it is a centralized location relative to the rest of the country, has inexpensive land or property costs compared to other locations in the U.S., and benefits from a large concentration of retailers and end users of the products on the coasts. This particular zone has experienced growth in co-packing and co-manufacturing that has dwarfed all other areas of the country for the last five years. The growth only shows signs of increasing to match on-trend consumer needs (Figure 11).

Emerging brands have been on the increase. This is due in part to the pandemic's impact on individuals seeking new opportunities, growth in e-commerce, and repercussions from challenges in the meat and food supply chains. Now, as these brands grow, they require access to manufacturing.

Figure 11. Food co-packing/co-manufacturing industry heat map highlighting the Midwestern zone of opportunity for cold storage and mixed-use facility applications.



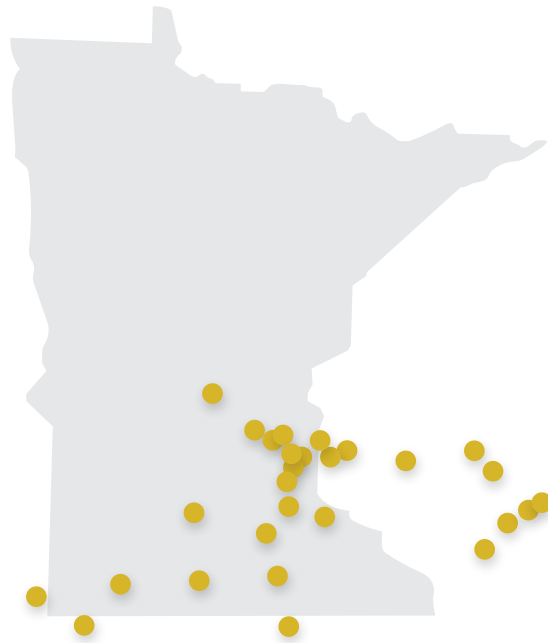
## Cold Storage Facility Feasibility Analysis Summary

This section highlights the current need for cold storage in Northern Minnesota. Greater Bemidji, Next Up Brands, and ARCO researchers provide a detailed summary of opportunities and challenges and outline additional applications and critical factors relevant to the study. This summary is intended to assist any potential developer, investor, or processor in understanding the opportunity in this region and identify ways to rectify associated challenges.

### Opportunities Related to Cold Storage in Northern Minnesota

Northern Minnesota is a centralized location and could be a major cold storage hub as visually represented in Figure 12. There are multiple routes that transport agricultural goods, including meat and food products in the northern part of the state. Construction of a cold storage facility in Northern Minnesota could logistically serve businesses from Grand Forks, North Dakota to Duluth, Minnesota. As a result, Northern Minnesota is an ideal centralized location to transport, and store refrigerated and frozen meat and food products through the supply chain. While every municipality has different zoning, building, tax abatements, programming, regulations, challenges, and opportunities, Northern Minnesota is relatively cost-effective for land acquisition and building costs, especially in contrast to more metropolitan areas in central Minnesota.

Figure 12. Zoomed-out image of cold storage facilities in Minnesota



The region also has a favorable population-to-income ratio, providing a unique opportunity for regional labor sourcing and a cost-effective income expectation/expense for the facility operator. The 2021 Greater Bemidji Market Profile, located in the Appendix, provides a more detailed population breakdown and other regional socioeconomic data.

New technologies, building standards, and cooling efficiencies can apply to a potential new building and attract potential new users. The region offers grant opportunities or other energy-based subsidies to offset costs and generate more economical operation costs. Technologies are continually evolving in cold storage facilities, such as warehouse and distribution center automation, robotic technology, LED lighting, high-speed cooler and freezer doors, automated and remote temperature sensors to prevent temperature-related issues, and drive-thru loading docks to optimize efficiency and throughput.

### **Challenges Related to Cold Storage in Northern Minnesota**

The region is known for potentially harsh and inclement weather conditions that could negatively impact costs associated with building maintenance, especially outer construction, docks, parking lots, etc. Researchers noted the need for closer proximity to major highway infrastructure. This can create logistical inefficiencies and may limit different facility usage and user applications. For example, a cold storage facility that focuses on fresh product-related shipments and deliveries will experience a much higher truck-to-dock frequency. Facilities with higher truck-to-dock ratios would opt for locations with favorable access to major interstates. Conversely, a primarily freezer-based application or category will have much lower truck-to-dock frequencies, in which case more rural locations could be competitive.

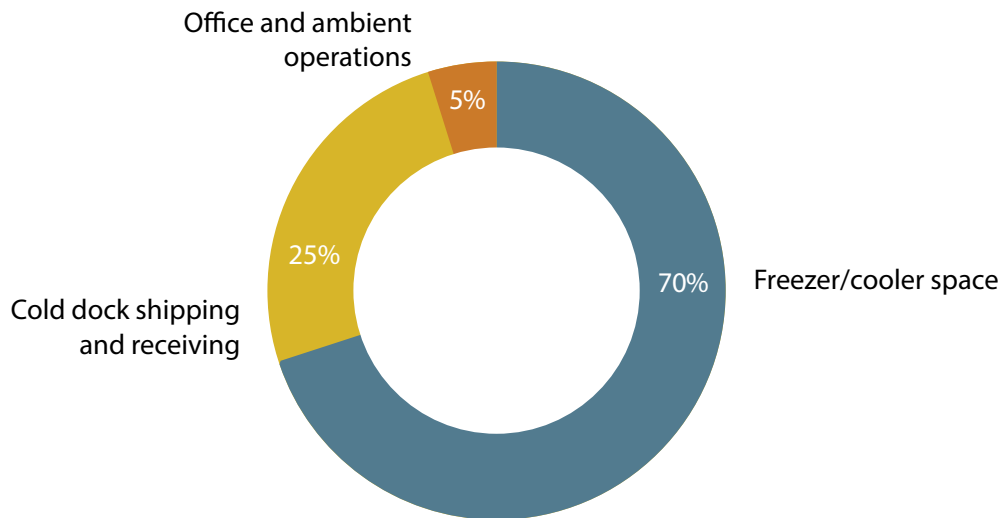
## Cold Storage Facility Optimization Summary

Professional recommendations for the type/spec of building most appropriate for the northern Minnesota region are detailed below.

### General Facility- Size/Spec with General Mixed-Use Building Breakdown Summary

#### Size/Spec:

- Given the opportunity for the region and scope of the facility usage expressed, it is estimated that a 100K to 175K square foot (SF) mixed-use facility is the most applicable size.
- Ambient temperature zones are generally only a tenant-specific spec, and ambient storage space is not requested in these facilities 60% or more of the time.
- Seventy percent of space is estimated to be utilized as freezer/cooler storage. Of note, the split between the freezer and cooler area is heavily tenant-driven based on product, but generally, there will be more freezer than cooler space.
- Roughly 25% of space is allocated for cold dock space for shipping and receiving purposes.
- The remaining 5% or more of the facility space will generally be for ancillary office space plus some small (3K to 5K SF) ambient areas for fork truck and equipment maintenance, scrubber dump area(s), and other essential operation and facility maintenance practices.
- Cold storage office areas are typically fixed (as opposed to a percentage of the building size) at 5K to 10K SF, no matter the building size. This is generally considered the standard size up to 500K SF if the building client focuses more on office-related needs.



#### General Project Design/Build Time:

- Construction averages are nine to 11 months. However, this does not include permitting or design timelines. The design phase takes approximately two months. Permitting will vary and depend on the site's specific jurisdiction (town, city, county, etc.). Generally, most small towns and suburbs are pro-business and are relatively easy to work with on permitting. Permitting averages ranging from one to three months. Typically, the larger the city, the more time it requires to acquire permits (i.e., metropolitan areas will go from nine to twelve or more months), thus adding to a potential "pro" for the region in this study.

#### Best Use-Freezer/Refrigeration System:

- Based upon the previously stated parameters, specs, and building size, researchers recommended an ammonia-based refrigeration system as the standard for a building of the recommended size and usage category.

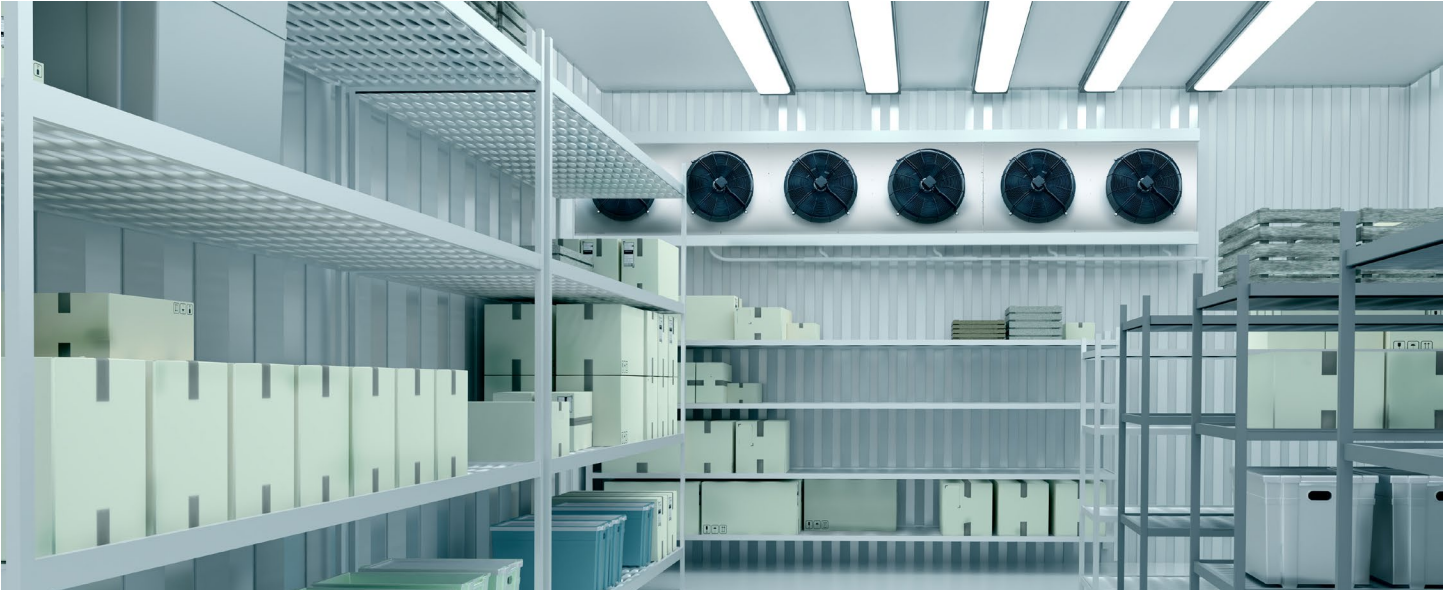
#### General Scope Range of the Project Cost:

The estimated range to cover and execute a 40' clear-height building and envelop standard site costs is \$185-\$502 per square foot. The wide price range is due to construction options. For example, if developers choose to build with minimal amenities, base

technologies, and lower ceilings, the price will be on the lower end. On the other hand, if developers choose to invest in a high-tech space with multiple amenities, automation, and high ceilings, the price will be on the higher end.

### General Operating Costs:

- While this is one of the more difficult ranges or estimates to provide, operating costs range from an anticipated \$45K-\$55K/month for a 100,000 square foot facility.



## Recommended Next Steps

Researchers have identified the following topics as areas for future study and potential action.

- Identify support mechanisms for smaller meat processors who are not interested in accessing commercial cold storage but do experience on-site capacity constraints.
  - Catalog innovative and cost-effective strategies to overcome cold storage capacity limitations.
  - Target funding opportunities to support small-scale facility upgrades and expansions.
  - Provide technical assistance to small meat processors as they evaluate investment opportunities to understand the full cost and benefit of implementation.
- Identify which municipalities, outside the areas of high cold storage penetration within the five-state region, have the greatest demand and potential for developing cold storage capacity.
  - Deepen understanding of local needs and interest in shared cold storage facilities.
  - Identify methods for facilitating discussion with local constituent groups, including energy providers.
  - Identify best practices for bundling multiple financing options, such as grants, incentives, and financing.
  - Explore the local food processing industry to determine the potential for an anchor tenant arrangement.
  - Identify municipalities most interested in increasing economic development efforts to attract cold storage projects.
- Increase understanding of high-volume independent processors serving diverse market channels (retail, food services, and institutions).
  - Explore high-volume independent processors' growth plans and future needs.
  - Develop network connections between processors and producers to match available processing capacity to processing needs.
  - Connect these processors to technical assistance resources to analyze cost/benefit of building on-site or accessing contract cold storage, if available.
  - Build awareness of federal and state funding opportunities (grants and low-interest loans) intended to improve resiliency in the meat processing sector.
- Identify cold storage consultants with experience developing successful shared cold storage facilities to advise the USDA Meat



- and Poultry Processing Technical Assistance (MPPTA) Network.
- Connect consultants with the MPPTA Network and offer opportunities to expand knowledge through train-the-trainer sessions.
  - Deepen understanding of consultants' methods and models.
  - Identify areas where federal, state, and local programs can help overcome barriers or fill gaps.
  - Identify solutions for refrigerated transport systems to and from existing and future cold storage facilities.
    - Deepen understanding of existing refrigerated transport/distribution systems.
    - Identify innovative and cost-effective strategies to service meat processors seeking access to contract cold storage.
    - Explore hub-and-spoke models benefiting multiple processing sectors (meat, dairy products, fruits, vegetables, etc.).
    - Further explore the needs of growing independent meat processors related to refrigerated transport to cold storage facilities.
  - Review Department of Energy (DOE) 2024-2025 cooling efficiency plan to address aging and inefficient cold storage space.
    - Deepen understanding of DOE goals, initiatives, and funding opportunities.
    - Identify likely impact on utilities such as electricity supply and demand, energy efficiency rebates for refrigeration/freezing, etc.
    - Look beyond the five-state area to states with high penetration of cold storage (e.g., California, Washington, etc.) for insights.
    - Identify possible areas for USDA and DOE collaboration.
  - Investigate regional and local electric utility rate plans and energy efficiency rebate structures.
    - Deepen understanding of electric utility goals and objectives related to energy conservation.
    - Identify why most electric utilities in the Midwest five-state area are not offering rebates for equipment retrofit.
  - Identify private investors actively pursuing cold storage projects and development.
    - Understand their investment and portfolio goals.
    - Explore opportunities to connect these investors to project developers and processors in the five-state region to improve the likelihood of financing for new facilities.

## List of Tables and Figures

Figure 1. Project Methodology

Table 1. Summary of the Number of Facilities and Amount of Capacity for the U.S. and Upper Midwest

Table 2. U.S. Cold Storage Market Size Value

Table 3. 2021 Top States Based on Number of Cold Storage Facilities

Table 4. 2021 Upper Midwest 5-State Region Cold Storage Numbers

Figure 2. Total Number of Cold Storage Facilities in the Upper Midwest Region 2021

Figure 3. Total Usable Cold Storage Space in the Upper Midwest Region 2021

Figure 4. Iowa Cold Storage Map

Figure 5. South Dakota Cold Storage

Figure 6. North Dakota Cold Storage Map

Figure 7. Minnesota Cold Storage Map

Figure 8. Wisconsin Cold Storage Map

Figure 9. Locations of cold storage facilities currently in Minnesota based on the defined square footage (SF) parameters

Table 5. Representing the number of identified properties, average square footage (SF), average vacancy, average asking rent per square foot (if applicable) with additional summary of relevant details associated with the sites expressed

Figure 10. Proteins and dairy industry heat map highlighting the Midwestern zone of opportunity for cold storage, mixed-use facility application

Figure 11. Food co-packing/co-manufacturing industry heat map highlighting the Midwestern zone of opportunity for cold storage, mixed-use facility application

Figure 12. Zoomed-out image of cold storage facilities in Minnesota

## Appendix A

### Secondary Sources References

1. <https://biztimes.com/overcoming-the-cold-storage-deficit/>
2. Cold Storage Demand Grows Amid Tailwinds. CBRE. June 27, 2022. Available online at [Cold Storage Demand Grows Amid Tailwinds | CBRE](#)
3. United States Cold Storage Market Analysis Report, 2018-2025- Growing Application of Telematics in Logistics and Transportation. Business Insider Research and Markets. October 30, 2018. Available online at United States Cold Storage Market Analysis Report, 2018-2025 - Growing Application of Telematics in Logistics and Transportation | Markets Insider ([businessinsider.com](https://www.businessinsider.com))
4. Cold Storage Crucial Property Infrastructure. AEW Research. July 2021. Available online [here](#).
5. U.S. Cold Storage Market Size, Share & Trends Analysis Report By Warehouse Type, By Construction Type (Bulk Storage, Production Stores, Ports), By Temperature Type, By Application, By State, And Segment Forecasts, 2023-2030. Available online at U.S. Cold Storage Market Size & Share Report, 2030 ([grandviewresearch.com](https://www.grandviewresearch.com)) "Acknowledgments" on page 2
6. Young, Lee. Industrial Real-Estate Developers Are Hot on Cold-Storage Warehouses. The Wall Street Journal. June 29, 2022. Available online at [Industrial Real-Estate Developers Are Hot on Cold-Storage Warehouses - WSJ](#)
7. Jeitner, Mike. Cold Storage Warehousing: Four Factor Driving Site Selection and Feasibility. NAIOP. 2023. Available online at [Cold Storage Warehousing: Four Factors Driving Site Selection and Feasibility | NAIOP | Commercial Real Estate Development Association](#)
8. Capacity of Refrigerated Warehouses 2021 Summary. January 2022. United States Department of Agriculture Capacity of Refrigerated Warehouses 2021 Summary 01/31/2022 ([cornell.edu](https://www.cornell.edu))
9. Cold storage companies merge. Meat + Poultry. January 8, 2019. Available online at [Cold storage companies merge | 2019-01-08 | MEAT+POULTRY](#)
10. Sims, Bob. West Liberty Foods to build food processing, cold storage facility in Kansas City, Meat + Poultry. January 24, 2023. Available online at [West Liberty Foods to build food processing, cold storage facility in Kansas City | MEAT+POULTRY](#)
11. Vertical Cold Storage buys Medley freezer facility for \$66M. The Real Deal Real Estate News. May 11, 2022. Available online at Vertical Cold Storage Buys Medley Freezer Facility For \$66M ([therealdeal.com](https://www.therealdeal.com))
12. Beach, Jeff. Minnesota food company's need for cold storage spawns \$40 million warehouse. Post Bulletin. December 27, 2022. Available online at [Minnesota food company's need for cold storage spawns \\$40 million warehouse - Post Bulletin | Rochester Minnesota news, weather, sports](#)
13. Vertical Cold Storage buys Medley freezer facility for \$66M. The Real Deal Real Estate News. May 11, 2022. Available online at Vertical Cold Storage Buys Medley Freezer Facility For \$66M ([therealdeal.com](https://www.therealdeal.com))
14. United States Cold Storage Market Analysis Report, 2018-2025- Growing Application of Telematics in Logistics and Transportation. Business Insider Research and Markets. October 30, 2018. Available online at United States Cold Storage Market Analysis Report, 2018-2025 - Growing Application of Telematics in Logistics and Transportation | Markets Insider ([businessinsider.com](https://www.businessinsider.com))

## Appendix B

### Moderator Guide Questionnaire

- Where are contract cold storage facilities located in your state?
- Has the amount of cold storage increased or decreased in your state? (e.g., meat, frozen fruits and vegetables, processed meats, dairy products, refrigerated beverages and frozen foods.)
- Is additional cold storage needed? Why or why not?
- Describe characteristics of small local processors that will likely have the greatest need for cold storage. (e.g., type of processors, foods they handle, business size, locations, end user customers etc.)

- Do larger regional processors need more cold storage? Why or why not?
- What are the characteristics of larger regional processors that will likely have the greatest need for cold storage? (e.g., type of processors, foods they handle, business size, locations, end user customers, etc.)
- How do customers typically forecast their need for cold storage? For example, is there a seasonality to the need for additional cold storage?
- Are there any specific data sources that you've seen that show increasing OR decreasing need?
- What times of the year does additional need typically occur?
- Are there bottlenecks? When and why do these occur?
- Do you see this need as primarily meat focused or is there a similar need for fruits/vegetables, dairy products, refrigerated beverages, etc.? Why?
- How do you see current demand for contract cold storage?
- What are your thoughts on future demand for contract cold storage by 2030?
- What additional sources should we consult to help answer this question?
- How do local processors and larger regional processors make decisions about adding cold storage?
- Do you have any thoughts on the differences in their decision-making process?
- What ROI is required to build the new space?
- What else do processors use to make rent/build decisions? For example, are they interested in investors building cold storage for them or do they build their own?
- What factors do the processors/investors use to determine the optimal site for new cold storage facilities? (e.g., transportation, proximity to highways, utilities, etc.)
- How is pricing established? What is the current pricing?
- Do the prices change from year to year?
- Do you see JIT delivery as continuing to dominate the frozen food market? Why? Why not?
- What sources might be useful to us – particularly as we try to estimate future demand for cold storage facilities?
- Are we asking the right questions? If not, what should the questions be?
- Specifically, who should we talk to that could provide additional feedback?