

### Real Estate Trends

#### ZONING AND LAND USE PLANNING

## Land Use Issues Presented by Cold Storage Warehouses

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The first warehouses in the United States rose from the ground in the second half of the nineteenth century. Thanks to the emergence of internet-powered e-commerce over the last two decades, demand for warehouse space by manufacturers, wholesalers, and retailers has caused a building boom. By some estimates, there were approximately 50 percent more warehouses in the U.S. in 2023 (approximately 22,000) than there were in 2007 (approximately 14,600).

But not all warehouses are the same. Cold storage warehouses (“CSWs”) are emerging as an important category of warehouses because an increasing number of products need to be stored and shipped at low temperatures to avoid spoiling or loss of efficacy. Food, prescription drugs, vaccines, cosmetics, and chemicals are just a few of the kinds of products that must

be stored in CSWs to ensure they arrive to their purchasers in a saleable or consumable condition.

The global market for cold storage reached nearly \$120 billion in 2022 and is expected to continue growing at a compound annual growth rate of 17.5% through 2030. According to the U.S. Department of Agriculture, there were 3.70 billion cubic feet of refrigerated storage capacity in the U.S. as of Oct. 1, 2023. This number is expected to increase over time—a report from CBRE found an 11-fold increase in the number of speculative square feet of cold storage in development from 2019 to 2022.

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unique land use and zoning issues that must be overcome before developers can proceed with construction.

Accordingly, those seeking to construct a CSW should carefully review the applicable zoning regulations to ensure that there is a path forward to approval. Where approval is discretionary and subject to a public hearing, developers should assess the nature of the surrounding land uses and the likelihood and vigor of neighborhood opposition before committing to a site.

**CSWs Are Typically Taller Than Non-Refrigerated Warehouses.** Non-refrigerated warehouses are usually 35 to 45 feet tall. CSWs are often significantly taller, typically with heights of between 80 and 150 feet. In many suburban areas, the same industrial zones that generally

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allow CSWs also restrict the maximum building height to about 50 feet.

There are several reasons CSWs are so tall. One is that the added height provides the space needed for automation systems that are more resilient to working within cold warehouse spaces than the human workers they are replacing.

Second, on a related note, with these systems and fewer human workers, CSWs can better

use vertical space and stack their inventories higher. This can lead to lower construction costs, especially in urban areas with higher land values.

Finally, warehouse roofs allow significant amounts of heat loss. Even with state-of-the-art insulation, CSWs that are taller than they are wider can minimize the surface areas of their roofs, which increases the building's energy efficiency.

CSWs' added height can pose zoning problems in areas that are not zoned for buildings as tall, or by generating opposition from neighboring businesses and residents who object to having such a large new building near them. If a CSW's projected height is not permitted by-right, the developer will need to secure a height variance from the zoning board.

Where a developer is proposing a CSW as part of a larger industrial or commercial development, they might find a municipality willing to negotiate with them on the height issue, perhaps going so far as to amend the zoning code, because of the potential economic benefits of the entire development, including increased tax revenues.

On the other hand, because variance relief is a discretionary approval that requires developers to provide sufficient evidence to justify the relief, and to demonstrate that the grant of relief will not have an adverse impact on neighboring properties and the surrounding area, a municipality that is unreceptive to a CSW or lacks the political will to approve a CSW in the face of local opposition can use the variance process to defeat the project.

Accordingly, developers need to understand the applicable height restrictions and assess

the surrounding properties that are within the proposed CSW's line of sight. This will allow the developer to determine the magnitude of the relief needed and to anticipate potential opposition to the project, both of which can significantly impact the chances of obtaining a height variance.

**CSWs Are Typically Noisier Than Non-Refrigerated Warehouses.** With equipment running 24 hours a day, seven days a week, and 365 days a year to keep a CSW cool, CSWs are typically noisier than other warehouses. This poses another land use problem.

As anyone with an air conditioner can attest, condensers and compressors make a lot of noise. CSWs require industrial-strength cooling equipment to maintain required temperatures. Because this equipment runs all hours of the day, every day, a CSW's neighbors are unlikely to see any relief from the noise a CSW generates. Moreover, the refrigerated trucks that deliver products to or from a CSW are also noisy and could add to neighbors' opposition to a proposed CSW or one currently in operation.

Given these concerns, some municipalities choose to regulate CSWs by way of a special use permit, rather than as a permitted use. In New York State, a special use permit is a use of land permitted by the zoning regulations, subject to certain design or performance standards that are intended to protect the surrounding neighborhood from the adverse effects of such use. See, e.g., Town Law 274-b.

For instance, as set forth in the Zoning Ordinance of the Town of Murray, New York, CSWs are allowed in certain zoning districts, but only with a special use permit from the Planning

Board. Special permits may be issued by the Planning Board following a public hearing, and only after the board finds that the CSW proposal meets 16 conditions that are designed to ensure that the use will be compatible with the surrounding area. Not surprisingly, one of the conditions requires that noise from the CSW not be discernable beyond the boundaries of its site.

Since CSWs have the potential to generate significant amounts of noise, developers would be wise to incorporate noise mitigation measures into the design of all CSWs. Noise mitigation can come in several forms.

Acoustic cabins and noise dampening boxes can reduce noise, as can locating equipment strategically based on where neighbors are and the direction sound is likely to travel because of local topography and other factors. Increased setbacks and robust landscaped buffers can also be required by a municipality to mitigate the impacts of noise emanating from refrigeration units and other equipment, and to assuage neighbor concerns.

Among the most effective noise mitigation measures, however, are sound barriers or noise attenuation walls. These walls, which can be costly, reduce the volume and quality of sound waves by absorbing, reflecting, or redirecting them. A noise attenuation wall was used by the operator of a CSW in Niagara-on-the-Lake, Ontario, just beyond Niagara Falls. There, neighbors complained about the noise created by a new condenser on a CSW. To mitigate the noise, the owner surrounded it with wood panels lined with metal walls, which themselves were lined with noise-absorbing material made of wool. The owner

also explored further reducing the noise by covering the walls with a foam blanket.

**CSWs Consume More Energy Than Non-Refrigerated Warehouses.** All warehouses require significant amounts of energy to power their lights, HVAC systems, security systems, and equipment. But the increased energy usage of CSWs to power refrigeration and automation systems may restrict where they can be located, or could require costly upgrades to a site's energy infrastructure.

By some estimates, the average CSW uses approximately 25 kWh of energy per square foot annually, which is approximately four times higher than non-refrigerated warehouses. The reason for the increased energy usage is the same reason that houses with central air use more energy in the summer: it takes a lot of energy to keep an indoor space cold when the outside temperature is much warmer. Add into the mix fire suppression and security systems, as well as automation and other energy-thirsty technology, and it's easy to see why CSWs require so much energy.

Because of these energy requirements, a CSW will need to be constructed where enough electricity can be transmitted to it. A CSW's developer might need to work with the local electric utility company to build transformers or other infrastructure on the site.

Aside from the cost implications associated with the additional transformers, they tend to be unsightly and generate noise, which could be yet another point of contention among neighbors. This could force a CSW developer

to invest more time and money designing and implementing mitigation measures, such as screens, walls, additional landscaping, and the like, to prevent a much-needed transformer's noise and appearance from derailing its attempt to build its CSW.

**These Issues Lead to Different Site-Selection Concerns for CSWs Compared to Non-Refrigerated Warehouses.** Most warehouse developers want to locate their warehouses near major roadways, arterials, and rail lines. Most want their warehouses to be as reasonably close as possible to their current suppliers and customers. And, most want to avoid the headache of being next to residential areas and would instead prefer to be located in an industrial park or other area already conducive to building a warehouse.

CSW developers want the same things. But the unique land use and site selection challenges that CSWs face—height requirements, noise issues, and energy usage, among others—could prevent developers from building their CSWs on their preferred sites.

To build their projects consistent with how they originally conceived them, developers will need to understand the unique challenges presented by CSWs, how and why a municipality and its residents would oppose a new CSW, and the universe of mitigation options that could reduce, or maybe even eliminate, these challenges and opposition. Ideally, this occurs during the project's due diligence phase, and prior to committing capital and other resources to a project with a predictably uncertain future.