



SITE FEASIBILITY, DUE DILIGENCE, AND ENTITLEMENTS

FOR DISTRIBUTION CENTER DEVELOPMENT

BOHLER //

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1 / INTRODUCTION

410M SF

Forecasted net absorption
of distribution center space
by 2024¹

\$6.4 T

Total value of forecasted
global e-commerce sales
by 2024²

3.4%

Distribution center
vacancy rate across
the U.S.³

Delivering on Distribution Center Demand

Leading industry experts predict that e-commerce sales will continue to grow, warehouse and distribution center rents continue to rise, and vacancy will remain at an all-time low. With successful deals driven largely by the speed-to-market demands of tenants, owners and developers need to move quickly.

The following guide provides recommendations from Bohler's leaders for improving your due diligence process by considering factors specific and unique to the different distribution center project types. This will help you make informed decisions faster and deliver facilities on time.



CONTACT OUR INDUSTRIAL TEAM NEAR YOU!



2 / **EXPEDITING DUE DILIGENCE**

We always recommend thorough due diligence. An incomplete understanding of the project could significantly impact your ability to keep it on track.

Due Diligence Time Crunch? 6 Items Not to Miss

While it may be tempting to cut corners (and costs) in due diligence, an incomplete understanding of the project could impact your ability to keep it on schedule and within budget as the project progresses.

Whether faced with time constraints due to lease obligations or simply managing a tight budget, an expedited due diligence period may seem like the only option. If you are evaluating an undeveloped site or assessing a potential redevelopment, here are six key items that should remain on your checklist to minimize unexpected costs and delays.



1**GEOTECHNICAL AND ENVIRONMENTAL INVESTIGATIONS**

Identify whether soil conditions and environmental challenges pose risks or design constraints, and determine the estimated cost of potential solutions.

2**ALTA SURVEY**

Review public records as part of this survey to identify easements, restrictions, and other encumbrances that can significantly impact the site's development potential.

3**CONCEPTUAL GRADING**

Protect your budget by giving your design team the opportunity to strategize earthwork and stormwater management and identify cost-effective ways to work with challenging topography.

4**UTILITY SERVICE AND IMPACT FEES**

Determine if existing infrastructure can meet the proposed project's utility demands, or gain an understanding of the off-site connections, extensions, or upgrades required.

5**CURSORY TRAFFIC ACCESS REVIEW**

Evaluate site access and traffic circulation patterns to identify obstacles that could impact layout, design, and the entitlements timeline.

6**PRE-APPLICATION MEETINGS**

If off-site roadway or intersection improvements are required to support an increase in employee and truck traffic, proactively meet with key stakeholders to streamline the approval process.

**DOWNLOAD OUR DUE DILIGENCE CHECKLIST**

CASE STUDY

Geotechnical Due Diligence Reveals Sinkhole-Prone Soils



31 ACRES | 3 BUILDINGS | 470K SF

Discovery of the site's susceptibility to sinkholes during geotechnical due diligence studies drove Bohler's stormwater management design early on.

Offering an alternative method to the traditional solution of lined basins under the parking lot, Bohler proposed a flat, multilayer, aboveground infiltration basin that allows water to permeate the soil across a larger area, addressing the risk caused by a concentrated underground holding tank.



LEARN MORE: VIEW FULL CASE STUDY



3 / **OVERALL SITE FEASIBILITY**

The increased demand for warehouse and distribution center space is creating new opportunities for ambitious real estate developers looking to diversify and grow their portfolios.

4 Factors Affecting Project Budget and Schedule

We are helping development teams new to the market act on industry demand. Some of the previously outlined due diligence must-dos are also factors that have the greatest impact on budget and schedule. Here's a look at how.



1**TOPOGRAPHY AND EARTHWORK**

For large sites, earthwork is one of the costliest elements of a project. Engage your design team early to develop a conceptual grading plan and perform a cut/fill analysis.

2**STORMWATER MANAGEMENT REQUIREMENTS**

In our experience, many agencies are trending toward a more sustainable and environmentally friendly approach. Lean into your site engineer's knowledge of local regulations so you can better anticipate the scope of work that will be required.

3**SITE ACCESS**

The volume of truck traffic coming to and from warehouse and distribution developments is substantially different than other uses. As a result, jurisdictions may require developers to provide off-site roadway improvements. Meet with the jurisdiction to discuss your development plans, and engage a traffic engineer early.

4**FACILITY TYPE AND DESIRED TENANTS**

Design details are heavily driven by the tenants' operational needs. To better manage the project's scope and improve your chances of securing a tenant quickly, be intentional about selecting the type of building you are developing and the type of tenant you want to attract.

SEE THE FOLLOWING PAGE →

TYPE OF FACILITY	TYPICAL OPERATIONS	MAIN DESIGN DRIVERS
Warehouse/Non-Sort Facility	/ B2B / Inventory ships in and out on pallets – solely uses freight carriers / Inventory can be stored for longer periods of time – several months to a year	/ Maximum storage space / Less traffic than a distribution center / Fewer employees than a distribution center
Distribution/Fulfillment Center	/ B2C, e-commerce, online order fulfillment / Inventory arrives on pallets and leaves parcel-sized requiring varying truck and van sizes / Inventory is stored only for a short amount of time / Requires more employees to expedite and streamline orders	/ Increased traffic – continuous flow of trucks daily / Employee needs – adequate parking and bathrooms / Possible accommodation for varied loading dock sizes
Last Mile Distribution Center	/ Generally smallest of distribution facilities and located closer to rooftops / Ideal use for retail-to-warehouse conversions	/ Employee parking and vehicle storage / Utility infrastructure required to support EV fleet
Cold Storage Distribution Center	/ Similar B2B and B2C operations with climate-controlled chambers / Outsourced to 3PL, products are stored and ready to ship to end users / Proximity to rail is desirable	/ Building height taller than a standard distribution center / Utility draw / Geotechnical investigations regarding building foundation

[READ MORE: DEVELOPING DISTRIBUTION CENTERS](#)



4 / SITE FEASIBILITY FOR RETAIL CONVERSIONS

Is a retail conversion right for your last mile distribution center? There's more to consider beyond size, parking, and access.

6 Factors to Consider Beyond Size, Parking, and Access

With the increase in e-commerce demand due to COVID-19, owners and developers are finding new opportunities by converting underperforming big boxes and shopping malls to last mile distribution and fulfillment center space. With large buildings, ample parking, and the typical access to major traffic corridors, these centers may have all the necessary criteria for a retail-to-distribution center conversion.

Beyond square footage, parking counts, and proximity to highways however, there are many additional factors to consider when evaluating whether this type of repurposing is feasible for your project. Ask these questions to help understand what a redevelopment could entail and to better prioritize potential sites for distribution center conversions.



1**EXISTING BUILDING HEIGHT**

Does your desired tenant require a clear height of 50-60 feet? Will you need to make structural modifications or get a height variance?

2**UTILITY CAPACITY**

Are capacity upgrades required to meet fire suppression system requirements or an increased number of bathrooms for a large number of employees?

3**TRUCK CIRCULATION**

Is a site circulation redesign necessary to manage a significant increase in truck traffic?

4**EXISTING LOADING DOCK HEIGHT**

Are loading dock accommodations needed for the smaller trucks and vans typically used in last mile distribution and grocery deliveries?

5**PAVEMENT MATERIAL AND STRENGTH**

Consider the current pavement condition. Do you need to upgrade certain sections for heavy-duty asphalt pavement or concrete loading areas?

6**OFF-SITE TRAFFIC CONDITIONS**

Are off-site roadway or intersection improvements required to support an increase in employee and truck traffic?

**READ MORE: IS A RETAIL-TO-WAREHOUSE CONVERSION RIGHT FOR YOUR PROPERTY?**



5 / **SITE FEASIBILITY FOR COLD STORAGE**

According to Supply Chain Dive⁴, nearly 80% of cold storage facilities are at least 20 years old.

4 Factors Driving Site Selection and Feasibility

Developing modern cold storage facilities requires implementing and overcoming unique design features and challenges.

Design factors such as building height, utility demand, and building foundation requirements are significantly different than standard warehousing and [distribution centers](#), and understanding these factors is critical to delivering a successful project.

Here are the top four design factors to evaluate early in the due diligence process to help your team identify sites and assess the feasibility of a cold-storage project as quickly as possible.

By considering these four key design factors up front, your real estate team can make informed decisions about potential sites quickly to keep the momentum going.



1**BUILDING HEIGHT**

To accommodate for refrigerated warehousing automation systems, cold storage buildings can range in height from 80 to 150 feet. Work with your design team to help you anticipate potential opposition to the project, and advise you on your chances of obtaining a height variance if the height is not permitted by right.

2**UTILITY DEMANDS FOR REFRIGERATION**

To support the various layers and temperature-controlled chambers within the facility, water and power demands are significantly higher than a typical warehouse or distribution center. Work with your site civil engineer to evaluate potential extension, upgrades, and cost implications if these services are not already available.

3**GEOTECHNICAL INVESTIGATIONS FOR BUILDING FOUNDATIONS**

Due to the increased building height, cooling equipment, and automated storage and retrieval systems, cold storage facilities bear a much heavier load than standard warehouse buildings. Have your design team perform a thorough geotechnical investigation that allows them to recommend a building foundation that will maintain floor stability for years to come.

4**RAIL ACCESS AND ACCOMMODATIONS**

Many 3PLs and refrigerated warehouse tenants are interested in facilities located near rail lines. Engage a rail consultant to work with your design team to help determine layout of the rail spur – the secondary track used to unload railcars without interfering with the main line – and advise your team on the potentially lengthy approval process.

**READ MORE: COLD STORAGE WAREHOUSING**



6 / **TENANT-DRIVEN FACTORS**

Design requirements and site layout vary greatly depending on the tenant's operational needs. Consider these factors early in your project to make informed decisions.

4 Tenant-Driven Factors Affecting Layout and Design

Warehouse and distribution center operations vary greatly depending on the tenant. Factors such as utility capacity demands and daily truck trips can significantly impact site design.

If you have a tenant type in mind, consider asking these questions to help you develop a more marketable facility.

- ⑦ What is your desired clear height?
- ⑦ What are your utility capacity and flow demands?
- ⑦ What is your typical daily truck volume?
- ⑦ What are your loading dock height requirements?

Work with a design partner who builds relationships with tenants (end-users) and understands their needs – and can help you create designs to meet their requirements.



READ MORE: TENANT-DRIVEN FACTORS AFFECTING LAYOUT AND DESIGN



7 / **STREAMLINING LAST MILE DISTRIBUTION**

When a last mile tenant is interested, design teams need to move fast to assess user-specific needs, redesign the site, and resubmit plans, typically in two weeks or less.

Navigating the Last Mile: 3 Factors That Streamline Tenant Sign-On

As a top priority for most distribution center developments, speed-to-market is the leading driver for last mile distribution. With most of the facilities designed, approved, and beginning construction before tenants sign on, last-minute redesign and reapproval is often inevitable. Here are three factors that can streamline the tenant sign-on process and keep projects moving forward.



1**KNOWLEDGE OF TENANT OPERATIONS**

Gathering critical information about tenant operations assists the design team in customizing site layout. Factors like the size and type of vehicles used (especially if they have an electric vehicle fleet), how much parking and vehicle storage is desired, loading dock sizes, utility draw, and number of employees can all have significant impact on design.

2**DESIGN TEAM COMMUNICATION**

Every hour counts. As soon as you have the critical operations data for a potential tenant, ensure your design team is up to speed with the information they need to make adjustments to the site design and building, and resubmit plans for updated approvals quickly. Be sure the design team is coordinating with each other, too, and taking note of how plan revisions impact other features.

3**REACTION TIME AND ASSESSMENT OF UPDATES**

Design and development teams need to react quickly to tenant updates, identify potential challenges and budget impacts, and offer quick solutions – often within two weeks' time. Be sure your design team is ready and able to keep the project moving forward.

CASE STUDY

An Understanding of Tenant Operations Drives Design



371K SF | 3 STORIES | 4 URBAN ACRES

In collaboration with the NYC Department of Transportation, Bohler created access points from both sides of the site — a critical factor for effective operations of the three-story last mile distribution facility.

Bohler's understanding of tenant operations led accessibility and vehicle circulation design, ensuring easy accommodation of semi-trailer trucks, smaller box trucks, and passenger cars on the tight urban site.



LEARN MORE: VIEW FULL CASE STUDY



8 / **STREAMLINING ENTITLEMENTS**

It's so important to establish priorities early on. This can help design consultants identify, mitigate, and manage challenges – and shape the timeline accordingly.

Maintaining Momentum Through Permitting and Entitlements

Today's real estate development market is evolving fast, and industry professionals may be challenged to keep up. They are facing increasingly long entitlement timelines and permitting challenges that can easily interrupt or sideline their projects.

Here's how development and design teams can minimize delays and control budgets – the two most important factors to moving land development projects forward.

1**ENGAGE THE DESIGN TEAM AHEAD OF SITE DUE DILIGENCE**

Looping in your design team ahead of due diligence kick-off allows them to help you develop a systematic approach to the research process. Design teams can help developers determine how to allocate budget, establish realistic timelines, and identify due diligence milestones – key factors that can impact your deal structure.

2**SUBMIT DOCUMENTS CONCURRENTLY**

Whenever possible, run zoning, grading, drainage, site planning, and construction document plan sets concurrently. Processing these reviews parallel with each other shortens the overall project schedule and can also help the permitting timeline.

3**COLLABORATE WITH LOCAL STAKEHOLDERS**

Meet with local community stakeholders and ask for feedback. This allows developers and design consultants to discuss project considerations quickly and offers an opportunity to explain design rationale. This approach tends to reduce plan review comments which typically saves a couple of months.

**READ MORE: MAINTAINING MOMENTUM THROUGH PERMITTING AND ENTITLEMENTS**

CASE STUDY

Municipal Coordination Meetings Streamline Entitlements



300K SF | 20 ACRES | 2 BUILDINGS

Located on the border of two municipalities, a 20-acre logistics facility project was subject to multiple regulatory reviews.

With speed-to-market as NorthPoint Development's leading driver, Bohler organized several coordination meetings to minimize the potential for conflicting plan review comments and to expedite review.

In a process that typically spans a year, Bohler's team pushed the environmentally complex project forward in merely five months, allowing NorthPoint Development to begin construction quickly.



LEARN MORE: VIEW FULL CASE STUDY

About Bohler Industrial

A high-performing project starts with a site layout that considers how different industrial facilities function, what makes the site profitable, and the end-users' needs.

We approach each project by drawing from our experience with different facility types to identify development challenges early on. Leveraging our local experience and knowledge of various industrial operations, we strategize design and entitlements and bring clients into the decision-making process.

Bold ideas lead to state-of-the-art facilities. Our teams tackle the main design factors of industrial projects including topography and earthwork, stormwater management requirements, site access and circulation, maximizing square footage and parking; and meeting tenant operational requirements.



LEARN MORE ABOUT BOHLER'S NATIONAL INDUSTRIAL CAPABILITIES

About the Authors



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YEARS IN THE INDUSTRY	YEARS AT BOHLER
30	25

Mike has designed **close to 20 million SF of warehouse and distribution space** and has a deep understanding of the daily operations of various tenants and end-users. Mike’s team specializes in site feasibility and design of cold storage facilities across Pennsylvania.



JARED JONES, PE
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YEARS IN THE INDUSTRY	YEARS AT BOHLER
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Jared has designed **more than five million SF of last mile distribution center and warehouse space** across New York City and Long Island. He guides clients through the city’s complex permitting processes, identifying cost and time-saving opportunities to help offset rising construction costs.



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YEARS IN THE INDUSTRY	YEARS AT BOHLER
22	22

Joel has designed **more than 10 million SF of space for distribution center and warehouse development** throughout Metro Atlanta. Joel has also overseen the design and approval of **millions of SF of data centers** across the Southeast.

 **NATIONWIDE COVERAGE: CONTACT OUR INDUSTRIAL TEAM NEAR YOU!**

Sources

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