Commercial Real Estate Development SPRING 2021

Development®

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Tips for Developing Rail-Served Industrial Properties

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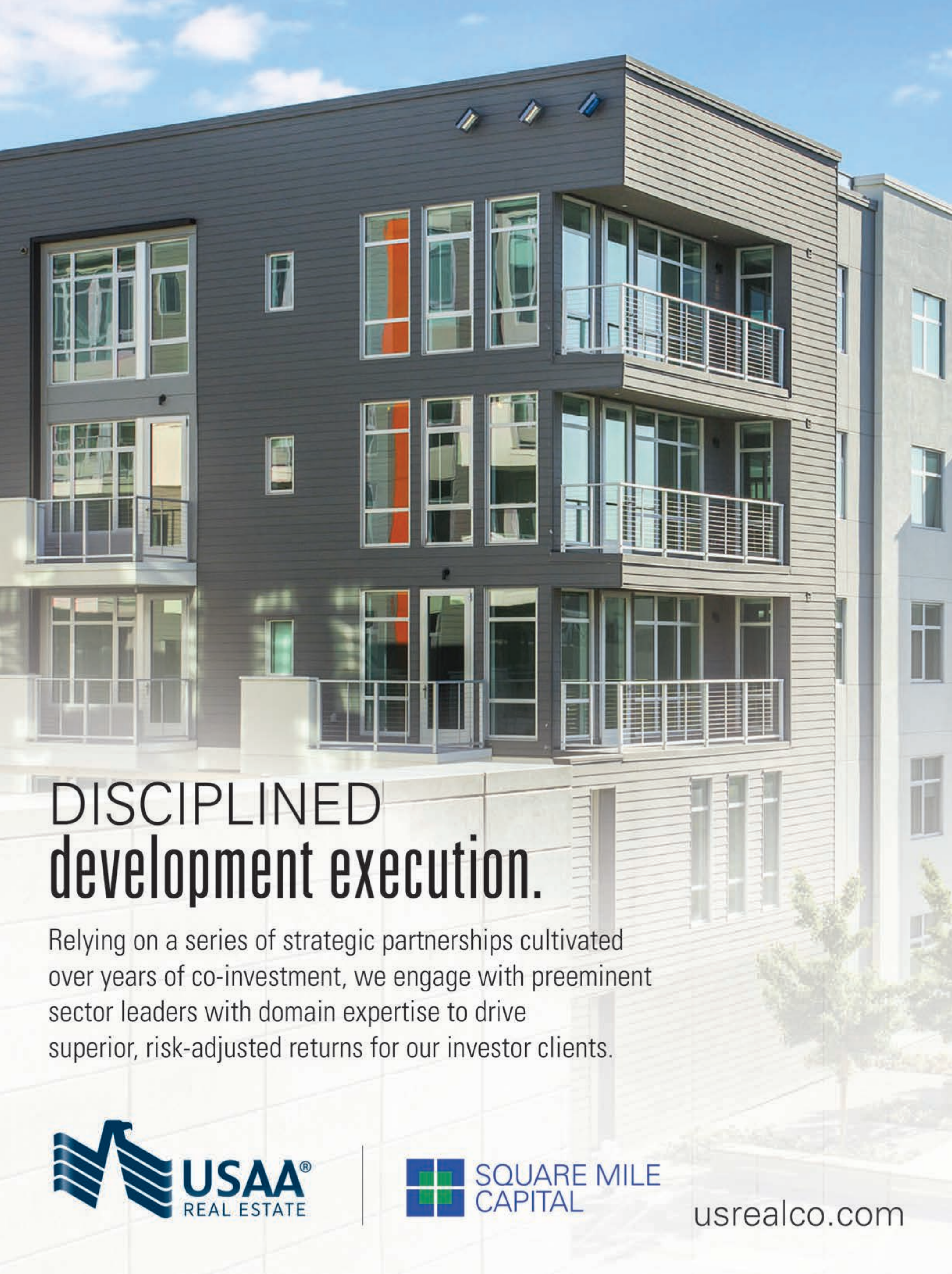
NAIOP

COMMERCIAL REAL ESTATE DEVELOPMENT ASSOCIATION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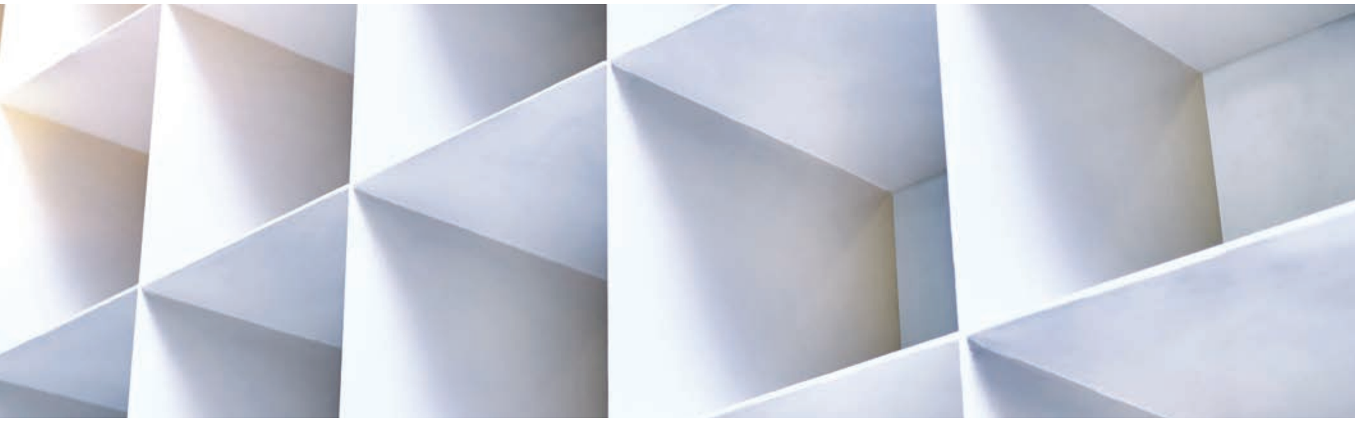

CAPITAL MARKETS

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2020 Overall Investment Sale Highlights

1918 8TH AVENUE
Seattle, WA
668,886 SF
Sold on behalf of:
J.P. Morgan

915 WILSHIRE
Los Angeles, CA
388,126 SF
Sold on behalf of:
Lincoln Property Co & Rockwood Capital

18-PROPERTY PORTFOLIO REFINANCE
Multi-State
5,512 Units
Financed on behalf of:
Starwood Capital Group

SIMPLY SELF STORAGE PLATFORM
Multi-State
8,600,000 SF
Sold on behalf of:
Brookfield Asset Management

MORGAN FALLS
Sandy Springs, GA
1,180 Units
Sold on behalf of:
Confidential

123 TOWNSEND
San Francisco, CA
138,740 SF
Sold on behalf of:
Manchester Financial Group

4-PROPERTY LIHTC PORTFOLIO
Southeastern US
958 Units
Sold on behalf of:
The Vestcor Companies
Financed on behalf of:
Starwood Capital Group

60 STATE STREET
Boston, MA
911,394 SF
Sold on behalf of:
J.P. Morgan and Oxford Properties

AMAZON AT SKYPARK
Torrance, CA
130,200 SF
Sold on behalf of:
Bridge Development Partners

75-101 FEDERAL STREET
Boston, MA
853,319 SF
Half-Interest Recapitalization on behalf of:
Rockpoint Group

DEDEAUX COLD STORAGE PORTFOLIO
Vernon & Commerce, CA
290,368 SF
Sold on behalf of:
Dedeaux Properties

8 NEWBURY
Boston, MA
17,023 SF
Sold on behalf of:
UrbanMeritage, LLC & L&B Realty Advisors


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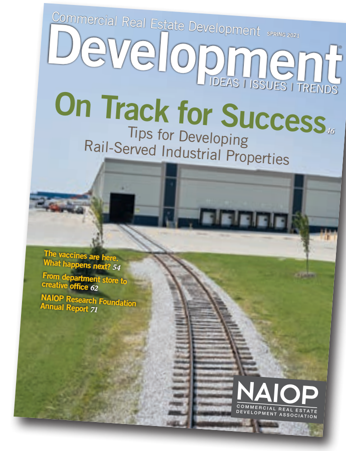

Cameron Davidson

Rail-served industrial and logistics facilities can present many unique challenges to developers.

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A Note From the Editor

A New Era is Upon Us

2021 will be a year of recovery. With the administration of the vaccine, local economies will begin to reopen this spring, and we will return to some semblance of normalcy.

Jennifer LeFurgy

According to the recent NAIOP Research Foundation's "Economic Impacts of Commercial Real Estate 2021" report, GDP is estimated to grow by at least 4.0% this year, with unemployment falling to 5.2%. Full employment is projected to be achieved by mid-2022. Demand for new space will be dampened where quality surplus building space — vacant space — can accommodate current and near-term growth. While the warehouse sector continues its strong performance, the pace of recovery for retail, hotel and office remains uncertain.

It is my hope that we will continue to work together as an industry and a country to help our communities build back stronger.

Stay well,
Jennifer LeFurgy, Ph.D.
Editor-in-chief

Most Popular From Winter 2020/2021

1. **"Speculative Cold Building Development: Trends and Strategies"** (naiop .org/20coldbuilding), page 50
2. **"A Difficult Forecast for Commercial Real Estate"** (naiop.org/20difficultforecast), page 62
3. **"Life Sciences Real Estate Surges Amid Pandemic"** (naiop.org/20lifesciences), page 56
4. **"First Coronavirus, Now Civil Unrest: Be Prepared"** (naiop.org/20beprepared), page 29
5. **"Standardization and Panelization in Multifamily Housing"** (naiop.org/ 20panelization), page 14 ■

Rail-served industrial properties can be a good investment for developers, but they require extensive planning, consultation and communication for success. (Page 46)

Vaccines to neutralize COVID-19 have arrived, and the speed and scale of their delivery will have tremendous implications for the commercial real estate industry and the overall economy. (Page 54)

In Portland, Oregon, the historic Meier & Frank department store has found new life as a creative office space following a $16.6 million renovation. (Page 62)

The NAIOP Research Foundation's annual report for 2020 highlights a busy year filled with practical research for professionals in the commercial real estate industry. (Page 71)

Future NAIOP Events

- **2021 National Forums Symposium**, May 17-18, Dallas, Grand Hyatt DFW (virtual component begins May 24)

For the most current information on upcoming NAIOP events, both virtual and in-person, visit naiop.org/Events-and-Sponsorship ■

A new ratings system from UL and the Telecommunications Industry Association quantifies the effectiveness of smart building technologies. (Page 12)

The COVID-19 pandemic has led to a dramatic decrease in parking demand. Because of that, many sectors of the economy that depend on parking revenue will face budget shortfalls this year. (Page 44)

Growing demand for life sciences presents an opportunity for developers to reposition existing buildings into spaces suitable for light and heavy life science use. (Page 30)

Gretchen Wilcox, the CEO of the only woman-founded commercial mortgage banking firm in the U.S., shares her experiences in the commercial real estate industry. (Page 28)

Diversity and inclusion efforts in the workplace require letting go of assumptions in order to reduce discrimination in hiring and promotions. (Page 90)

Advanced work packaging can improve efficiencies on construction projects by addressing complexities early in the process. (Page 22)

President Biden has made action on climate change a priority. NAIOP will be an important voice as legislative and regulatory proposals are debated that will impact commercial real estate. (Page 84)

Real estate developers should use state and local economic development incentives thoughtfully to lower costs and increase values when it comes time to sell. (Page 36)

An abandoned cemetery dating to the 1800s complicated the development of a new distribution facility near the Cincinnati/Northern Kentucky International Airport. (Page 25)

The EB-5 program, also known as the U.S. Immigrant Investor Program, can help attract foreign direct investment in U.S. commercial real estate projects. (Page 34)

The $1.13 billion Chula Vista Bayfront development in Southern California provides a lesson in the steps developers should take to mitigate the risks associated with megaprojects. (Page 16)

Data-driven building information modeling and cloud collaboration can keep everyone aligned and moving forward on large projects despite stay-at-home mandates associated with COVID-19. (Page 20)

The Catalyst Building in Spokane, Washington, demonstrates how properties can benefit from shared energy infrastructure. (Page 40) ■

Pessimism Dominates Contractors' Expectations for 2021

Survey shows that most respondents see less work available to bid on as material prices keep climbing.

By Ken Simonson

Contractors have divergent expectations about the volume of work available to bid on in 2021, as project postponements and cancellations proliferate. Meanwhile, margins are being squeezed amid intensifying competition and sharply rising materials costs.

Pessimism pervaded the responses of the more than 1,300 contractors who participated in the 2021 AGC-Sage Construction Hiring and Business Outlook Survey. For 13 out of 16 project categories, a higher percentage of respondents replied that they expect the dollar volume of projects available to bid on in 2021 to shrink than expect it to expand.

The difference between these percentages, or net reading, was especially negative for retail, lodging and private office-building construction. The net readings for these categories were -64 percentage points for retail and -58 for lodging and offices. Net readings were negative as well regarding publicly financed, institutional and heavy industrial categories.

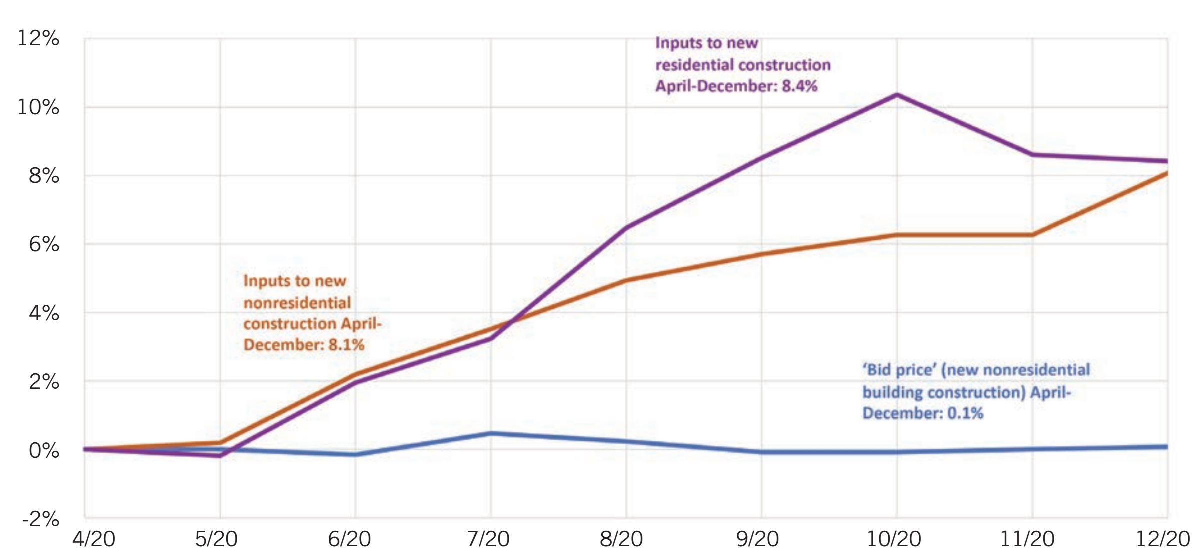
In contrast, there were a couple of bright spots among other commercial segments. There was a net positive reading of 11 points for "other health care," such as non-hospital-based clinics, testing and screening facilities, and medical labs. Respondents were also modestly bullish about warehouse construction, which had a net positive reading of 4.

More than three out of four respondents reported that at least one project had been postponed or canceled since

Pessimism pervaded the responses of the more than 1,300 contractors who participated in the 2021 AGC-Sage Construction Hiring and Business Outlook Survey. For 13 out of 16 project categories, a higher percentage of respondents replied that they expect the dollar volume of projects available to bid on in 2021 to shrink than expect it to expand.

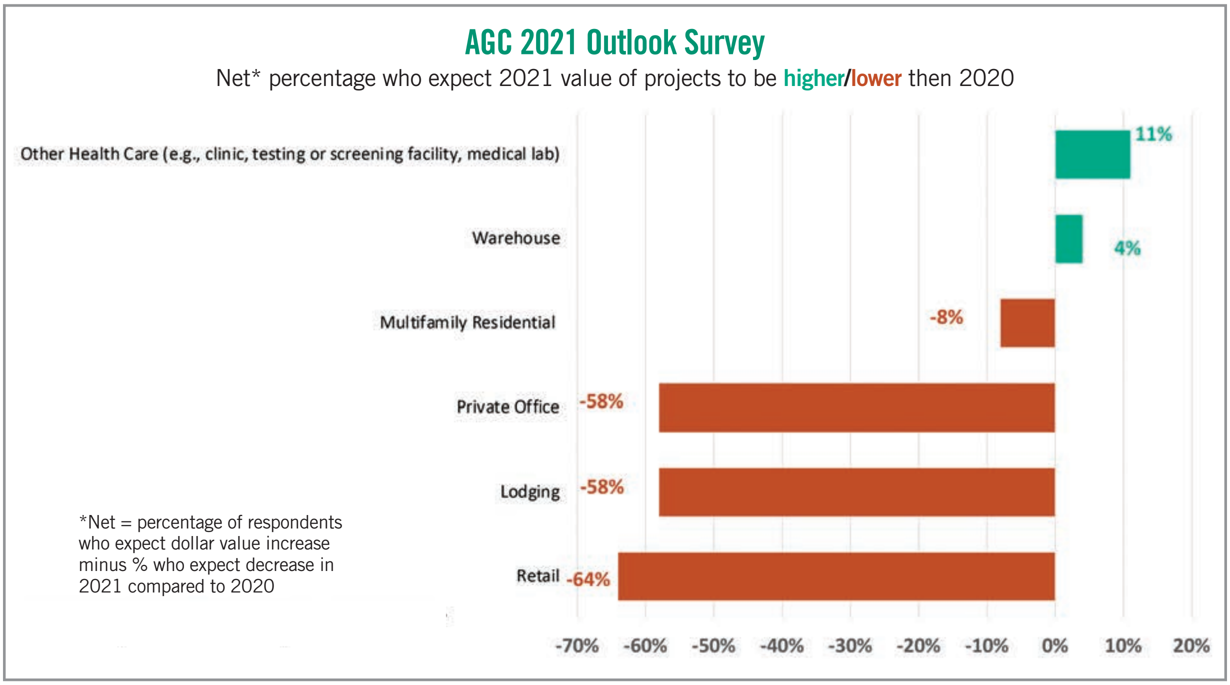
Construction Input and 'Bid Price' Producer Price Indexes

Cumulative change in PPIs, April-December 2020 (not seasonally adjusted)



Source: AGC analysis of data from the U.S. Bureau of Labor Statistics

More than three out of four respondents reported that at least one project had been postponed or canceled since the pandemic began, including many projects scheduled to begin in the first half of 2021. In contrast, only one-quarter of the contractors reported winning new or additional work.



Source: AGC 2021 Outlook Survey, conducted November 11–December 11, 2020; 1,329 total respondents

the pandemic began, including many projects scheduled to begin in the first half of 2021. In contrast, only one-quarter of the contractors reported winning new or additional work.

In addition to causing widespread postponements, the pandemic has driven up costs and completion times. Nearly two-thirds of respondents reported that projects had taken longer than anticipated, and more than half said costs had been higher than anticipated.

Despite these challenges, contractors have been reluctant — or unable — to raise prices. Only one-third of respondents reported putting higher prices into bids or new contracts.

Data from the Bureau of Labor Statistics confirms that contractors are holding the line on pricing, even as costs climb for many of their purchases. The producer price index for new nonresidential building construction, which measures the price contractors say they would charge to put up new buildings, inched up just 0.1% from April to December 2020. Meanwhile, indexes that combine the cost of materials and services used in new nonresidential and residential construction jumped 8.1% and 8.4%, respectively. This growing disparity represents a significant threat to contractors' profitability, particularly when there is a diminishing number of opportunities to make up for past losses.

There are significant differences in the outlook by region. Contractors in the South are more optimistic — or less pessimistic — than their counterparts nationally regarding every project type. Conversely, contractors in the Northeast have negative expectations for all categories — and they are more negative than the national outlook in all cases.

Responses came from every state, and half of the states had enough participants for AGC to break out their responses. The most optimistic contractors were in Alabama, closely followed by Oregon and Texas. In contrast, respondents from Alaska, New York and Pennsylvania had more pessimistic views than the full panel regarding all project types.

At this early stage of getting people vaccinated and reopening the economy, it appears that 2021 will be a challenging year for most contractors. But there will be a range of opportunities that vary greatly by location and project type. ■

Ken Simonson is the chief economist with the Associated General Contractors of America. He can be reached at ken.simonson@agc.org.

Measuring the Impact of Smart Building Technology Investments

A new ratings system quantifies how effective they are across several important criteria.

By Marta Soncodi

Investing in smart building technology may not be seen as a priority after commercial real estate investments were hit especially hard in 2020. However, if improving tenant experience was being considered before the pandemic, it's now an imperative.

Why should commercial real estate owners consider investing in smart building technology upgrades? Based on research and industry analysis, fully integrated smart systems can increase building efficiency, optimize facility operations, improve occupant safety, security and wellbeing, and enhance end-user preferences. And, in light of the pandemic, stakeholders — commercial real estate companies, building owners, managers and tenants — should examine the competitive advantages of smart building technology.

The SPIRE Smart Building Program

For many building owners, a critical concern has been the ability to measure the effectiveness of smart building technology. A new program could help them achieve that.

Based on research and industry analysis, fully integrated smart systems can increase building efficiency, optimize facility operations, improve occupant safety, security and wellbeing, and enhance end-user preferences.

In September 2020, the Telecommunications Industry Association (TIA) and UL, a safety science company, launched the SPIRE Smart Building Program. Developed in partnership with TIA's Smart Building Working Group, it is the world's first comprehensive, objective assessment and rating program for smart buildings.

SPIRE provides an assessment of connected technologies within buildings, delivering insights, benchmarks and roadmaps to help lower costs, mitigate risks, create brand differentiation and enhance overall asset value.

There are two components to the SPIRE program: the online SPIRE Self-Assessment, which allows a building owner or manager to self-assess their property to identify areas of strength and weakness, and the UL Verified Assessment and Rating, coming in early 2021, which is based on an in-depth audit conducted by UL. A successful verified assessment results in a UL Verified Mark, a plaque and a building performance score. Both the online self-assessment and the verified assessment are based on the same six categories of criteria.

The assessment criteria are industry-defined to ensure neutrality and transparency. They were developed with the input of more than 60 commercial real estate, asset management and technology industry leaders who participate in the TIA Smart Buildings Working Group. The six criteria categories they defined form the basis of the SPIRE Smart Building Program for assessing and rating smart buildings: Connectivity, Health and Wellbeing, Sustainability, Life and Property Safety, Cybersecurity, and Power and Energy.

UL

A wall plaque similar to other building rating systems is part of the SPIRE Smart Building Program.

The six categories, when combined in an assessment, give owners a 360-degree view of what's happening throughout their building and allows them to investigate what is impacting the overall performance levels.

To put it into context, consider that while the use of sensors to monitor potable water usage certainly contributes to sustainability, it is also critical to monitoring the quality of the water for the health and wellbeing of building occupants. This in turn requires reliable connectivity to transmit and share the data from monitoring systems, while integrating with other systems that can use that information to optimize power and energy usage. These emerging sensor and monitoring technologies also drive the need for cybersecurity measures to protect the information as it transmits between systems, while the water system itself

The assessment criteria are industry-defined to ensure neutrality and transparency. They were developed with the input of more than 60 commercial real estate, asset management and technology industry leaders who participate in the TIA Smart Buildings Working Group.

must be protected to ensure both life and property safety. Only when all six criteria are considered together, as part of a holistic assessment, can smart buildings reveal truly outstanding, measurable outcomes.

"The integration of all building systems is now technically possible and is becoming a necessity for success in a very competitive market," said **David Stehlin**, CEO of TIA. "Fully integrated systems are enabling advanced building automation that helps increase efficiency, optimize operations and enhance overall occupant productivity and wellbeing. By assessing, validating and rating key building elements that take into consideration the entirety of a smart building, SPIRE can simultaneously help improve asset performance, ROI and tenant relations."

The COVID-19 Effect

The SPIRE Smart Building Program comes as the commercial real estate industry grapples with the unparalleled impact of COVID-19 on building assets.

For example, Cushman & Wakefield calculated a net absorption for office space of -43 million square feet in the fourth quarter of 2020, with a vacancy rate of 15.5%. Retail properties had a

New & Noteworthy

1.8 million sq. ft.

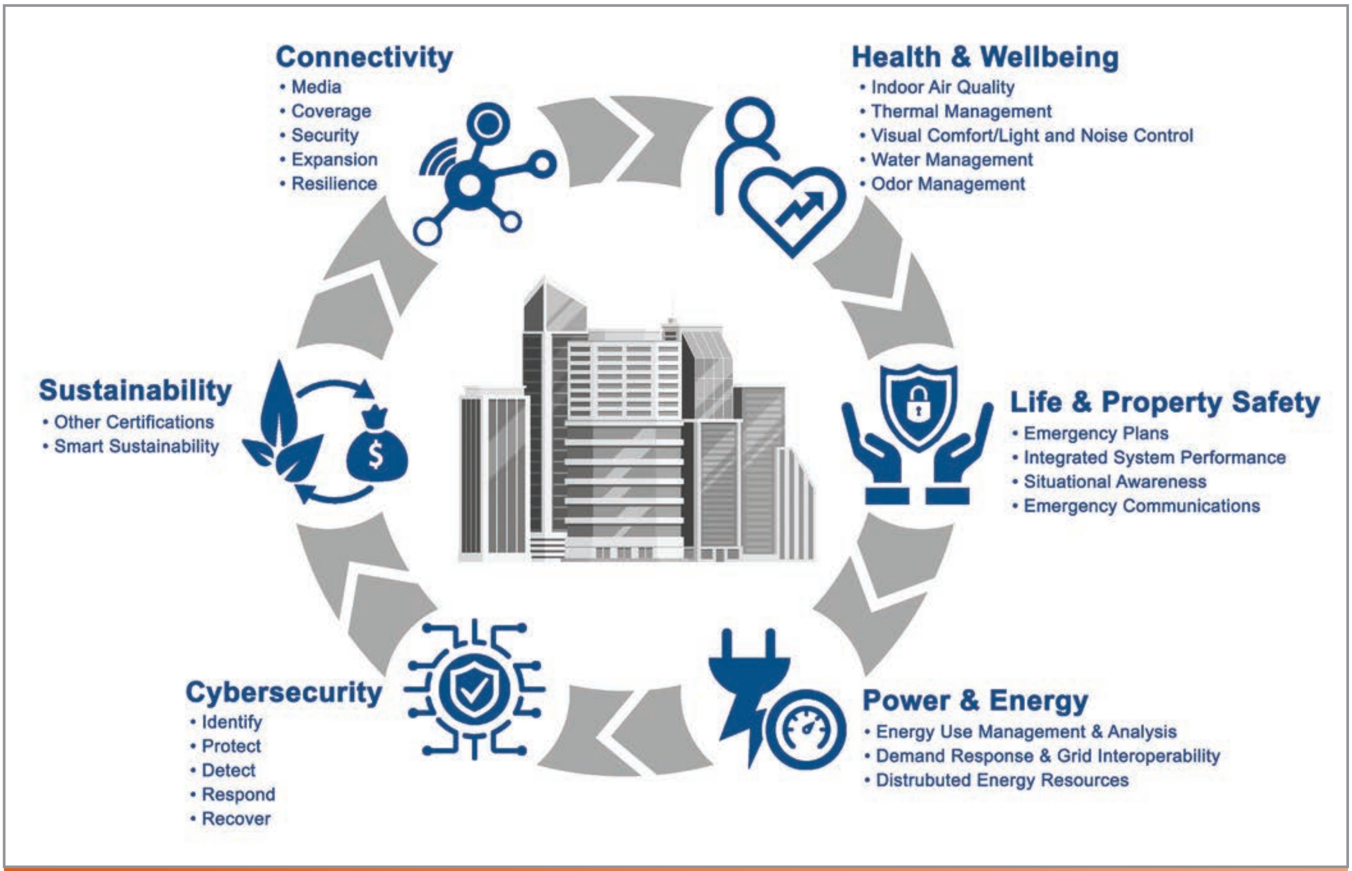
Allen, Texas-based developer **JaRyCo** will partner with the Johnson family to turn their family farmland into **The Farm in Allen**, a 135-acre **mixed-use development**. It will include more than 1.6 million square feet of office, 142,000 square feet of retail, a 150-room hotel, 60,000 square feet of restaurants, townhomes and 2,400 urban residential units. Features will include a 2.5-acre lake with boardwalk restaurants, over two miles of hike and bike trails, a 16-acre greenbelt and four additional park areas.

544,000 sq. ft.

The first **industrial warehouse** at **Northpoint Development's Gateway Tradeport** in **Pontoon Beach, Illinois**, is complete. **Contegra Construction Co.** built the 544,000-square-foot warehouse, which is divisible into 135,000-square-foot increments. It features 36-foot clear height ceilings, 56 dock doors, fully equipped dock packages with 45,000-pound dock levelers, clerestory warehouse windows, efficient LED high-bay lighting with occupancy sensors and parking for 157 trailers. The facility was built with tilt-up concrete panels and is topped by a TPO roof with R20 insulation.

404,738 sq. ft.

The Hollandsworth Companies are building a 404,738-square-foot **industrial building** in the **SouthPoint Business Park** in **Huntsville, Alabama.** When completed, the SouthPoint Business Park will have 1.9 million square feet of industrial space suitable for manufacturing and distribution companies located along Interstate 65 in North Alabama. This new facility features 40-foot clear heights and 60-foot-by-60-foot column spacing. It also has more than 50 dock doors. Additionally, the park includes two complete spec buildings of 173,888 square feet and 109,080 square feet.



UL

The SPIRE Smart Building Program uses six criteria categories to assess a building's connected technologies.

net absorption of -13.6 million square feet and a vacancy rate of 7.1% in the third quarter of 2020 (the most recent period for which data is available). Meanwhile, analysts expect continued instability into at least the first half of 2021 as vacancy rates continue to rise for most property types.

Due to the pandemic, a better understanding of operations efficiency, overall costs and risk mitigation within their building portfolios is a critical consideration for commercial real estate companies, building owners, managers and tenants to keep their properties efficient and competitive. Additionally, Deloitte's 2021 Commercial Real Estate Outlook suggests that in the future, the presence of health- and safety-related smart building features may eclipse a building's location when comparing leasing options. The pandemic revealed a higher priority for embedded technologies to protect individual health and safety.

"In these unprecedented times, those overseeing smart building assets are looking for guidance to help better align performance strategies, planning tactics and operational efficiencies," said **Rachna Stegall**, vice president and SPIRE Smart Building Program lead at UL. "The SPIRE Smart Building Program does just that by providing insight to smart building technologies and outcomes while helping to empower informed investment decisions about where to focus technology, building enhancements and business optimizations."

Building for the Future

According to the public benefit corporation NYSERDA, for companies looking beyond the current crisis, smart technology investments can help buildings perform better, increase profitability and save up to 15% in annual energy costs by addressing common sources of energy waste such as systems running in unoccupied buildings and optimizing lighting.

Additionally, the European Commission report on "Macroeconomic and Other Benefits of Energy Efficiency" found that adding smart building technology can increase property value. The research, based on a literature review, showed that intelligent buildings commanded an estimated 11.8% more in lease value and 5% to 35% higher sales value.

And a study from the MIT Center for Real Estate revealed that building owners received 37% higher rent for smart buildings than non-smart buildings.

The SPIRE Program in Action

When Corning developed its new 182,000-square-foot Optical Communications headquarters building in Charlotte, North Carolina, in 2019, it aimed to create a facility "that can serve as a model for future smart buildings," said **Brian Davis**, Corning's director of global market development for in-building networks, in a press release statement.

Because of that high-tech infrastructure, Corning Optical Communications headquarters became SPIRE's first pilot project to test the program's overall assessment approach.

The SPIRE assessment examined how Corning's power- and fiber-to-the-edge network and ubiquitous wireless coverage affected energy consumption, bandwidth availability and connectivity reliability, safe power and centralized backups, advanced safety surveillance and network cybersecurity.

"Our building met or exceeded all six criteria requirements," **John Dulin**, Corning's vice president of market development, wrote in an October 2020 article for RealComm.

For more information about the SPIRE Smart Building Program, visit UL.com/SPIRE. ■

Smart Technology Systems Save Money

Fully integrated smart systems can add value to real estate holdings by increasing building efficiency, optimizing operations, improving occupant safety and meeting their preferences. As tenants re-evaluate their commercial real estate options, properties with flexible workspaces, intelligent environments and an eye toward meeting end-user preferences can position their properties for growth. Tenants look to technology to improve occupant health, productivity and comfort, and it's up to commercial real estate owners to exceed tenant expectations. ■

Marta Soncodi is the smart buildings technology program director for the Telecommunications Industry Association.

New & Noteworthy

310,000 sq. ft.

Construction has finished on the new **headquarters** for interior-door manufacturer **TruStile** in **Denver**. The company's new 310,000-square-foot headquarters has approximately 50,000 square feet of office space and 260,000 square feet of manufacturing/production space with a large outdoor amenity deck. The space includes an expansive reception and lounge area with a steam fireplace, client-facing conference and training rooms, open office areas, private offices, collaborative areas and huddle rooms, a fitness center, and a large café with an exterior patio.

225,000 sq. ft

R.D. Olson Construction is building **Bolsa Row**, a **mixed-use development** in the Little Saigon District in **Westminster, California**. Situated on a six-acre lot, Bolsa Row will include a 225,000-square-foot apartment complex, retail space, a five-story full-service hotel and a variety of community spaces to create a social hub and cultural landmark. The property will feature a 1940s renaissance and French colonial architectural theme, with a replica of the Bén Thành Market clock tower, an iconic landmark of old Vietnam.

118,000 sq. ft.

VanTrust Real Estate is building **Chandler Corporate Center II**, a two-story, 118,000-square-foot **office building** in **Chandler, Arizona**, that will complement a similar building constructed in Phase 1. The building features a two-story glass entrance enhanced with stone, wood and ceramic tile lobby finishes and integrated LED light fixtures. The structural systems consist of precast concrete perimeter bearing walls and steel frame super-structures with 10- to 14-foot floor-to-floor heights.

Lessons in Mitigating Risk on a Megaproject

A waterfront development in California used multiple strategies to get off the ground.

By Ann Moore

Megaprojects can transform landscapes, improve quality of life and deliver significant economic benefits to their communities. When they are sited on a waterfront in a binational urban area, they take on even more complexity. In Southern California's San Diego County, a megaproject will transform a formerly blighted stretch of waterfront into a thriving destination. The project team is pursuing innovative ways to reduce risk that could be instructive to other development teams.

A megaproject is defined by its scale and complexity. Typically costing $1 billion or more, such projects take many years to develop and build, involve multiple public and private stakeholders and impact millions of people, according to the Oxford Handbook of Megaproject Management. A considerable upside also brings great risk, which must be managed to improve the chances of success.

On approximately 535 acres, the Chula Vista Bayfront is larger than Disneyland and one of the last significant large-scale waterfront development opportunities in Southern California. Once defined by a power plant and an aerospace factory, this brownfield waterfront is ripe for redevelopment in the U.S.-Mexico border region of 6.5 million people. The location is about a 15-minute drive from the busiest land border crossing in the western hemisphere. More than 100,000 people cross the San Diego-Tijuana, Mexico, border every day. Thus, the project site can target a market that includes U.S. citizens, Mexican nationals, and travelers using airports in San Diego and Tijuana.

The Port of San Diego and the city of Chula Vista are advancing a public-private partnership with RIDA Chula Vista, LLC, a subsidiary of

Tucker Sedler, Sun Communications, Inc.

The pool building is under construction at the Costa Vista RV Park, which is part of the Chula Vista Bayfront development near San Diego.

A megaproject is defined by its scale and complexity. Typically costing $1 billion or more, such projects take many years to develop and build, involve multiple public and private stakeholders and impact millions of people, according to the Oxford Handbook of Megaproject Management.

RIDA Development, for a megaproject that will support nearly 4,500 permanent jobs in the historically disadvantaged region, according to a 2018 Keyser Marston study commissioned by the port.

Determined to avoid pitfalls, the port and the city have aggressively sought to anticipate and mitigate areas of vulnerability. Their strategies have included a comprehensive land use plan guaranteeing a quality public realm, land assemblage and a proactive settlement agreement to avoid costly litigation — coupled with a financing plan that leverages the strengths of all parties in the public-private partnership.

Comprehensive Land Use Plan

The Chula Vista Bayfront Master Plan reflects strong planning and design principles, economic feasibility and community benefits. The plan is designed to create new public parks, provide convention and visitor-serving amenities, and develop an important asset for the San Diego region, the South Bay, Chula Vista residents and coastal visitors.

When the Chula Vista Bayfront project is complete, the public will enjoy more

New & Noteworthy

96,000 sq. ft.

Ware Malcomb recently completed **One Paseo**, a **mixed-use master-planned project** in **San Diego** that incorporates office, residential and retail space. In addition to providing master planning services for the project, Ware Malcomb designed the 12 single-story restaurant and high-end retail buildings totaling approximately 96,000 square feet located within the new development. The craftsman-style buildings feature primarily wood frame construction to create a community-oriented environment.

55,000 sq. ft.

Art, architecture and advisory firm **Svigals + Partners** recently completed a new facility serving the **Yale Child Study Center (YCSC)** in **New Haven, Connecticut**. Featuring original, architecturally integrated artwork, the project brings all of YCSC's operations and staff together under one roof for the first time. Because the new home for YCSC needed to be a suitable environment for staff, caregivers and children of varying ages and behavioral needs, the design team incorporated themes, patterns, integrated artwork and wayfinding elements inspired by nature.

42,500 sq. ft.

C.W. Driver Companies recently completed the new **Waugh Student Center at Vanguard University** in **Costa Mesa, California**. Located at the heart of the campus, the new 35,000-square-foot interior and 7,500-square-foot exterior deck on the two-story, steel-frame student center caters to all students. Serving as an extension of the classroom experience, the new student center features areas equipped with power outlets and charging stations for studying, trellised roof deck with a fireplace, and two-story outdoor dining and gathering area to foster community interaction.

than 200 acres of parks, open space, a shoreline promenade, walking trails, RV camping, shopping, dining and more. While providing long-awaited, enhanced shoreline recreation and an active, commercial harbor in the South Bay, the Chula Vista Bayfront project will also establish ecological buffers to protect wildlife habitat, species and other coastal resources. With investment of over $1.13 billion, the first phase includes a 1,600-room Gaylord Pacific resort hotel and convention center, two public parks, wildlife buffers and habitat restoration, and mobility improvements including walking and bicycling trails — plus the required infrastructure such as roads and utilities.

RIDA is expected to develop the Gaylord Pacific resort hotel and convention center, the centerpiece of the bayfront and a catalyst for future development. The goal is not only to provide a world-class hotel and convention center, but also to construct a project that can generate sufficient revenue that can be used to build future public parks, restore sensitive habitat and construct public infrastructure. The bayfront plan also includes future development opportunities — up to 1,250 hotel rooms and 220,000 square feet of mixed-use/commercial, plus marina and cultural retail and a 3,000-space parking garage.

For a project of this size and scope, the ability to secure entitlements is itself a risk — especially in California with its strict coastal rules. After nearly a decade of community outreach involving more than 200 public and stakeholder meetings beginning in 2002, the Chula Vista Bayfront plan passed that hurdle.

Chula Vista Bayfront Master Plan

The Chula Vista Bayfront Master Plan is a local and state-approved land use plan by the Port of San Diego and City of Chula Vista. The plan envisions:

- 70 acres of new parks (100 acres total, including existing parks)
- 120 acres of open space, habitat replacement, wetlands and ecological buffers to protect wildlife habitat, species and other coastal resources
- Shoreline promenade, walking trails and bicycle path network
- 2,850 total hotel rooms
- 600,000 square feet of restaurant, retail and marina-support uses
- 220,000 square feet of mixed-use commercial recreation/marine-related office uses
- Parking facility with 1,100–3,000 spaces ■

For a project of this size and scope, the ability to secure entitlements is itself a risk — especially in California with its strict coastal rules. After nearly a decade of community outreach involving more than 200 public and stakeholder meetings beginning in 2002, the Chula Vista Bayfront plan passed that hurdle. This megaproject now has the important advantage of having been certified by the California Coastal Commission in August 2012 — giving certainty to development partners that it meets the state's high standards for coastal development.

In 2014, the port issued a public Request for Qualifications and through a competitive process, selected RIDA as developer for the resort hotel and convention center. The Chula Vista Bayfront's coastal location, approved plan and strategies for reducing risk helped attract a developer with a proven track record, having successfully developed the Hilton Orlando, the Marriott Marquis Houston and other properties. RIDA's expertise and relationships with brands, contractors and capital in the marketplace improve the chances of success.

Land Assemblage

The Chula Vista Bayfront initially included a relatively small amount of public lands, which have been expanded through purchases over the years. That assemblage allowed for more comprehensive planning and more land to develop. In one key transaction, the port purchased a power plant to gain its 160 acres of land. After being decommissioned, the plant was imploded and demolished in 2013. The acquisitions also included a site that was exchanged for another bayfront site in a carefully negotiated land swap.

The land swap was central to the plan. Early in the planning process, before entitlements were approved, a real estate developer proposed to build condominiums on its own privately held land near National Wildlife Refuge lands, prompting opposition. The port, the city and the developer worked together to find a solution — but it would take more than seven years to be finalized. The land swap was complex because it involved multiple agencies and required review and approval by a commission that governs local area boundaries. It also had to be finalized at the state level.

In a compromise, 97 acres of the developer's land at the north end of the bayfront would be traded for 35 acres of public land in the central portion. This innovative swap moves residential

One of the major risks of megaprojects is litigation. Opponents can tie up projects for years by filing challenges under the California Environmental Quality Act (CEQA) — which can result in projects missing out on market cycles for financing.

development away from sensitive habitat into a previously developed area better suited for building and density, and which supports future commercial uses in that area.

While this land swap was included in the plan that was certified in 2012, it still required state legislative approval for the formerly private land to be included in the port's trust lands — which took place in 2018.

Proactive Settlement

One of the major risks of megaprojects is litigation. Opponents can tie up projects for years by filing challenges under the California Environmental Quality Act (CEQA) — which can result in projects missing out on market cycles for financing. Development teams typically reduce the risks of such litigation by performing due diligence, seeking public input and hewing to all the CEQA requirements. Even so, court battles can result.

The Chula Vista Bayfront took a new approach to mitigating this risk by proactively meeting and settling with stakeholders who might otherwise seek redress through the courts for perceived flaws in the plan. In May 2010, the port, the city of Chula Vista, the Redevelopment Agency for

New & Noteworthy

35,000 sq. ft.

Indie Studios, the latest cultural development project by **Gene Kansas**, is a 35,000-square-foot former warehouse space in **Atlanta**. Originally built in 1950, it's been converted into a **creative, open shared studio environment** with outdoor patios and large-screen video display walls. The Indie is composed of nine studios, 12 private suites, meeting spaces and a café. Amenities include shower rooms and indoor bike storage for bike commuters, and a nursing room for new mothers.

20,000 sq. ft.

Corderman recently completed five customized showrooms and Veson Nautical's global headquarters at **The Innovation and Design Building** in **Boston**. Veson will occupy 20,000 square feet of first-class office space. This $7.8 million phase of construction within the 1.4 million-square-foot IDB community is being built in collaboration with the global design firms CBT and IA. The interior spaces feature high-quality finishes, a blend of materials, statement lighting, modern furniture and display systems.

17,000 sq. ft.

Structural engineering firm **Fast + Epp** is building a mass timber **headquarters** in **Vancouver, British Columbia**. The resilient design for the new office building uses Tectonus devices, an earthquake-resistance technology applied for the first time in North America. These connectors act as shock absorbers, "snapping" the building back into position without damage after a significant earthquake and allowing for immediate return to occupancy. ■

Do you have a new and noteworthy project in the planning, design or construction stage that you'd like to share with fellow real estate professionals? Send a brief description and high-resolution rendering to developmentmagazine@naiop.org.

the city of Chula Vista, and a "Bayfront Coalition" made up of multiple environmental, labor and civic groups signed a settlement agreement. The agreement formed a new advisory body for the project and added environmental protections.

The settlement agreement has created goodwill and trust among stakeholders, and the project maintains overwhelming public and stakeholder support.

Unique Financing Plan

As a public-private partnership, the financing structure for the resort hotel and convention center will require a public investment, which must stand up to rigorous scrutiny. The financing structure will also allow the port and the city to fund public infrastructure and improvements.

Under a Disposition and Development Agreement, the port and the city will finance their costs through a combination of existing and projected revenue streams generated from the bayfront. The revenue will flow through a newly established financing authority to support the issuance of bonds and pay for the debt service. A state court Validation Action, which is commonly sought ahead of entering the bond market, also helps de-risk the project. The revenues are projected to cover debt service on the bonds and generate net residual revenues to the port and the city.

Thanks to risk-reducing strategies, the transformation of the Chula Vista Bayfront is going smoothly. The parties are preparing to seek public and private financing and to close escrow and commence construction in 2021. The groundbreaking will mark a key milestone for this megaproject and the beginning of a bright new future for the waterfront. ■

Ann Moore is chair of the Port of San Diego's Board of Port Commissioners.

How a Fully Remote Team Can Manage Large Construction Projects

Data-driven BIM and cloud collaboration tools enable design, engineering and construction efforts to be coordinated from almost anywhere.

■ By Rob Towne

Coordinating communication and simultaneous action on complex, multiphase projects that involve hundreds of architecture, engineering and construction (AEC) players can be a challenge. To succeed, everyone needs access to current data to understand the project and make thousands of critical design and engineering decisions per week. They need to manage cost and schedule overruns by forestalling onsite changes and ensuring the accuracy of onsite construction. And they need all documentation to stay in step with the as-built as work progresses.

Achieving all this under normal circumstances is difficult at best. Achieving it while everyone is also forced to work remotely adds a whole new spin on the problem.

The Real Estate and Facilities team at Microsoft is in the midst of a large-scale campus modernization at the company's Redmond, Washington, headquarters. The project involves five architectural firms and scores of engineers and contractors working together to design and build 17 new structures on a 72-acre site.

BIM can be used on every phase from concepts to in-field construction, and it accurately reflects the project's whole story in almost real-time.

Because the team employs data-driven building information modeling (BIM) and cloud collaboration, it has been able to keep everyone aligned and moving forward on this large project despite stay-at-home mandates.

A Single Source of Information

BIM can be used on every phase from concepts to in-field construction, and it accurately reflects the project's whole story in almost real-time.

The consolidated BIM model for Microsoft's Redmond project has grown to roughly 3.8 terabytes since work began in 2018. This repository includes design data, engineering data, contractor data, geocoordinates data, drone imagery data and much more. More than 1,700 models cover design, structural engineering, building systems, prefabrication modules, site layout, landscaping and more.

Using computers and advanced software, Microsoft's teams can mine all this data over the cloud to produce dashboards, spreadsheets, schedules, 3-D models, specifications, snapshots, 3-D images — whatever is needed to understand the project at any time.

Most importantly, when someone updates a model or its source data, all other related models are updated across the cloud because they all pull from the same source of information.

Getty Images

Building information modeling (BIM) and cloud technology can put design data, engineering data, contractor data, geocoordinates data, drone imagery data and much more within easy reach of stakeholders on a construction project.

Using computers and advanced software, Microsoft's teams can mine all this data over the cloud to produce dashboards, spreadsheets, schedules, 3-D models, specifications, snapshots, 3-D images — whatever is needed to understand the project at any time.

Online Model Manipulation

Even though the work teams are physically separated and suppliers span the globe, they can work from the same 3-D models as if they were together in the same room.

Models can be opened in the cloud to view a project's parts all at once to see how everything interacts, or to zero in on a particular system, product choice or installation challenge. Built-in parameters alert the team to problems, such as clashes where two elements are trying to occupy the same space.

Using Microsoft HoloLens, a mixed-reality headset that merges real and virtual images, allows the project partners to "walk through" and interact with spaces together at various scales. This helps them assess problems and discuss solutions on the spot. A source document's owner can change a variable in the model, and everyone can see the immediate effect of the change.

Pulling the same background data into spreadsheets or SQL on Azure and then presenting it in Microsoft's Power BI data-visualization tool helps everyone with cash flow and schedule analysis. Cost and schedule overruns can be easily pre-empted in the cloud.

In-Field Accuracy and Project Management

These same BIM and cloud technologies also improve the efforts and success of crews in the field. For example, requests for information (RFIs) are common during construction. With BIM, nothing can be put into a model if the team can't answer what it is, where it goes or how much is needed, which immediately averts the three most common kinds of RFIs.

Moreover, by also building in all interdependencies, BIM software can expose errors that would have led to issues in the field. This provides greater certainty about the real-world outcomes, better execution, and lower risk of cost and schedule overruns.

Each element in a model can be associated with a process chart or work breakdown structure for use on site. For example, the model can guide crews in how to install a piece of pipe in a particularly tricky location. BIM-based quantity take-offs also accurately predict materials requirements, eliminating the need for delivering 5% to 15% overage to the jobsite.

Another way BIM helps manage a large project is in matching the documents with the as-builts. Two-way field verification of the models and their real-world settings alerts the team to in-field discrepancies or changes. They can either be dealt with immediately on site, or models can be adjusted to reflect the final location. This increases quality, reduces the risk of errors that delay the project and provides an as-built that could be referred to as a "truth-built."

BIM is Available to All

Despite not being on site for months, the huge team has been able to work closely together across firms and stay on task for this megaproject using BIM in the cloud. While other large AEC projects may not be this complex, these are just some of the ways this technology might allow everyone to work on it from home and remotely, which is likely to remain an option for many months to come. ■

Rob Towne is senior director of real estate with Microsoft.

"Packaging" Construction Tasks Improves Project Success

Advanced work packaging techniques can boost efficiency and lower costs.

By Shawn Anderton

Advanced work packaging (AWP) is a project management method that can improve efficiencies for capital project construction. While standard project management systems bring in construction stakeholders close to the execution stage, AWP is construction-driven and involves stakeholders during preconstruction. This allows for early alignment between engineering, construction management and construction execution.

Comprehensive plans are developed at the outset, resulting in more accurate estimates of scaffolding and other support services that often increase project costs. The AWP process continues through commissioning and turnover.

How AWP Works

In the case of complex industrial projects, field installations and engineering requirements place intricate demands on construction sequencing. AWP addresses this complexity at the beginning of the project.

"We don't begin with a defined start date; we actually start with a defined completion date," says **Dan Patterson**, chief design officer with construction software firm InEight. "Then from that defined completion date, we literally work backwards defining the construction or the execution scope."

Patterson says this prevents the compounding delays that can occur with conventional, critical-path left-to-right planning.

The basis of AWP is a set of "packages" that guide construction sequencing. The packages are assembled by engineering, procurement and construction teams and contain such items as descriptions of work, summaries of available resources, procurement details, time and cost estimates and controls, a means to track progress, and risk assessments. AWP is an iterative process. Changes and plan deviations are fed back into documents and models to maintain an accurate and constrained construction schedule.

The first deliverable in AWP is typically the Path of Construction (PoC). The PoC is a high-level expression of the desired construction sequence. It weighs many variables that might impact project execution and remains the point of reference throughout the project.

Engineering work packages (EWPs) are also fundamental elements of AWP. EWPs include drawings, procurement deliverables, specifications and vendor support. They are used to inform construction work packages (CWPs) and are released in stages according to the needs of the CWPs.

The Advanced Work Packaging Institute identifies a CWP as "a logical and manageable division of work within the construction scope." Construction managers create CWPs and work with clients to integrate budget and schedule information with performance monitoring. They also lay out a sequence of work that optimizes resources. At the CWP level, the activities outlined are area-specific, including such details as man-hours and required materials. An approximate time estimate for a given CWP should not exceed 40,000 hours of project work.

Once CWPs are finalized, they are broken down into executable packages known as installation work packages (IWPs). Generally, an IWP is "small enough that it could be completed by a single-foreman team, typically in a one- or two-week time frame," according to the Advanced Work Packaging Institute. Typically, no IWP exceeds 1,500 man-hours; occasionally, an IWP will be as short as a single day or shift if the work is critical. IWPs include everything needed to complete the work, including details such as productivity expectations, equipment and materials, scaffold plans and temporary power needs, to name just a few. IWPs are the smallest packaged units within an AWP.

In the case of complex industrial projects, field installations and engineering requirements place intricate demands on construction sequencing. AWP addresses this complexity at the beginning of the project.

Implementing AWP

Software and digital tools are ideal for creating and maintaining the detailed plans necessary to execute AWP. InEight, O3 and Bentley are just a few of the providers offering a variety of full and partial software solutions. Virtual design and construction models form

Getty Images

Utilizing advanced work packaging can improve efficiencies on construction projects by breaking tasks down to a set of "packages" that guide construction sequencing.

the basis of the system. They are easy to update in real time, making them an accurate repository of information from the preplanning phase through execution.

Datasets containing risk variables, cost and schedule history, material quantities and more are additional digital tools supporting AWP. Project management software is also helpful; it incorporates contract and document management, providing further efficiencies for a lean project approach.

At the start of preplanning, datasets and conceptual models are used to plan a sequence of work for the project, determine its duration and estimate material quantities. Monte Carlo scenarios — computerized simulations that compare a variety of variables and then model the probability of different outcomes — may also be run. By the end of the AWP preplanning phase, estimates and schedules are much more accurate than when arrived at using traditional project delivery. Having all project stakeholders involved at the earliest phase dramatically reduces project risk.

The first deliverable in AWP is typically the Path of Construction (PoC). The PoC is a high-level expression of the desired construction sequence. It weighs many variables that might impact project execution and remains the point of reference throughout the project.

When a project progresses to the planning stage, CWPs and IWPs can be based on the exact material quantities, budgeted hours, safety protocols and more that were put into the models. The "workface planning" component of AWP is key to the delivery method's success. Whereas traditional delivery methods rely on field-execution planning, workface planning maintains alignment with the front-end plan (FEP) by appointing constructor workface planners who are responsible for the work breakdown and hand off

IWPs to crews. The longer planning timeline of AWP also sets contractors up for success by giving the team more time to focus on safety and risk aspects of the work. Construction foremen and craft supervisors receive everything they need to conduct field-work safely and efficiently before the start of work.

Field progress is tracked as construction occurs, with processes in place to standardize data collection and assign responsibility for each IWP. All inputs are tied back to the higher-level systems, including the PoC. As reports are generated, any issues that need attention are identified. Whether these issues are due to resources, material, weather or changing conditions, project stakeholders get immediate feedback and data they can use to make decisions. That offsets negative impacts and keeps the project moving as planned.

Software and digital tools are ideal for creating and maintaining the detailed plans necessary to execute AWP.

Benefits of AWP

The advantages of AWP include:

- **Lower project costs.** According to the Construction Industry Institute (CII), AWP can reduce total installed costs by 10%, with higher savings for owners and increased profitability for contractors.
- **Improved safety.** Using AWP, many projects have zero lost time accident records.
- **Shorter schedules** that are driven by progressive turnover.
- **Higher quality.** AWP results in fewer punch list items.
- **Reduced risk.** AWP affords greater overall project clarity, and therefore certainty.
- **Higher field productivity.** CII cites an increase in field productivity of up to 25%.

Industrial and commercial construction companies with AWP workflows in place are more assured of delivering projects on time and on budget than ever before. By taking the next logical step in collaborative project delivery models — which have been trending for years — AWP represents the industry's highest commitment to date for getting cross-disciplinary input early in preplanning. The result is a seamless transfer of information at all project phases, which translates into greater project certainty and success. ■

Shawn Anderton is vice president and general manager for Western U.S. operations with Graycor Industrial Constructors.

An Industrial Project Encounters Unique Challenges

An abandoned cemetery dating to the 1800s was among the obstacles for this distribution facility near the Cincinnati/Northern Kentucky International Airport.

By JD Barnes

Given the current booming growth within the industrial sector fueled by the rise in e-commerce and supply chain reconfiguration, many developers are struggling to find sizeable land sites without complicated entitlement processes that offer available incentives. A recent project in the Cincinnati area provides a case study of these challenges, which included relocating a long-lost cemetery as well as more typical environmental issues.

Core5 is an industrial real estate property company headquartered in Atlanta that develops properties throughout the U.S. In recent years, it has sought to establish a presence in the Greater Cincinnati market, which is within a one-day drive of 60% of the U.S. population and a two-day drive of almost 85% of the country. Amazon is building its U.S. Prime Air Hub at the Cincinnati/Northern Kentucky International Airport; when completed, it will coexist with DHL's mega-hub operations there.

To support this industrial demand, the local market continues to see a trend toward larger building sizes, increased trailer storage and additional employee vehicle spaces. The ability to house these ever-growing buildings is challenged by topography, utility availability and limited infrastructure.

Data collected by CBRE shows that the number of new speculative industrial projects in the Cincinnati/Northern Kentucky region has risen from three in 2014 to 20 in 2020. Even with the additional supply and available real estate, the vacancy rates have remained lower than the national average, which confirms that demand for available space remains high in this region.

Finding a Location

After reviewing available sites, Core5 identified property in the Northern Kentucky Industrial Park in the city of Elsmere that had been available for more than 50 years. At over 1,400 acres, the Northern Kentucky Industrial Park is the largest planned industrial park in the Greater Cincinnati area. It is located east of the Cincinnati/Northern Kentucky International Airport. Most development over the past 20 years around the airport has occurred on the west side in Hebron, Kentucky.

One of the first challenges during the entitlement phase was to solve a half-acre cemetery relocation and a title issue relating to a lack of a defined parcel owner (known as a "ghost parcel").

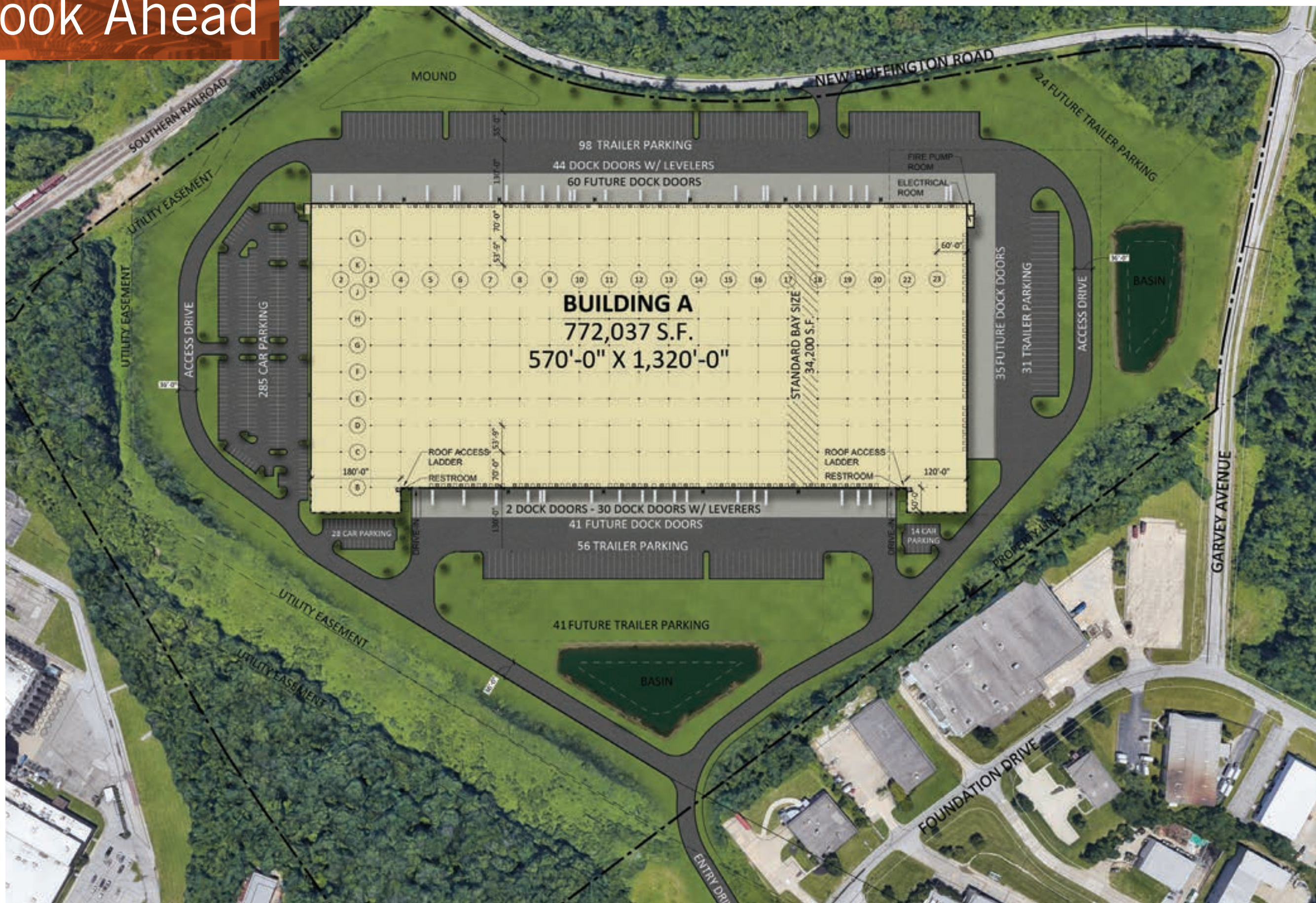
The site had been proposed for build-to-suits over the years, but the property faced challenges that included a lack of definitive roadway access, a private family cemetery dating back to the 1800s with no recorded owner, stream and wetland permitting, and topographical constraints. In order to create a building large enough to attract the attention of large corporate users, Core5 obtained three additional parcels that allowed the development of a 772,037-square-foot infill site.

The site's location, however, offered some unique attributes that offset the entitlement hurdles. It features excellent utility capacities due to the industrial location. The property also is closer to the new Amazon and DHL air hubs than properties on the west side of the airport. Additionally, the site's unique urban infill location makes it much more attractive to the labor force than locations elsewhere in Northern Kentucky. When completed, the building will be close enough to housing that many employees could walk to work.

Long-Lost Cemetery

One of the first challenges during the entitlement phase was to solve a half-acre cemetery relocation and a title issue relating to a lack of a defined parcel owner (known as a "ghost parcel"). At some point in the late 1800s, the parcel was carved out of surrounding property transfers as a burial plot for the Rice family and did not carry a legal owner. Adding to the complication, it was in the center of the overall site and was a critical piece for the design of the facility.

Because it wasn't familiar with this process, Core5 engaged local legal teams and environmental engineers specializing in cemetery relocations to develop feasibility strategies and cost summaries. Eventually a plan



Core5 Industrial Partners

The site plan for Core5 Industrial Partners' logistics center near the Cincinnati/Northern Kentucky International Airport. A cemetery dating to the 1800s was right in the middle of this site.

coalesced, and the group began the process of researching possible heirs, posting public notices, attending public hearings and issuing numerous legal filings. But just when everything seemed to be on the correct trajectory, the COVID-19 pandemic hit.

It brought the entire process to a halt. Challenged with a limited ability to meet in person, hold the required public hearing or attend court rulings, the once-viable plan appeared to be heading toward dismantlement. Thankfully, the local jurisdictions and legal teams were able to reconvene, and the ability to hold virtual meetings only cost the project two months of delay.

Overall, this process took approximately 10 months to complete. It ended with a successful proceeding through the Kenton County Fiscal Court that perfected title in favor of the development. That allowed the site to be incorporated into the adjacent parcel and included in the overall site.

The second challenge was dealing with cemetery markers found within the ghost parcel. The markers appeared to be more than 100 years old with no visible signs of visitation as the trees, brush and overgrowth limited access.

The second challenge was dealing with cemetery markers found within the ghost parcel. The markers appeared to be more than 100 years old with no visible signs of visitation as the trees, brush and overgrowth limited access. The Core5 team enlisted an archaeologist with K & V Cultural Resources Management to help construct a plan for identifying the markers, contacting heirs (both known and unknown) and facilitating a proper relocation of the headstones and related earth volumes to a well-maintained cemetery. Following guidelines set forth by the Kentucky Heritage Council and Kenton County, this multiphase process to move five adult and five infant/child burials took approximately seven months and cost more than $100,000 to complete.

Environmental Issues

Next came stream and wetland impacts that existed in the valleys across the site. These are common in the Northern Kentucky Region, so the team used an environmental engineer and an Army Corps of Engineers pre-emptive walk-through to establish an estimated cost for both the stream and wetland impacts. The Core5 team was able to include these costs early in the budgeting process so they were not a surprise upon receipt of the mitigation credits.

The last challenge in the due-diligence period was resolving the primary access drive into the site. As part of the purchase, Core5 would be granted an access easement to the primary roadway. However, the access was partially obstructed by overhead power and transmission lines. Instead of working with the utility companies to relocate towers, the group laid out multiple driveway options that avoided the towers.

The ideal entry sequence ultimately would require the acquisition of small portions of the neighboring properties; however, Core5 identified similar-sized portions of its land that could be provided in exchange. These parcels were not buildable land for Core5 but were well suited for the future plans of both neighboring companies. Ultimately, the team negotiated individual purchase and sale agreements that would close immediately following the land acquisition of the original three parcels.

On closing day for the project, the plan was for Core5 to purchase three separate parcels including the ghost parcel, subdivide the newly acquired land for the access drive, close on the land swap purchase and sale agreements to finalize access to the main roadway, and consolidate all parcels into one plat for development of the distribution facility.

Now fully under construction, the speculative distribution center features 40-foot clear heights inside the rack areas to maximize vertical storage options, 70-foot staging bays for increased space of material handling equipment, 60-foot column spaces to enlarge aisle spacing and promote additional safety distances for picking equipment, and tri-dock loading with additional loading bays on one short side of the building.

The project is expected to be completed in the third quarter of 2021. ■

JD Barnes is development manager with Core5 Industrial Partners.

CEO on Leadership: Gretchen Wilcox, Owner, G.S. Wilcox

The head of the only woman-founded commercial mortgage banking firm in the country shares her experiences and an analysis of the commercial real estate industry in the aftermath of COVID-19.

By Ron Derven


Gretchen Wilcox

"NAIOP made my career. It has been the most important industry association that I have been associated with. Being involved in leadership positions and the ability to network through the organization has had an incredibly positive impact on our company."

— Gretchen Wilcox, owner, G.S. Wilcox

Development: *What led you to a career in commercial real estate mortgage banking?*

Gretchen Wilcox: I went to Babson College and majored in finance. I worked on Wall Street for Merrill Lynch in its commercial real estate area, contacting lenders across the country and working on developing a nationwide debt-placement system. During that time, I took courses at New York University. One of my professors sparked my interest in the mortgage banking world and its monetary potential. I took a job with a mortgage banking firm in New Jersey, and the firm grew tremendously over the next seven years. I had a good reputation among national lenders, I was making a lot of money, but I decided to risk it all and start my own company. When I started the company in 1994, it was the only woman-founded traditional mortgage banking firm in the country. And 27 years later, it still is.

Development: *Could you tell us about launching the firm and the challenges you had to overcome?*

Wilcox: Mortgage banking is a tough business for women and men. The critical questions for someone new to the business are how do you get developer clients if you do not have exclusive lenders to represent? And how do you get exclusive lenders to represent if you do not have developer clients?

I borrowed a small amount of money by getting a second mortgage on my home to start the business, and I hired three people. The great challenge was how do I survive until I close the first deal? The money that I borrowed didn't go very far after paying for office space and overhead, but we opened in June and closed a $25 million deal in September. I paid back the loan in six months and have never had a year where I lost money.

Development: *What is your primary role as CEO of G.S. Wilcox today?*

Wilcox: I oversee the entire operation. I maintain client relationships on the developer/owner side and on the lending side. I enjoy mentoring the younger employees in the firm. I am fortunate to have four senior people who have been with me for between 24 and 27 years. I still have my first employee I hired, who is now my CFO.

Development: *What qualities do you look for in hiring senior staff?*

Wilcox: We don't hire senior staff. We develop people in the firm. We prefer to home-grow our people. When I hire younger employees, I am looking for team players who are passionate about their work, honest, and a good fit for our culture.

Development: *Your two children are part of the business. Could you offer any advice on bringing in the next generation?*

Wilcox: It probably starts the day they are born! But it depends on the kind of relationship you have with your children. If you are going to bring your children into your business, you need to respect each other and be willing to learn from each other. Everyone has something to bring to the table. It is important for your children to work for other companies before joining the family business. Both of my children, Wesley and Bridget, worked for other firms before joining the company.

Development: *The pandemic has been devastating, but now, thankfully, there are vaccines coming into use. What is your short-term and longer-term outlook for the industry?*

Wilcox: We are in the midst of the pandemic and a change in administrations in Washington, D.C., but interest rates have been so low that people continue to borrow money. Interest rates cannot go much lower from here. If they turn around and go higher, then cap rates will go higher. That could have a negative impact on the commercial real estate business.

For us, much of our business can be conducted over the phone. But we love in-person meetings and association meetings, like the kind that NAIOP New Jersey holds. We really miss those NAIOP meetings!

Development: *Speaking of NAIOP, what has been your involvement in the association? What has NAIOP meant to you?*

Wilcox: NAIOP made my career. It has been the most important industry association that I have been associated with. Being involved in leadership positions and the ability to network through the organization has had an incredibly positive impact on our company. I have been extensively involved in NAIOP for many years. I participated in the Capital Markets Forum. I served as a trustee for NAIOP New Jersey for 15 years. I was on the National Board for eight years.

Development: *What is the best advice you have received during your career in real estate?*

"When I started the company in 1994, it was the only woman-founded traditional mortgage banking firm in the country. And 27 years later, it still is."

— Gretchen Wilcox, owner, G.S. Wilcox

Wilcox: Be yourself. I am in a people business, but there are not many women in this business. My competitors will take a client on a five-day golf trip. I'm not doing that. Instead, I may have an elegant dinner party for a client when they are in town. When my clients came to New Jersey from the Midwest, for example, they came to dinner at my home rather than having to eat at a restaurant or the hotel. They loved it.

Development: *What crucial lessons have you learned in the decades you have been in the business?*

Wilcox: Be patient. It takes time to close a deal. You have to learn to be patient rather than constantly pushing.

Development: *How do you de-stress in your off-hours?*

Wilcox: I love being with my family, even though I see them every day. I love golf, oil painting and cooking. ■

Ron Derven is a contributing editor for Development magazine.

Life Sciences Boom Sparks Design Innovations for Commercial Buildings

Turning existing spaces into laboratories and research areas requires special considerations.

By Tom Sieniewicz, Jonathan Wall and Mark Bryan

The life sciences sector has been on an upward trajectory over the past decade, with billions of dollars of investment accelerating activity and employment growth. COVID-related research has further catalyzed activity and demand for new lab and R&D space. And while some jobs within the overall economy can be performed from home, life sciences still depends largely on in-person work.

Time-sensitive demand for appropriate lab and office space — and a notably low vacancy rate in life sciences — is occurring in markets across the U.S., from Boston to Philadelphia to New York to San Diego, as well as across Europe. For example, CBRE research shows that San Francisco currently has a vacancy rate of 1.5% for life science R&D space. Meanwhile, the vacancy rate for office space in the city is nearly 22%.

Nick Guttridge, courtesy NBBJ

The Works in South Cambridge, England, is an adaptive reuse project that has turned a 1970s industrial warehouse into a contemporary, reimagined office park for the area's booming biomedical and biotech cluster.

The unexpected surplus of vacant commercial space in the wake of the economic downturn, along with growing demand from life sciences, presents an opportunity for developers to reposition existing buildings into spaces suitable for light and heavy life science use. Meeting demand for life science over the long haul will require projects that are explicitly designed for life science and others that are built with flexibility in mind to accommodate either life science or general business tenants.

The unexpected surplus of vacant commercial space in the wake of the economic downturn, along with growing demand from life sciences, presents an opportunity for developers to reposition existing buildings into spaces suitable for light and heavy life science use.

Attract, Retain and Inspire Employees

Much of life sciences' growth is now generated from incubators, startups and other early-stage companies. Just like with tech and other sectors dependent on knowledge workers, demand and competition for talent is central to the continued success of these life sciences companies. And workspace — whether repurposed or built anew — is a key part of that strategy. It serves to attract and retain employees and to create the conditions that lead to innovation.

Thoughtfully designed buildings can create the kind of atmosphere and community that is demonstrably proven to spur innovation. These

Because the process of designing, permitting and constructing a new building can take years, quickly converting existing commercial space to meet the needs of life science companies is increasingly popular. It's also achievable if designers and building owners bring a detailed understanding of the technical and spatial considerations that life science requires.

spaces allow staff to work creatively, connect with colleagues and recharge throughout the day. Traditional approaches to laboratory planning and design often silo research teams and work modes. But with new life sciences projects, companies have the opportunity to build environments that are more kinetic and generative. These will encourage people to cross paths, create places to connect, integrate communal space that brings the outside in, optimize visibility to peers and blend workspaces together — all while balancing privacy and transparency.

Adapt Existing Commercial Space to Meet Demand

Because the process of designing, permitting and constructing a new building can take years, quickly converting existing commercial space to meet the needs of life science companies is increasingly popular. It's also achievable if designers and building owners bring a detailed understanding of the technical and spatial considerations that life science requires.

While these considerations will vary depending on the specific needs of each tenant, there are overarching principles to integrate. For example, plan for higher-than-average air changes in the HVAC system and for single-pass rather than recirculating air flows. This can be achieved by a combination of dedicated input with further air volume being transferred from office areas and extracted from the lab spaces only. Labs can also be moved closer to the core of a building where it's easier to install hood vents.

Floor-to-floor heights and riser locations are also critical — building owners should look for ceiling depths where systems such as air handlers can be installed. Owners can also mitigate vibrations within traditional office spaces that have been converted to life sciences by using localized stiffeners in targeted areas instead of throughout the entire building.

These ideas of next-generation, kinetic life science design and strategically adapting existing commercial space to meet sector space demand is exemplified at The Works in Cambridge, England. Completed in early 2020, The Works accommodates the growing demand for appropriate office and R&D space in South Cambridge's booming biomedical and biotech cluster.

The Works adapts a 1970s industrial warehouse into a contemporary, reimagined office park. Tailored to meet the needs of life sciences startups, it adapts the building's original historic pre-cast concrete frame to create 65,000 square feet of space at a cost of approximately $216 per square foot. With ample natural light, open workspaces and a central atrium "street" open to the public, the openness of the original warehouse provides a modern and airy multiuse campus that feels more like a tech or creative campus than the institutional office stock typically available to the sector.

The project's development challenges included the need for extensive concrete and site surveys. Structurally, the cladding replacement used a system that has a similar load to the existing structure to minimize the additional weight. And the existing site was heavily contaminated from an adjacent tannery works, requiring ground remediation to bring the site back into use. The remediation of the site helped the campus knit into the surrounding community and linked to it with public transit and biking trails.

There is clearly an immediate need for inspiring and appropriate space for these types of environments, but life sciences is also a longer-term opportunity for the real estate sector.

Flexible Designs for the Future

There is clearly an immediate need for inspiring and appropriate space for these types of environments, but life sciences is also a longer-term opportunity for the real estate sector.

There are four areas developers can focus on when designing dynamic and effective new environments for life science tenants: flexibility and planning for the future from the outset; community and finding opportunities to bring the outside in; environmental and human health; and employee and team well-being.

Science and technology companies evolve quickly and need their spaces to be built for future flexibility. Evolving research needs can radically alter space requirements, which requires a new, flexible way of thinking about offices and labs and speeding space to market. This can include the use of prefab and modular systems and movable partitions that allow rooms and areas to be quickly and easily converted for different uses. It also involves the use of easily reconfigured lab equipment, mobile conference rooms, flexible floor plates and reconfigurable workstations.

Innovation and breakthroughs don't happen in a vacuum. That's why new life sciences buildings should be designed to foster community with other companies in the sector and the wider multiuse neighborhoods they're a part of. The addition of public amenities such as coworking spaces, restaurants and retail, parks and greenspace, convention centers and public event plazas can foster innovation and serve to attract and retain tenants.

In addition, research buildings are highly energy intensive. Developers should look for opportunities to integrate self-generating and renewable sources of energy like solar, geothermal, biomass and others that reduce onsite energy costs and feed power back into the grid. They should also consider eco-friendly features like green walls and rooftop gardens that promote sustainability and boost employee well-being.

The past year has demonstrated more than ever before the integral role that science plays in our world. Breakthroughs — whether tests, treatments or vaccines — happen because of the talent, ingenuity and collaboration of scientists and experts. The environments in which they work, from wet labs to dry labs, from social spaces to lobbies, play a critical role in supporting their best work. This moment provides an opportunity to better tailor spaces to meet the needs of scientists and for developers to ensure their buildings are financially viable into the future. ■

Tom Sieniewicz is a partner at NBBJ specializing in diverse building types, including commercial development; **Jonathan Wall** is a commercial design principal at NBBJ; **Mark Bryan** is a senior lab planner at NBBJ.

EB-5: An Alternative Source of Capital to Support Commercial Real Estate

The program helps attract foreign investment into projects all over the U.S.

By Lee Y. Li

The EB-5 program, also known as the U.S. Immigrant Investor Program, is a federally authorized economic development tool that provides access to foreign direct investment for U.S. businesses and creates jobs for U.S. workers. The program is currently under reauthorization (see box, page 36).

Under the EB-5 program, investors are required to make a minimum investment of $1.8 million into an economic development project in the U.S. that creates at least 10 full-time jobs for each investor. The required investment can be reduced to $900,000 if the project is in a high-unemployment or a rural area. In return, investors receive a conditional visa that is valid for two years. Permanent visas are rewarded to investors who can demonstrate that they have achieved the required economic benefits from their investments.

In 1992, Congress enhanced EB-5's economic capacity by creating the Regional Center Program, allowing companies that are approved by the U.S. Citizenship and Immigration Services (USCIS) to establish a Regional Center and pool EB-5 capital from multiple foreign investors.

According to the USCIS, there are currently 673 approved regional centers promoting economic growth in 48 states, the District of Columbia and three U.S. territories. In addition, based on statistics published by the U.S. Department of State, more than 93% of the EB-5 capital formation between 2008 and 2019 was facilitated through regional centers.

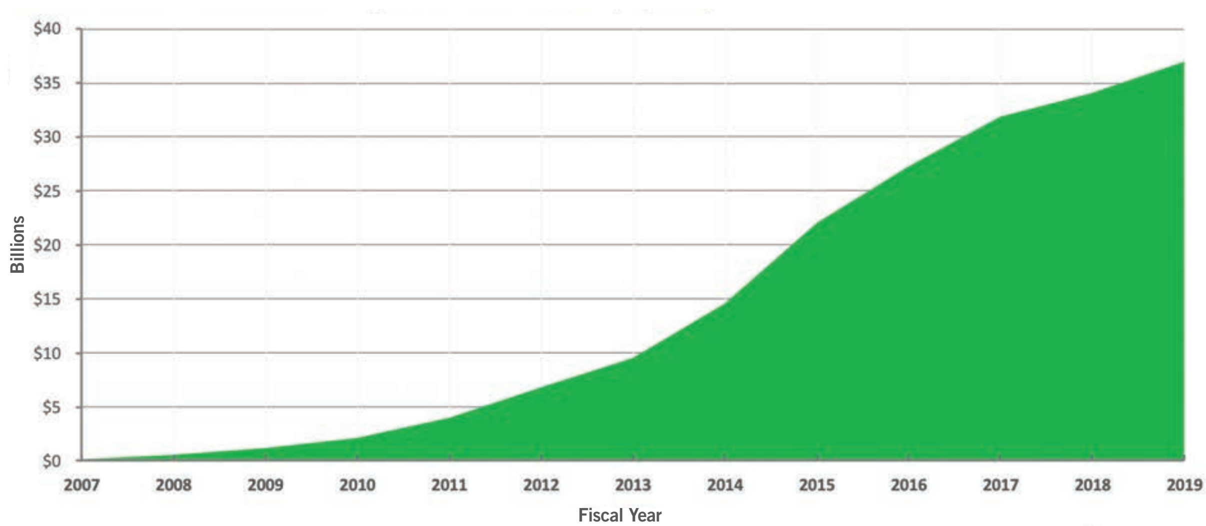
EB-5 Capital Investment and Impact

When domestic financing was difficult to secure during the Great Recession in 2008, EB-5 became an alternative source of funding. Based on the data of EB-5 investor applications published by USCIS, an estimated $37 billion in capital investment has been generated through the EB-5 Regional Center Program since 2007 to support a variety of economic development projects in the U.S.

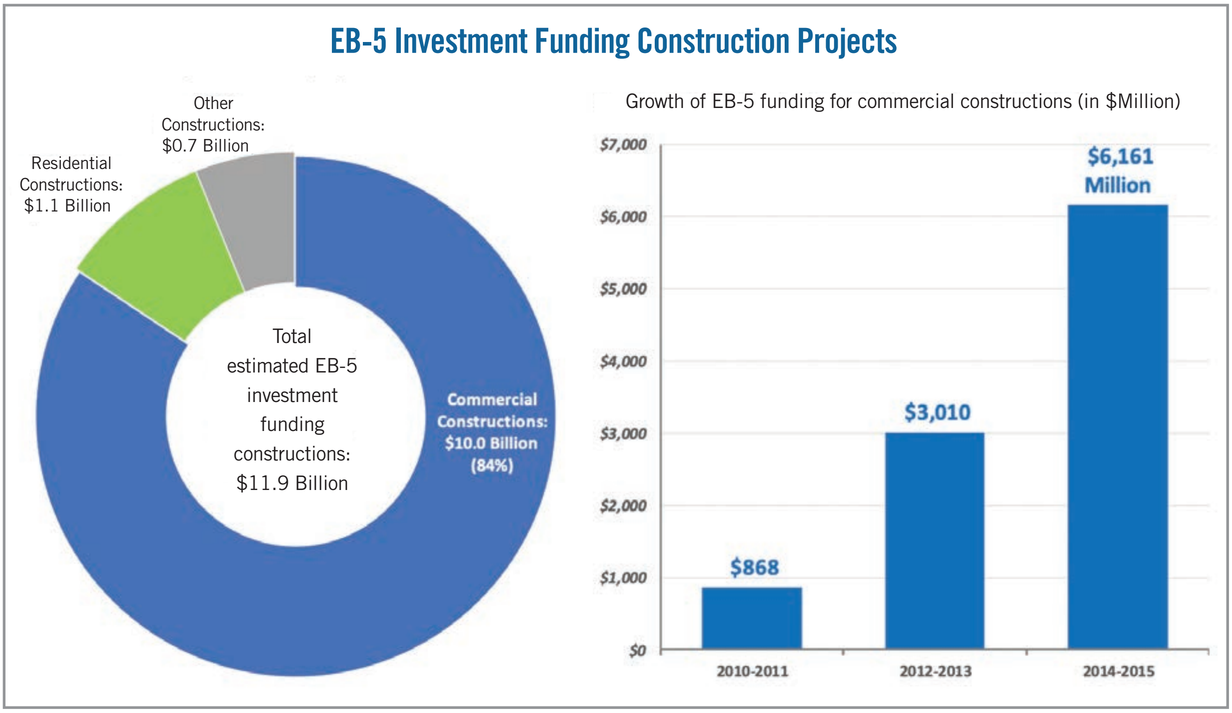
In addition, researchers at IMPLAN, the Alward Institute for Collaborative Science and the Center for Economic Business Research at Western Washington University conducted a series of peer-reviewed economic impact studies in 2013, 2014, 2015 and 2018 that

EB-5 has Generated $37 Billion in Capital Investment for U.S. Businesses since 2007

Estimated amount of cumulative EB-5 capital investment since 2007 (in $Billion):



Source: U.S. Citizenship and Immigration Services (USCIS)
Prepared by: Invest In the USA (IIUSA)



Source: EB-5 Economic Impact Studies, 2010-2011, 2012, 2013, 2014-2015
Prepared by: IIUSA

took an in-depth look into EB-5 capital investment by industry sector and by geographic location.

EB-5 Funding by Industry

These economic impact studies found that the EB-5 program raised a total of $16.7 billion in capital investment between 2010 and 2015. Nearly $12 billion (or 71%) of EB-5 capital was used to finance construction projects in the U.S. In addition, non-construction-related sectors with significant EB-5 capital investment during the same period included hotels and restaurants (an estimated $1.2 billion); real estate (an estimated $540 million); retail and wholesale trade (an estimated $516 million); and architecture, engineering and related services (an estimated $412 million).

EB-5 Investment by State

The impact studies also determined that EB-5 capital has financed job-creating projects in 38 states and the District of Columbia. In particular, top areas for EB-5 investment between 2010 and 2015 included the state of New York (received more than $4.5 billion in investments from EB-5 participants), California (nearly $4.1 billion in EB-5 investments), Florida ($1.1 billion in EB-5 investments), Texas (nearly $1.1 billion in EB-5 financing) and Washington State ($1.0 billion in EB-5 investments).

EB-5 and Commercial Real Estate

EB-5 capital has been primarily used to fund construction projects in the U.S., especially for commercial structures such as offices, retail centers, shopping malls and warehouses. Based on data from the EB-5 economic impact studies, between 2010 and 2015, a total of $10 billion in EB-5 investment was used to finance commercial construction projects, accounting for 84% of the EB-5 funds that were invested in the construction sector. Furthermore, the estimated amount of EB-5 investment for commercial construction projects was more than $6.1 billion in 2014 and 2015, an increase of 610% from 2010 and 2011. (2015 is the most recent year for which data is available.)

EB-5 Financing in Commercial Real Estate Projects

Success stories of using EB-5 to finance commercial real estate projects can be found across the country. For example, in downtown Brooklyn, New York, $200 million in EB-5 capital financed the 1.2 million-square-foot mixed-use complex known as City Point. In Philadelphia, $13.5 million in EB-5 funding was utilized to transform the former Philadelphia Naval Base into a 6.5 million-square-foot business campus for more than 130 companies. This development accounts for more than 10,000 jobs in industries as varied as fashion, pharmaceuticals, education and more.

And in Dallas, $65 million in EB-5 investment supported the construction of the KPMG Plaza at Halls Arts. In addition to creating nearly 2,000 jobs, this project now is an 18-story office building that is home to many global and local businesses. ■

Lee Y. Li is director of policy research and data analytics with IIUSA.

The Future of EB-5

The EB-5 program first launched in 1990 and has been regularly reauthorized by Congress as part of the annual budget process. However, the spending bill enacted at the end of 2020 decoupled the program from the federal budget. It is set to expire on June 31, 2021, unless it is reauthorized by Congress.

In 2019, U.S. Senators **Chuck Grassley** (R-IA) and **Patrick Leahy** (D-VT) introduced the EB-5 Reform and Integrity Act. According to a February 2021 article from National Law Review, the bill would:

- Extend the program through September 2024
- Increase the Department of Homeland Security's (DHS) oversight to prevent fraud or other criminal misconduct
- Use fees from regional centers and investors to create a fund that would aid DHS investigations, audits and site visits
- Require background checks of principals in regional centers and projects
- Require more disclosures to investors regarding business risks and conflicts of interest
- Require more oversight of projects and closer monitoring for securities compliance. ■

How to Use Incentives Wisely

A four-pronged approach to state and local economic development incentives can help draw tenants and boost profits.

■ By Scott J. Ziance and Sean P. Byrne

State and local economic development incentives can help attract and keep tenants and increase investment returns. It's important to keep the focus on four key principles: reducing occupancy costs; facilitating an efficient financing structure; creating a win-win arrangement with the community; and preserving disposition optionality.

Incentives can increase the rate of return by reducing costs or increasing revenue. There also are benefits to thinking broadly about return on investment. By developing a positive relationship with the community, the economic development supported by the community likewise benefits the investment. Using state and local incentives thoughtfully can lower costs and increase values when it comes time to sell.

Incentives can increase the rate of return by reducing costs or increasing revenue. There also are benefits to thinking broadly about return on investment. By developing a positive relationship with the community, the economic development supported by the community likewise benefits the investment. Using state and local incentives thoughtfully can lower costs and increase values when it comes time to sell.

Reduce Occupancy Costs

The tenants' occupancy costs help drive the rental and occupancy rates for a project. Lowering overall occupancy costs through a combination of lower taxes, lower utility costs or lower common-area maintenance (CAM) charges will maximize the value for both the building owner and the tenants. There are three common ways economic development incentives can reduce occupancy costs for tenants and owners.

Property tax abatements can substantially reduce the annual occupancy expense of the project while also providing substantial value to the developer. With commercial real property tax rates as high as 3% or more of assessed (fair market) value in some jurisdictions, a 50% property tax abatement on a $10 million building reduces the out-of-pocket costs by $150,000 per year. Adding that $150,000 (or sharing it to help attract a tenant) back to the net operating income can be a meaningful increase in value.

For instance, assuming a $10 million property value with an 8% cap rate yields an annual net income of $800,000, plus an additional $75,000 from effectively splitting the tax abatement with the tenant. That $875,000 income with an 8% cap rate results in a value of $10,937,500

– a 9.375% increase — while still attracting tenants with lower occupancy costs.

Utility and energy incentives offer another avenue for reduced occupancy costs. In some jurisdictions, economic-incentive utility rates are available for large energy users or certain types of projects. In other cases, the developer can use less expensive financing to reduce the costs of energy-efficiency measures. This can include programs like property assessed clean energy (PACE), which allow the costs of energy infrastructure to flow through like real estate taxes, or low-interest loans. Whichever path a developer chooses, reducing the actual costs of energy may benefit the bottom line.

When considering incentives, it is critical to plan and negotiate a development agreement with the local jurisdiction. Not only can these agreements make the development process smoother, but they can also lead to negotiations for dedicating public infrastructure improvements such as roads to the city or township. This reduces repair and maintenance obligations.

When considering incentives, it is critical to plan and negotiate a development agreement with the local jurisdiction. Not only can these agreements make the development process smoother, but they can also lead to negotiations for dedicating public infrastructure improvements such as roads to the city or township.

The value of a project, and ultimately the return on investment, will be driven by both capital investment and annual operating costs. State tax incentives may be able to help with certain capital investments, including public roadwork, but look closely at operating costs and determine if a tax abatement, a utility cost reduction incentive, or an opportunity to shift a maintenance cost might reduce occupancy costs and drop more net income to the bottom line.

Develop an Efficient Financing Structure

Incentive financing can provide efficiencies that enhance value for the developer. Some incentive programs provide unique financing opportunities by establishing certain costs upfront. For instance, using tax increment financing (TIF), the parties may agree to an annual payment in lieu of taxes (PILOT) that is set over the period of the TIF. This model can be attractive to lenders, who get certainty from the collateral assignment of TIF payments, and to tenants, who get certainty with respect to future property tax obligations.

Other financing incentive programs can drive down the costs of a project, depending on the developer's needs. There are incentive loan programs focused on different types of projects that include low or no interest. There may also be tax-exempt bond financing.

By exploring potential incentive financing options, the developer may lower the costs of capital or spread those costs over time. Those lower costs may make the project attractive to potential tenants while improving the developer's rates of return.

State and local tax incentives can also help position a project for a later sale. The key to maximizing disposition options is to plan ahead.

Create a Win-Win with the Community

There are many opportunities for a developer to build a relationship with the community that will support the project and ultimately its profitability. State and local incentives are, by their nature, partnership agreements. The community is investing in the project, and the developer is investing in the community. There are going to be both transactional win-win opportunities and relationship opportunities.

There are opportunities for both sides to get something of value without giving anything up to each other. For example, a developer needs improved roadwork for a project. The state may be willing to provide roadwork funds for a project that creates jobs. The developer gets what he needs, and the local jurisdiction benefits from the roadwork.

Training funding can offer similar optimal outcomes. The developer may be able to secure state money to train workers, which in turn benefits the community by increasing the pool of skilled labor.

Another win-win is when the developer and the incentive provider work together to support tenants in a developer's project. For instance, the developer may have built a multitenant spec building with a partial tax abatement. Working with the city and a potential tenant, the developer may be able to persuade the city to increase the abatement to attract the potential tenant. The developer benefits by securing a tenant, as well as through lower taxes on the entire building.

The value of a strong relationship may come many years into a project. While it is important to have a comprehensive development agreement, it's not possible to anticipate every potential

Know Your Terms

Property Assessed Clean Energy (PACE). According to a Fall 2014 article in Development magazine, PACE is a program to fund energy infrastructure in which a local property tax jurisdiction issues "bonds to the private sector to raise the necessary capital and makes loans to property owners, tenants and/or investors, who are also taxpayers in that jurisdiction. The jurisdiction also arranges for the taxpayer to make regular payments of the principal and interest as part of their regular property tax payments. Finally, the jurisdiction places a lien on the property to secure the financing."

Payment In Lieu of Taxes (PILOT). A real estate tax-abatement program that eliminates taxes for developers for a set period of time to encourage improvements to a property. The developer pays a lower "service charge" to the local government during that period.

Tax Increment Financing (TIF). According to CityLab University, TIF "creates special tax districts around targeted redevelopment areas from which future tax revenues are diverted to finance infrastructure improvements and/or development. At the beginning of the TIF period, tax revenues in the TIF district going to general city services are frozen at a certain rate. All additional tax revenues go toward directly funding new development or servicing debts related to new development until the end of the TIF period, which usually lasts 20 to 30 years." ■

issue. A developer who has earned credibility in the community by doing what they commit to doing, supporting local initiatives, and perhaps leaving a little on the negotiating table will have a reservoir of goodwill when requesting cooperation from a local jurisdiction on any unforeseen issues.

Preserve Disposition Options

State and local tax incentives can also help position a project for a later sale. The key to maximizing disposition options is to plan ahead. When negotiating project incentives, consider how and when a transfer may occur. Whether a developer is seeking sales tax exemptions, real property abatements or other incentives, local jurisdictions may agree to be flexible during negotiations to allow assignability of the project incentives.

For example, if a multibuilding site is being developed, might the buildings be sold separately? If so, negotiate terms that will allocate jobs, investment and any other requirements in the event of a third-party sale. Similarly, with certain sales tax or other exemptions, it may be possible to negotiate terms to provide incentive providers with guaranties or indemnification to protect the benefit of their bargain without sacrificing flexibility.

In addition, pay attention to the statutory details, such as notice and publishing requirements, and prepare complete incentives transaction binders promptly after the execution of the incentives agreements. It is not unusual for local governments to make mistakes when approving agreements, and it is not unusual for local governments to approve agreements correctly and then misplace key documents. A purchaser who is unable to confirm that incentives agreements were duly authorized may walk away from a transaction or insist on lowering its purchase price.

Easily assigned and clearly documented incentives mitigate the purchaser's risks. That can help the seller maximize price. No purchaser wants to step into a liability, but thoughtful planning on the front end will save heartburn (and reserves) at disposition.

Lessons Learned

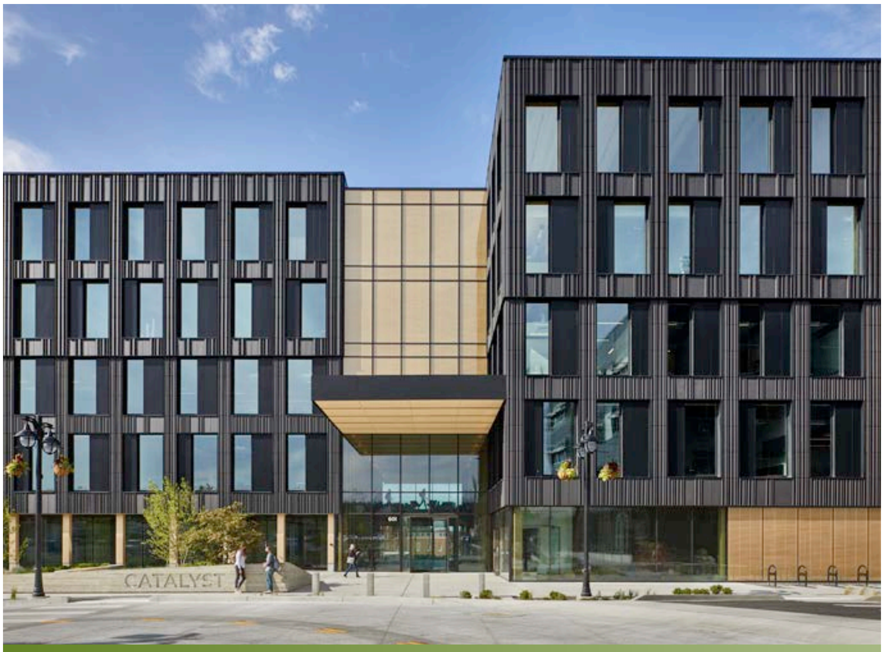
It's important to rely on more than one of the four prongs of economic development incentives to increase the rate of return. Incentives can lower occupancy cost, lower financing costs, provide value-added opportunities for the developer and the community, and facilitate a later sale of the project. As with any partnership, diligent planning on the front end allows for success throughout the relationship. ■

Scott J. Ziance is a partner who leads the national economic development incentives practice at Vorys, Sater, Seymour and Pease LLP. **Sean P. Byrne** is of counsel at Vorys, Sater, Seymour and Pease LLP and former chief counsel to the Ohio Development Services Agency.

The Catalyst Building: Sparking an Eco-District Neighborhood

The South Landing project in Spokane, Washington, demonstrates how properties can benefit from shared energy infrastructure.

By Alice Devine



Ben Benschneider

The Catalyst building in Spokane, Washington, is seeking the International Living Future Institute's (ILFI) net zero carbon and energy certifications. This standard requires on-site reviewable energy to supply 100% of the building's energy needs on a net annual basis.

In Spokane's University District, education meets industry in a 1.2-square-mile area adjacent to the city's downtown. In this urban laboratory of sorts — populated by five of Washington state's major universities, two medical schools and community colleges — students and nearby businesses enjoy a cluster of mutual benefits.

University District developer Emerald Initiative, an independently owned affiliate of Seattle-based mechanical contractor and engineering firm McKinstry, embraced a goal: a smart neighborhood. The South Landing project includes an ”eco-district,“ a shared heating, cooling and electrical system that serves the energy needs of what eventually will be four commercial buildings totaling approximately 500,000 square feet. So far, the $50 million Catalyst Building (159,000 square feet) and the Scott Morris Center for Energy Innovation (41,000 square feet) have been constructed.

The Scott Morris Center contains a laboratory and power plant that allow researchers and building operators to understand and learn from energy practices. Additional elements, such as mass timber construction, help achieve a net-zero carbon and energy status, bolstering the project's sustainability.

South Landing benefits from both public and private entities, with a roster that includes McKinstry, local utility provider Avista, state grant funds, and Eastern Washington University (EWU) as an anchor tenant. While architecture and proximity often define notions of neighborhood, the project demonstrates that less-visible attributes, such as shared energy systems and a value-driven commitment to sustainability, can knit a community together.

Eco-District

South Landing's notion of an eco-district relies on a shared heating, cooling and electrical system. The project's smart buildings collect large amounts of data and use that information to pull power from and contribute to the grid for maximum efficiency. Moreover, information collected via innovations such as ceiling panels that record temperature and lighting in real time create a granular level of management.

Heather Rosentrater, senior vice president of energy delivery and shared services at utility provider Avista, describes the "aha" moment that such data provides owners. For instance, Rosentrater says that tenants may demand one megawatt of energy at peak periods, which places increased demand on substations and raises costs. With data analysis, however, smart buildings can anticipate patterns of increased demand and respond accordingly. For example, when a building demands power in the day, it's more costly and cumbersome to produce because that's the greatest power demand time. If a building can defer its power needs (by essentially banking power) to the evening when energy generated by nearby wind farms is integrated into the energy grid, it can reduce costs.

Buildings bank power by smoothing out demand — they anticipate heating needs and preheat a building, they use solar energy to charge batteries, and sensors regulate the temperature and lights so that the building delivers power where it's actually needed.

Using data this way — with timed anticipation — yields a more energy-efficient building.

South Landing's notion of an eco-district relies on a shared heating, cooling and electrical system. The project's smart buildings collect large amounts of data and use that information to pull power from and contribute to the grid for maximum efficiency.

Energy Innovation Lab

The Scott Morris Center also underscores a commitment to environmental learning. The lab is on the ground floor of one of the two new neighborhood buildings. It's sheathed in glass so that viewers can observe its inner workings. By displaying the plant in this transparent manner — albeit more expensively than a solid wall — the owners illustrate the central role that energy systems play in the development. The message is underscored in the evenings, when the plant's interior illumination shines across the plaza.

Inside the lab, students and industry specialists collaborate on a variety of energy-efficiency projects. Rosentrater points to the lab as a venture where students can "fail fast, learn fast" in a setting that promotes innovation without compromising the dependability and service the utility strives to provide. For instance, the building "learns" typical electrical usage patterns and can then anticipate demand. These real-life examples allow students to translate their experience to higher education or the workplace.

Anchor Tenant: Eastern Washington University

For Eastern Washington University, being adjacent to downtown Spokane was a primary factor in the decision to lease the Catalyst building. The "most enticing piece was the philosophy of the Catalyst (building) being the connection between higher education and industry to work on practical applications," says **Dr. David May**, interim president for EWU. May adds that "it's a perfect way to live what we are supposed to be doing," which is serving "as an economic and workforce driver in the region."

The state-of-the-art quarters have allowed EWU to design a space that works with its academic programs. As the 110,000-square-foot anchor tenant at Catalyst, EWU will house engineering, computer science, business, public health and graduate writing programs in the building. These students and graduates provide a source of talent and intellectual capital, especially for the region's numerous health care and life-science companies.

Net Zero/Net Carbon

Catalyst is pursuing the International Living Future Institute's (ILFI) net zero carbon and energy certifications. This standard requires on-site renewable energy to supply 100% of the building's energy needs on a net annual basis. Additionally, 100% of the operational energy use associated with the project must be offset by new on- or off-site renewable energy, and 100% of the embodied carbon emissions impacts associated with the project's construction and materials must be disclosed and offset.

A core ILFI principle requires "compliance based on actual, rather than modeled or anticipated, performance," so the recently completed Catalyst will need to demonstrate such data over a 12-month period to earn certification. South Landing's on-site Morris Center aids in collecting and calibrating energy performance. According to the ILFI, such an aspirational goal is the difference between moving "beyond merely being less bad" to "truly regenerative." The overarching philosophy requires more than just best practices, and it embraces leading-edge technology and advanced practices.

Additional Sustainable Elements

In addition to its shared energy system, Catalyst uses building materials to deepen its sustainability. Catalyst's design incorporates roughly 4,000 cubic meters of locally sourced mass timber, produced by Katerra, in both structural and design elements. Mass timber is an engineered wood product in which several wood layers are laminated and compressed to create solid columns, beams and panels. Innovative lamination processes allow wood providers to use the entire tree, including the crown and small branches typically left behind on the forest floor.

In addition to its shared energy system, Catalyst uses building materials to deepen its sustainability. Catalyst's design incorporates roughly 4,000 cubic meters of locally sourced mass timber, produced by Katerra, in both structural and design elements.

In Catalyst's case, the mass timber enables the building to achieve near-passive house levels of thermal performance. Passive house is a construction standard for super-energy-efficient buildings in which the structure itself does not create additional heating demands.

Further, wood's lighter weight makes transportation — from forest to installed panel — less costly and environmentally impactful than steel or concrete. Catalyst's developers estimate that the use of such timber helps to collectively offset approximately 5,000 metric tons of carbon.

Ownership and Operating Expenses

While the initial capital costs of building an eco-district can be high, they are not out of reach for private developers. Although the South Landing project benefits from a substantial $7 million grant from the state of Washington, the eco-district is considered "a replicable model for the private sector," according to **Allie Teplicky**, real estate development manager at McKinstry. Teplicky says the ownership team has structured leases in such a way that tenants pay competitive market rates for utilities while the savings from smart usage and management accrue to the landlord over time. That offsets the initial intensive capital investment for the power plant and infrastructure. This arrangement implies a long-term-hold strategy for the landlord, although the cost savings presumably would benefit any owner and would be inherent in the property's market value.

South Landing's Catalyst building and Innovation Center appear to be kick-starting an eco-neighborhood model in Spokane. The shared energy infrastructure, the operational systems that communicate with each other, and an underlying culture of sustainability create a tightly bound community that benefits from economies of scale. Other than the visible power plant on site, these commonalities remain mostly unseen, yet they underpin the building's experience and performance. Like the sensors that quietly monitor light and temperature adjustment, the seamless adjustments create a comfortable environment for a range of occupants. ■

Alice Devine lectures at the University of California, Berkeley and is the award-winning author of Suite Deal: The Smart Landlord's Guide to Leasing Real Estate.

COVID-19 Creates a Downshift in Parking Demand

Large revenue shortfalls will accelerate technological advances, conversions and design innovations.

By Jennifer LeFurgy, Ph.D.

Quarantines and business shutdowns fueled by the COVID-19 pandemic have led to a dramatic decrease in parking demand. Subsequently, many sectors of the economy that depend on parking revenue are facing budget shortfalls this year.

Spothero.com reported in 2020 that the parking industry saw parking volumes in many areas fall by up to 97%, resulting in job losses and furloughs for 50% of the industry's workforce. Commuter lots had a 50% to 70% reduction in use, while visitor lots saw up to a 95% drop from the same time the previous year, according to a survey by Smarking, a parking software company.

Municipalities are scrambling to recover not only lost parking income but also a dramatic reduction in revenue from fees and fines. A 2019 CarRentals.com survey of parking data for 16 major U.S. cities found that they collected a total of $1.4 billion in annual parking ticket revenue. In 2019, Chicago issued 2.06 million parking tickets.

Municipalities are scrambling to recover not only lost parking income but also a dramatic reduction in revenue from fees and fines.

Milt Mounts, Essential Images Photography

The Broadway Autopark, a historic parking garage in Wichita, Kansas, that was built in 1949, was converted into an apartment building with 44 one-bedroom units in 2018.

Through June 30 of 2020, the city gave out less than 500,000. New York City projected that it would lose $600 million in parking revenues in 2020.

Lost income from fees and fines, which is typically put into the general fund to support government operations, debt financing, and water and sewer services, will place additional challenges on cities as they attempt to rebound from the pandemic.

The International Parking and Mobility Institute (IPMI) conducted a benchmark survey in 2020. It confirmed that most academic institutions, airports, municipalities and health care facilities expect to experience significant budgetary shortfalls this year, with a substantial factor being the reduction in parking revenue. Educational institutions, which transitioned to almost 100% virtual learning during the pandemic, cited permit refunds and temporary suspension of parking enforcement as having an enormous impact on revenue generation. According to additional research by planning and design engineer consultants Kimley-Horn, airports were among the hardest hit, and parking revenue was down 95% due to travel restrictions.

Technology Solutions

While empty parking lots are being used for COVID-19 screening and vaccinations, owners are devising strategies to recapture lost revenue

Despite the proliferation of technological assistance, there will most likely be an overall decline in parking facility use in the future. Developers and owners must continue to think creatively about repurposing existing structures and future-proofing new buildings that contain parking.

and make parking as frictionless as possible when local economies reopen. However, many municipalities, such as Chicago, are considering stricter enforcement and higher fines.

According to the IPMI survey, many owners are planning for flexible parking arrangements, accommodation of electric vehicles, and instituting contactless or mobile payment options.

Kimley-Horn suggests that airports and other parking operators can implement new technologies such as web- and app-based platforms that allow reservations and pre-payment, reduce or eliminate cashiered exit lanes, and use license plates or barcodes instead of parking tickets as parking credentials.

Despite the proliferation of technological assistance, there will most likely be an overall decline in parking facility use in the future. Developers and owners must continue to think creatively about repurposing existing structures and future-proofing new buildings that contain parking.

Garage Conversions

Investors had long viewed urban parking garages as a safe bet because parking fees can be easily adjusted and little maintenance is required. However, even before the pandemic, parking demand was declining due to the rise in ridesharing and public transportation use. The pandemic accelerated the decrease in parking demand, and cities have seen more temporary conversions of structured parking. These include hosting farmers markets and the installation of self-storage units and Amazon pickup lockers.

Although it is not necessarily a new idea, garages are increasingly being retrofitted for more permanent uses. Recent examples include the Broadway Autopark, a historic parking garage in Wichita, Kansas, that was converted into a 44-unit apartment building; a parking garage on the Northwestern University campus in Evanston, Illinois, that now houses an incubation center; and the Millennium Parking Garage in Chicago, one of the largest underground parking systems in the U.S., which was recently transformed into an urban fulfillment center. Subterranean garages can also be retrofitted for data center and urban agriculture uses.

Planning for Obsolescence

There will always be a need for some parking in the near term and beyond. The use of private vehicles has ticked upward during the pandemic as people avoided public transportation, and the advent of electric and autonomous vehicles will undoubtedly maintain certain levels of demand. Additionally, parking facilities can be useful sources of revenues for developers as they embark on repurposing the building above.

But as demand shrinks, so can the garage. Increasingly, architects and developers are planning for the eventual conversion of parking structures within a building.

But as demand shrinks, so can the garage. Increasingly, architects and developers are planning for the eventual conversion of parking structures within a building. For example, the garage in Netflix's 13-story Sunset Boulevard building in Los Angeles will have flat floors and concrete ceilings that can be easily removed to accommodate other uses such as office. Future-proofing a new building's parking also involves bigger floor-to-floor heights and increasing live load capacities. Architectural firm BOKA Powell estimates that the initial cost premium to build a future-proofed garage level is $60 to $70 per square foot.

The pandemic was a lesson in the collapse of demand, and it increased many trends that were already in place, such as the use of e-commerce over brick-and-mortar retail. It is unclear how parking will recover. Some of the recent conversions and reduction in parking spaces may be permanent. Businesses may want to keep curbside pickup spaces and dining arrangements that extend into parking areas, and underused garages will continue to house a variety of new uses.

While parking will continue to be part of the revenue equation in the future, it cannot be counted on to generate steady income as it once did. ■

Jennifer LeFurgy, Ph.D., is the editor-in-chief of Development magazine.

How to Create a Superior Rail-Served Industrial Property

Cameron Davidson

Ware Malcomb

Rail-served industrial parks and logistics facilities require developers to take many unique considerations into account when planning projects.

At a Glance

- Railroads remain an important mode of freight transportation.
- There are several crucial considerations when choosing sites for rail-served facilities.
- It is critical to work closely with a railroad when developing these facilities. ■

Extensive planning, consultation and communication are necessary ingredients for successful projects.

By Nick Kern and Dan Grant

Developers who are looking to build rail-served industrial parks must consider a few questions. Does it make sense to provide freight rail service to this development and is there a market for it? What must be accounted for when it comes to logistics, internal and external operations, cost and design? For this growing area of industrial real estate, it's important to know about site development, effective communication, rail operations, rail design and transportation in order to turn properties adjacent to rail lines into revenue-generating assets.

The Return of Rail

According to a 2018 article from Area Development, the Association of American Railroads (AAR) reports that since 1980, prices for rail transportation have decreased by more than 50% in real dollars adjusted for inflation. Despite this, the Federal Highway Administration (FHWA) reports that trucks moved 60.8% of total freight shipments — nearly 11.3 billion tons of goods — in 2018. Demand for public and private truck parking spaces continues to exceed supply as freight volumes rise, and a projected increase in the number of trucks on the road will only add to the challenge, according to the U.S. Department of Transportation's (USDOT) Bureau of Transportation Statistics.

As the number of trucks on the road increases, many industries are finding rail to be a more environmentally sustainable option. According to a 2020 Sustainability Report

According to a 2020 Sustainability Report from AAR, on average, **U.S. freight railroads can move one ton of freight more than 470 miles using one gallon of fuel,** while a truck can move the same amount of freight about 134 miles using one gallon of fuel.

from AAR, on average, U.S. freight railroads can move one ton of freight more than 470 miles using one gallon of fuel, while a truck can move the same amount of freight about 134 miles using one gallon of fuel. Given this difference, the report states that if 50% of the truck traffic moving at least 750 miles went by rail instead, greenhouse gas emissions would decrease by approximately 26.2 million tons per year.

These aspects, combined with fluctuating fuel costs, expanding regulations and driver shortages, may make incorporating rail into logistics operations a more favorable and budget-friendly choice than relying solely on over-the-road transportation. Of course, trucks play a vital role in the rail network. Railroads can't serve every industry in every location, so trucks are necessary to move freight across shorter hauls. According to AAR, rail intermodal — which combines multiple forms of transportation including trucks, trains and ships to transport a variety of goods — is increasing in popularity, and freight railroads are adapting to meet the demand.

The Keys to Site Selection

Prior to a developer approaching a site with the potential for rail service, it is important to ask the right questions. The best way to accomplish this is by involving the railroad early in the process before the site plan is finalized, the budgets are set and before a site is put under contract for purchase. Railroads seldom proactively develop land or own vacant sites, so submitting an inquiry to the railroad will start the coordination process.

When selecting a site, consider what might make it attractive to users including manufacturers, distributors and third-party logistics providers. The Transportation Research Board's (TRB) 2016 report "Freight Facility Location Selection: A Guide for Public Officials" provides useful criteria for establishing where to locate new logistics facilities and details seven logistics facilities types:

Distribution centers. Used for storage and to facilitate the movement of goods.

Seaports and airports. Necessary for international and domestic shipping.

Intermodal terminals. Allow for the movement of goods between modes of transportation.

Transload terminals. Receive and distribute bulk products including grain, lumber and concrete.

Hub terminals. Carrier-operated; useful for intramodal resorting and reconsolidating.

City terminals. Carrier-operated; helpful for managing the pickup and delivery of goods to customers.

Integrated logistics centers (sometimes called freight villages). Industrial parks or mixed-use developments built around freight-servicing facilities.

After determining the facility type, identify the transportation access the site will require. Is the site near a major highway, port or inland port? Is there existing access to rail onsite? TRB's National Cooperative Freight Research Program study recommends the goals of delivering goods with speed and accuracy that meets or exceeds the competitive standards in the market and establishing a set of logistics costs that are as low as possible within the delivery standards. In other words, the site's location should help lessen operating time and monetary commitments.

Next, research the demand in the area and find out if the community has sufficient workforce resources. Then, consider how the facility will operate and who will operate it. How does the location fit within the supply chain network? Will the site be cost-effective, or are off-site or on-site improvements needed? Are there competitive local development or tax incentives? Determine if there are rail crossings (existing or proposed) that should be considered or if there are other operational

Cameron Davidson

The Association of American Railroads says that rail intermodal, which combines multiple forms of transportation such as trucks, trains and ships to move a variety of goods, is growing in popularity.

limitations (i.e., dimensions of the property or topographic challenges).

Effectively Communicating with Railroads is Vital

Though developing a rail-served facility may seem daunting, it's important to know that railroads are motivated and looking for opportunities to serve industrial customers. They have economic development teams interested in increasing their customer base and in diversifying their cargo types. To keep the lines of communication clear and open, communicate with the railroad's economic development team, either directly or through a consultant. No two sites are identical, and not every end user or railroad operates the same way.

When selecting a site, consider what might make it attractive to users including manufacturers, distributors and third-party logistics providers.

For example, rail service can vary across the country based on geography. Think open flat space in the Midwest, high mountains in the West, and congested cities, suburbs and industrial areas in the Northeast. There are also different considerations if the operations rely on ports or if they need to interface with intermodal yards or transload facilities. Additionally, the physical limitations posed by a site may impact its development potential. As a result, it's important to work with the railroads and an engineering consultant to establish what's feasible for a given site.

A lack of communication can lead to frustration and cause delays that impact project risk and budgets. Establishing schedule expectations up front is essential to prevent miscommunication throughout the development process. Real estate

Though developing a rail-served facility may seem daunting, it's important to know that railroads are motivated and looking for opportunities to serve industrial customers. They have economic development teams interested in increasing their customer base and in diversifying their cargo types.

agreements often come together much faster than rail service agreements, so developers sometimes have timeline expectations that aren't congruent with how railroads operate. Rail service agreements are established between the railroads and the property owners in order to provide rail service. They typically require owners to provide the railroads with information like commodity type and volumes, and they are executed once the site design and operations are agreed upon.

This was a lesson learned by a developer who didn't establish an expected timeline with the railroad. Dismayed by the schedule disconnect that occurred as a result, they engaged an engineering consultant to help. The developer already had a tenant and wanted to move quickly, but the railroad needed to put in time and effort to confirm feasibility and safety. After reviewing the site, the railroad suggested building a new lead track in addition to the industrial spur, which would tie up the land for an additional 12-18 months. It was an eye- and wallet-opening moment for the developer, and the condition to close — a service agreement that needed to be signed by all parties — hung in the balance.

While all parties were eventually able to reach an agreement, there are several steps developers can take to avoid similar complications.

First, be prepared for the financial commitment required to hold the land longer or keep it under contract for additional time. Second, realize there are aspects of a railroad's business that are not publicly available that allow the railroad to remain competitive. Third, make sure to allot enough time to establish a service agreement and navigate the process with multiple parties within the railroad. Railroad operators influence every step of the process and are especially concerned and diligent about safety, so collaborate to ensure the plans follow their experience-based guidelines.

Assessing Operations

While many railroads can provide input on the feasibility of a site, they need to understand the project's intended use and operation. When it comes to railroad access onto and within a site, think about how many tracks may be required. This can be dictated by the user and/or the railroad. Next, identify the product the end user will receive or ship out. This will inform the types of rail cars and the loading/unloading operation needed, whether loaded into a building, onto a paved storage area or pumping material into silos. The railroad will want to know if this will be a relocated operation or a new operation as that plays into their planning.

Once you've established the goods being transported, determine the volume and length of trains and how they impact onsite requirements. Is there a predictable delivery schedule for the products and does that coincide with the railroad's operations? Plan out not only when shipments should be delivered, but also consider when the railroad can feasibly deliver them. These conversations will be vital to any agreements with the railroad.

Will full rail cars arrive at one time and empty ones depart the same way, or will the cars be delivered and removed at unpredictable times? If so, it might be necessary to separate receiving and departure tracks or add a siding track adjacent to the mainline for switching so mainline operations aren't interrupted.

Anticipate volumes growing over time and plan for future expansion on the proposed site, even if it happens in phases. Make sure to also consider what's happening on

Cameron Davidson

When it comes to site selection, it's important to get the railroad involved early in the process before the site plan is finalized, the budgets are set and before a site is put under contract for purchase.

the railroad side. For instance, is this site adjacent to a high-speed mainline? Are there passing sidings nearby? Understanding how the facility will operate, the trains will arrive, the trains will be processed, the departing trains will be built, and how the trains will depart is critical. Also, investigate the cost of constructing rail infrastructure off-site including bridges, culverts, retaining walls and at-grade crossings. Well-planned operations are a useful tool for developing a strong design for a project, and this early coordination can help speed up the design and approval processes.

The railroad design is directly tied to the proposed facility's operations, and not only to the railroad operations. When a train is pulled in, will it block a circulation road? If so, for how long? Is the train's dwell time for uncoupling cars accounted for?

Keeping the Design on Track

One of the last steps in completing a site's due diligence is finalizing a design concept. What is the most efficient layout for the project that maximizes the footprint? The required or typical acreage will vary depending on the unique needs of the user and the site. What about access off the main roadways? Because this is valuable input for the design process, the railroad access and layout should not be an afterthought. Railroad design is quite rigid compared to standard roadway design. Grades need to be flatter and curves need to be gentler. It must meet minimum requirements for the operating railroad to approve the design. For example, utilities and pipes crossing underneath the track typically need to be deeper than a standard site without rail service. Is it possible to develop a rail alignment that works for both the railroad and the facility, while also balancing the site's earthwork to keep the project in budget? All these restrictions have the potential to derail the initial concept.

The railroad design is directly tied to the proposed facility's operations, and not only to the railroad operations. When a train is pulled in, will it block a circulation road? If so, for how long? Is the train's dwell time for uncoupling cars accounted for?

If the railroad is making multiple deliveries to industries in the area and enters the site with a longer train, the train could block traffic and emergency access within the site and completely halt operations. How will the rail cars be unloaded? If you're unloading at dock doors, has the finished floor elevation accounted for the appropriate commodity's car type floor height? Will equipment to unload cars at the dock doors need to be installed? If deliveries are being unloading on pavement with forklifts, is there an efficient circulation path? Is a grade crossing needed to cross the tracks with the forklifts?

The considerations for the site cannot ignore the considerations for the rail, and vice versa. The site operations and the railroad operations need to coordinate or all parties will lose efficiency.

Imagination Becomes Reality

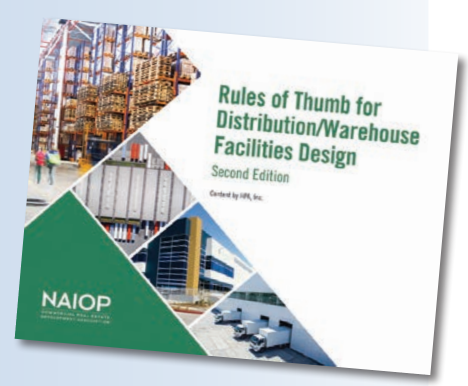
Railroads have provided a vital form of transportation for goods and services since the 1800s and will remain an important part of the industrial equation for years to come. Intermodal rail has grown due to the many benefits it offers, and the industry continues to adapt to support this expansion. According to a recent AAR report, rail intermodal, which accounted for 25% of U.S. railroad revenue in 2019 (more than any other traffic segment), has grown in volume in part due to railroads privately investing to expand terminals, innovate with technology and improve productivity.

When rail integration is planned correctly, railroads can offer a reliable and efficient mode of transport that supplements and diversifies

Rail Service Rules of Thumb

NAIOP's 60-page e-book, "Rules of Thumb for Distribution/Warehouse Facilities Design," is available for sale on its website. It includes information on the universe of industrial facilities, including those served by rail. Here's a brief excerpt:

"If a site is adjacent to a rail line or spur, it makes sense to at least ensure that a building could accommodate future rail service. The exact layout of rail spurs depends on the rail provider. These companies have been around a long time and have very fixed specifications and approval procedures that are often as formidable as a local planning agency. Unless you are interested in learning things like what a 'frog' does on a rail line, an experienced rail engineer is required for any detailed design, and there will be a long approval process prior to any actual construction."



Originally published in 2005, "Rules of Thumb for Distribution/Warehouse Facilities Design" has been significantly updated and expanded to include new information and illustrations on industrial site design, floors, racking systems and aesthetics.

"Rules of Thumb" provides not only the numbers behind successful warehouse design but also the reasons for these recommendations.

To learn more or to order a copy, visit www.naiop.org/en/Research-and-Publications/Rules-of-Thumb

Getty Images

Railroads are always looking for investors to develop rail-served properties. Railroads have economic development teams looking to increase their customer base and diversify the types of cargo they carry.

business operations. While the COVID-19 pandemic impacted businesses around the globe, the outlook for rail is still promising through 2021 and beyond. According to Railway Age Magazine, while Class I freight rail volumes dipped 9% on average through 2020, they rose almost 2% in the fourth quarter. Additionally, a November 2020 FreightWaves article says Moody's Investor Services predicts rail volumes will grow over the next 12 to 18 months.

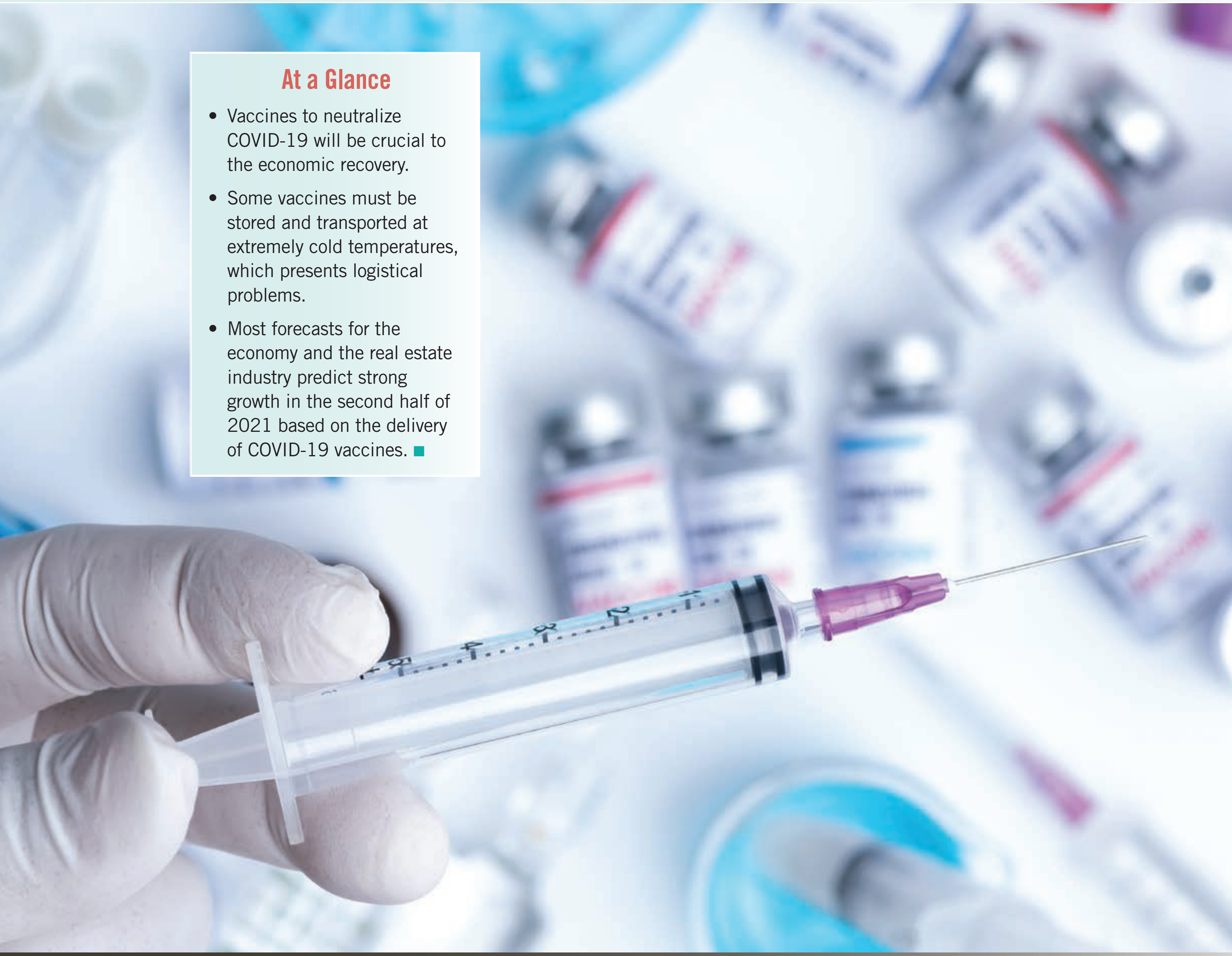
Superior rail-served facilities are developed with careful consideration given to site selection, operations and design. ... It's important to seek out railroads early for their industry knowledge and experience.

Superior rail-served facilities are developed with careful consideration given to site selection, operations and design. As part of the development process, it's important to seek out railroads early for their industry knowledge and experience. Engaging and effectively communicating with these professionals early can ensure the site's design and potential operations will meet the more rigid standards of the major railroads. Through careful planning and proactive collaboration, a property with an adjacent rail line can develop into a revenue-generating asset. ■

Nick Kern, P.E., is a railroad and transit engineer with Kimley-Horn, and **Dan Grant**, P.E., is a development services senior associate with Kimley-Horn. **Randall Phelps**, P.E., a development services principal with Kimley-Horn, and **Jamie Gwaltney**, P.E., a development services practice lead with Kimley-Horn, contributed to this article.

The Vaccines are Here. What Happens Next?

The rollout of immunizations to defeat COVID-19 has enormous implications for the commercial real estate industry.



At a Glance

- Vaccines to neutralize COVID-19 will be crucial to the economic recovery.
- Some vaccines must be stored and transported at extremely cold temperatures, which presents logistical problems.
- Most forecasts for the economy and the real estate industry predict strong growth in the second half of 2021 based on the delivery of COVID-19 vaccines. ■

Getty Images

Vaccines against COVID-19 began arriving in late 2020, and distribution began to ramp up in the first quarter of 2021.

By Trey Barrineau

In late 2020, the U.S. and other countries began distributing vaccines to control the COVID-19 pandemic. It is the single most important development in the year-long fight against the disease, which has killed and sickened millions around the world and crippled the global economy.

The stakes are high. The vaccines will not only save lives and boost the morale of hundreds of millions who have been forced to live constrained lives due to lockdowns and other public health measures; experts say they are also the most important factor in the overall economic recovery from the pandemic. The commercial real estate industry has been hit hard by the pandemic, particularly the retail, office and lodging sectors.

"If we get 70% to 85% of the country vaccinated by the end of the summer, I believe by the time we get to the fall, we will be approaching a degree of normality," **Dr. Anthony Fauci**, the chief medical advisor to President Biden, said in late January. "It's not going to be perfectly normal, but one that I think will take a lot of pressure off the American public."

The release of the vaccines also comes as new, more contagious variants of the disease began to spread rapidly across the globe, threatening to derail a fragile economic recovery that began over the summer as the first wave of the pandemic subsided. For example, the U.S. economy was expected to add 50,000 jobs in December 2020. Instead, it lost 140,000 jobs, according to the U.S. Department of Labor.

"The first quarter of the year, while being extremely promising on the vaccine rollout, is shaping up to be far harder than many maybe anticipated, exacerbated greatly by the new highly contagious variants," Oanda senior market analyst **Craig Erlam** told Forbes in January.

While the vaccines against COVID-19 are generating optimism among economic forecasters (see box, page 57), there still remains the issue of getting shots into the arms of more than 300 million Americans in a timely fashion.

"In 2011, nearly 490 million people around the world received the flu vaccine," said **Travis McCready**, executive director of JLL's U.S. Life Sciences Markets, who was quoted in a December 2020 article from JLL. "We're looking at billions of doses of the coronavirus vaccine in the U.S. alone. How do you actually start to build supply chain infrastructure for a product that has never existed before?"

Larry St. Onge, DHL's president of life sciences and health care, told CNBC in December 2020 that distributing the vaccines — some

"**We're looking at billions of doses of the coronavirus vaccine in the U.S. alone.** How do you actually start to build supply chain infrastructure for a product that has never existed before?"

— Travis McCready, Executive Director, U.S. Life Sciences Markets, JLL

of which require storage at ultra-low temperatures — will be the largest global logistics effort since World War II.

"The biggest challenge in the whole thing is really around that final mile," he said. "Realistically, there will be some product that will get lost or potentially doesn't arrive at the right temperature."

Vaccine Distribution and the Cold Chain

In January, **President Joe Biden** unveiled his "National Strategy for the COVID-19 Response and Pandemic Preparedness." It is an expansion of the Trump administration's Operation Warp Speed. A critical component of Biden's 200-page plan is mounting a "safe, effective, comprehensive vaccination campaign" with a goal of vaccinating 100 million Americans in 100 days. (As of February, that goal was being exceeded, with an average of 1.7 million people receiving vaccines each day, according to a report from Axios.) Biden's $1.9 trillion plan for fighting COVID-19 and boosting the economy includes $160 billion for vaccination and testing programs.

The program faced criticism for a slow roll-out in the early days, but performance has improved as more vaccines have been produced.

"As we operationalize the program, it's going to speed up," **Dr. LitJen Tan**, chief strategy officer for the Immunization Action Coalition, told Politifact in January. "We vaccinate about 150 million people against the flu every year in two and a half months, so the capacity to vaccinate a lot of people is there. Flu vaccines aren't like the COVID-19 vaccines, so we won't reach that number, but we can get pretty darn close."

Getty Images

Delivering vaccines to more than 300 million Americans will be the biggest global logistics effort since World War II, Larry St. Onge, DHL's president of life sciences and health care, told CNBC in December 2020.

The first COVID-19 vaccines delivered to the U.S. in late 2020 are from Pfizer and Moderna. Because both must be stored at very low temperatures, cold chain logistics will play an critical role in the distribution of the vaccines.

Pfizer's vaccine must be kept at –80 degrees Fahrenheit. It can be stored in a refrigerator for up to five days before being administered. Moderna's vaccine must be kept at –4 degrees Fahrenheit for shipping and long-term storage. It can be thawed and kept in a refrigerator between 36 to 46 degrees Fahrenheit for up to 30 days prior to use. Both Pfizer and Moderna vaccines require two shots spaced apart by several weeks.

According to **Matt Hirsch**, the president of Primus Builders, a firm that specializes in the design and construction of cold storage facilities, the logistics of distributing COVID-19 vaccines are significantly more complicated than those for flu shots.

"The thing that's been different about this pandemic and Operation Warp Speed was the fact that each year, there's an annual build-up of inventory to meet the flu season," he said during a recent NAIOP webinar. "This was a pandemic that hit us immediately. It required vaccination on a global scale that was

> "The biggest challenge in the whole thing is really around that final mile. **Realistically, there will be some product that will get lost or potentially doesn't arrive at the right temperature.**"
>
> *— Larry St. Onge, President of Life Sciences and Health Care, DHL*

really outside of the normal cycles for vaccination, as well as the temperature and storage requirements."

Hirsch said the highest levels of government consulted the cold-storage industry to understand what distribution channels were available in the U.S. for vaccines that require ultra-cold temperatures. Research from JLL shows that the U.S. has about 250 million square feet of cold storage inventory, with vacancy rates that have hovered below 10% for nearly 20 years.

However, the movement and transport of COVID-19 vaccines probably won't capture a lot of vacant space in cold-storage facilities, said **Scott Pertel**, the president and CEO of Cold Summit Development.

"First, the vials are so small," he said during the webinar. For example, a suitcase-sized container of Pfizer's vaccine holds approximately 1,000 vials — about 6,000 doses. A single shipping pallet of the Moderna vaccine holds up to 192 cases — roughly 230,400 doses.

Pertel then noted that speed to market is a critical aspect of the COVID-19 vaccines.

"We're not going to be stockpiling this vaccine for three to five years," he said. "This virus is mutating at such a rate that they're going to be constantly changing the structure of these vaccines. So distribution is really a just-in-time type model. It's more about throughput than a traditional cold storage facility."

Hirsch said most deep-freeze pharmaceuticals are stored at the case level, so short-term storage is usually handled inside manufacturing facilities or within specialized ultra-cold rooms in distribution warehouses. These "box in a box" facilities are generally between 2,000 to 5,000 square feet. (See story, page 60.)

"We're not talking a lot of space here," JLL Managing Director **Tim O'Rourke**, team leader at the industrial services group in Los Angeles and a member of JLL's Supply Chain and Logistics Group, said during an appearance on the Commercial Investment Real Estate podcast in late January. "It's an issue of distributing the vaccine via air or the ground and administering the vaccine on the ground. It's really not a storage issue, if you will."

Hirsch echoed those sentiments, noting the scale and speed of the vaccine distribution efforts.

'A Brighter Future' Thanks to Vaccines

The economic impact of vaccines for COVID-19 cannot be understated. For example, **Cris deRitis**, deputy chief economist for Moody's Analytics, told Equifax's Market Pulse podcast in December that the vaccine rollout has boosted confidence in a longer-term outlook for positive growth.

"Looking out six, nine, 12 months from now, we see certainly a brighter future than we did just a month ago, right before the vaccine news actually came out," he said. "So, much more confident in terms of the recovery and the strength of recovery."

Most economic predictions for the commercial real estate industry in 2021 hinge on the successful delivery of vaccines for COVID-19.

"Overall, we're still waiting to see the full fallout from the pandemic across the commercial real estate sector," **Anthony Graziano**, CEO of Integra Realty Resources, told Commercial Property Executive in January. "But with the vaccine rollout continuing and everyone getting back to the physical office, hopefully by the third quarter, the outlook looks promising for the latter part of the year. … The economic reset will still be painful, but the prospect of stemming the tide with a return to stability for most sectors within the year is now a realistic possibility."

CBRE's "U.S. Real Estate Market Outlook" for 2021 predicts that the year's strongest GDP growth will take place in the second and third quarters, when it will exceed 5.5%.

"CBRE's view is that a medical resolution will occur in the first half of 2021, allowing further loosening of economic restrictions in the second half," the report states. Additionally, CBRE's report says that the wide availability of a vaccine by mid-2021 will help the commercial real estate market "normalize based on abundant liquidity, low cost of capital and attractive returns."

Colliers' "Global Capital Markets 2021 Investor Outlook" sees a 50% surge in real estate investment activity in the second half of the year.

"Overall, though much will depend on external factors such as government stimulus and progress with vaccine roll-outs, the Global Investment Outlook 2021 points to an active and diverse year ahead as investors move to generate value amid a much-anticipated recovery," the report reads. ■

"Most of what we're seeing is intermediate distribution," he said. "It's not at the manufacturing facility, but in proximity. They're doing a very short-term inventory hold and rotating that. The last-mile distribution is generally in place for case-handling solutions at hospitals and so forth, so we're not having a lot of people going in and picking out one box of COVID-19 vaccines. They're moving at such velocity right now, most of what we're dealing with is full-pallet moves."

According to a December 2020 article from Scientific American, Pfizer expects to produce up to 1.3 billion vaccine doses in 2021. Moderna will make between 500 million to a billion doses this year.

Despite the challenges involved in coordinating vaccine shipments and storage, it should be a profitable venture for shippers. Citibank estimates that vaccine delivery will generate approximately $300 million in revenue for U.S. carriers, with high-single-digit to low-double-digit profit margins.

Moving the Vaccines

Pfizer's vaccine goes into small glass vials at the company's main U.S. production facility in Kalamazoo, Michigan (other plants in St. Louis and Andover, Massachusetts, produce crucial components for the shots). The vials for Pfizer vaccines were designed to hold five doses. However, Politico reported in January that pharmacists who injected patients early in the vaccination program discovered that a sixth dose could be extracted from a standard five-dose vial with low dead-volume syringes. These are syringes that leave less vaccine trapped between the plunger and needle after a shot is administered.

Getty Images

Dry ice, which is a solid form of carbon dioxide, is used in the transportation of products that need ultra-cold temperatures, such as vaccines. The gas turns solid at temperatures below -109 degrees Fahrenheit. UPS says it is producing 1,200 pounds of dry ice per hour to help with the U.S. vaccine effort.

This effectively boosts the supply of Pfizer vaccine by 20%.

Pfizer's custom shipping boxes, which have sensors to monitor temperature and location, are packed with 50 pounds of dry ice for the journey to distribution facilities. The dry ice keeps the vaccine at the proper temperature for up to 15 days, but it must be replenished, and the cooler can't be opened more than twice a day, according to a December 2020 article by JLL.

UPS, FedEx and DHL are handling

"The thing that's been different about this pandemic and Operation Warp Speed was the fact that each year, there's an annual build-up of inventory to meet the flu season. **This was a pandemic that hit us immediately. It required vaccination on a global scale that was really outside of normal cycles for vaccination, as well as temperature and storage requirements."**

— Matt Hirsch, President, Primus Builders

distribution for Pfizer's vaccine. Depending on the destination, containers will be delivered by trucks or taken to air hubs to be sorted and loaded onto planes.

Pfizer's vaccine will initially be shipped to hospitals. Later, it will go to state facilities and distribution centers. In the later stages, it will be delivered to health clinics and drug stores.

Because of the urgent need to move a lot of doses quickly across the country, Pfizer says it has "developed detailed logistical plans and tools to support effective vaccine transport, storage and continuous temperature monitoring." This will involve "a flexible, just-in-time system, which will ship the frozen vials direct to the point of vaccination."

According to a December 2020 report from Boston.com, the "vast majority" of Moderna's COVID-19 vaccines will be manufactured in Massachusetts (the company is headquartered in Cambridge). Moderna's vaccine vials hold 10 doses.

McKesson, a firm that specializes in health care supply-chain management, has a federal contract to handle national distribution of Moderna's vaccine that could be worth up to $300 million, according to an August 2020 article from Bloomberg. The company has been a centralized distributor for the U.S. Centers for Disease Control's Vaccines for Children program for 13 years, and it ships more than 70 million temperature-controlled vaccine doses annually.

McKesson has partnered with UPS and FedEx to ship vaccines.

UPS says it is producing 1,200 pounds of dry ice per hour to supply the U.S. vaccine effort. The company is also constructing a 400,000-square-foot "freezer farm" near its hub in Louisville. **David Graves**, corporate communications manager for UPS, told WKLY-TV in Louisville that the facility will hold up to 300 free-standing ultra-cold freezers that operate at temperatures as low as -112 degrees Fahrenheit. Each freezer is about the size of an average refrigerator found in a home and can hold 48,000 vials of vaccine, Graves said. In all, the facility will be able to store 14 million vials of vaccine.

FedEx also has ultra-cold freezers at 90 facilities around the world.

The Pfizer and Moderna vaccines also come with dozens of boxes of supporting materials that are shipped separately and must arrive at the same time as the vaccines.

"We anticipate every pallet of vaccine will require 25-30 palettes of accessories," DHL's St. Onge told CNBC. "It includes syringes, swabs and all the other accoutrements that go into a vaccine program."

Other Vaccines On the Way

While dozens of vaccines for COVID-19 are in various stages of development around the world, a couple hold promise for North American markets.

The one drawing the most attention is from Johnson & Johnson. In late February, the U.S. Food and Drug Administration granted emergency use authorization for the vaccine, which only requires a single shot and can be stored in a standard refrigerator for an extended period of time. Johnson & Johnson's vaccine was found to be 66.9% effective against moderate to severe COVID-19. (The Moderna and Pfizer vaccines are about 95% effective.)

In March, the Biden administration announced that Merck has agreed to help manufacture the Johnson & Johnson vaccine, with the goal of producing enough shots to provide one to every American adult by the end of May.

A Modular Solution for Mass Vaccinations

In February, The Boldt Company of Appleton, Wisconsin, introduced a modular structure that can "provide safe and efficient vaccine settings for healthcare workers and individuals," according to a press release.

The company says the prefabricated VaxMod units, which were designed by Boulder Associates, Inc., can deliver 39% more COVID-19 vaccines each hour with 7% less staff based on a comparison with Centers for Disease Control guidelines for vaccination clinics. The company says the units are delivered "as a fully integrated turnkey solution, shipped and installed anywhere in the country."

When staffed with 27 employees for an eight-hour shift, a single 42-foot by 14-foot VaxMod module can handle 1,100 patients at 12 vaccination stations. Modules can function as free-standing units or be connected to each other, according to the press release. They can also be repurposed for permanent use in the future.

Boldt says a basic three-module facility costs $995,000, not including shipping and installation costs. ■

"Two of the largest pharmaceutical companies in the world who are usually competitors are working together on the vaccine," Biden said. "This is the type of collaboration between companies we saw in World War II."

Vacant Spaces as Vaccination Centers

Pharmacies such as CVS and Walgreens have partnered with the government to serve as inoculation centers. But commercial real estate firms could play a critical role in the process, too, by repurposing empty buildings as vaccination centers.

According to data from CoStar, more than 11,000 stores closed in 2020, leaving at least 150 million square feet of vacant retail space across the country. Additionally, nearly one in four hotels in the U.S. is facing foreclosure, according to the American Hotels & Lodging Association.

"[Real estate] is in the business of location, location, location," City University of New York Professor of Health Policy and Management **Dr. Bruce Y. Lee** told Bisnow in January. "They can play a significant role in identifying vaccination locations and creating vaccination locations."

In January, **Bill Rudin**, the CEO of Rudin Management, said the Real Estate Board of New York is working with New York Gov. **Andrew Cuomo** on a program to turn vacant spaces in New York City into vaccination and testing centers.

Vacant retail space in New Jersey is already being repurposed to fight COVID-19. Gov. **Phil Murphy** told CNBC in a separate interview in January that a former Sears store 30 miles outside New York City will be used as a vaccination site. ■

Trey Barrineau is the managing editor of Development magazine.

Pharma Cold Storage Considerations for Developers

While COVID-19 vaccines will be front and center for the foreseeable future, experts who specialize in cold storage say there will always be a need for ultra-cold space to store vaccines and other pharmaceutical products. However, it's not clear how many investors are exploring this specialized niche of refrigerated storage.

"Vaccines that require refrigeration aren't just for COVID-19," said **Scott Pertel**, president and CEO of Cold Summit Development, during a recent NAIOP webinar. "It's needed for tetanus, hepatitis, mumps, measles, chickenpox, shingles and many more. Glaucoma eye drops require refrigeration. Insulin, too."

Pertel said demand for ultra-cold space could continue to rise, but addressing it will be challenging.

"The varying temperatures are so drastic that you can't just say 'I'm going to build a -80 Fahrenheit cooler box and hope that a vaccine fits in it,' " he said. "It's converse. You have to build it specifically to that vaccine, as opposed to building spec for vaccine storage. We understand how food needs to be stored, but much less about how future vaccines are going to need to be stored."

Ultra-cold pharmaceutical facilities are often constructed inside of other cold-storage warehouses because the refrigeration and electrical infrastructure is already in place. However, those "box in a box" spaces can be expensive to build.

"When you are looking at a 2,000-square-foot space, the cost per square foot can be astronomical," Pertel said. "We're seeing a pretty wide spread."

Matt Hirsch, the president of Primus Builders, a firm that specializes in the design and construction of cold storage facilities, said he's seen costs range from $500 to $1,200 per square foot for ultra-cold spaces.

"It's all a derivative of the fact that you have redundant systems for refrigeration in a very small space," he said.

Consider a developer who owns a 100,000-square-foot traditional dry warehouse and wants to build a 5,000-square-foot ultra-cold room that could store pharmaceutical products. Here are some things they would have to consider:

Multiple vestibules: Hirsch said it's important to have multiple tempera-

"**Vaccines that require refrigeration aren't just for COVID-19.** It's needed for tetanus, hepatitis, mumps, measles, chickenpox, shingles and many more. Glaucoma eye drops require refrigeration. Insulin, too."

— Scott Pertel, President and CEO, Cold Summit Development

ture zones for palletized products to pass through as they go into or out of ultra-cold storage. He suggested a zone at 36 degrees Fahrenheit, then a -10 Fahrenheit zone, then the -80 Fahrenheit zone. "Typically what we're trying to do is build that -80 Fahrenheit room as a box-in-a-box inside the -10 Fahrenheit room," he said. In addition to helping preserve the material-handling equipment, it also protects the refrigeration machinery to ensure the proper humidity and temperature levels.

Walls and floors: It's critical to create thermal separation for the ultra-cold space from the rest of the building, so facilities with freezers will need proper insulation and vapor barriers. Floors would require underfloor heat systems to withstand the ultra-low temperatures. Hirsch said most new buildings have enough structural capacity in the roof to suspend a new insulated metal panel (IMP) ceiling, but much of the newer heavy refrigeration equipment requires support steel down to the floor to hold air units. "We typically try to locate these storage areas on the exterior wall of the facility so we can have the big mechanical refrigeration equipment outside," he said.

Electrical: Most ultra-cold facilities install 100% standby generators to preserve the integrity of pharmaceutical products in the event of a power outage. "Those traditionally have long lead times and a cost barrier that would not be very big if it were spread across a really large facility, but when we're talking about smaller storage areas, they can become big financial barriers from a cost-per-square-foot perspective," Hirsch said.

Getty Images

Ultra-cold pharmaceutical storage facilities are often built inside of other refrigerated warehouses because much of the operational infrastructure is already in place.

Fire protection: Traditional wet overhead fire-protection systems should be replaced by dry systems to prevent freezing and ice damage.

Fork truck equipment: Fork trucks have more stringent electronics packages and battery requirements to work in ultra-cold spaces. They also need upgraded lubricants for the hydraulic systems to withstand temperatures up to –80 Fahrenheit. And when not in service, fork trucks must remain in one of the lower-temperature vestibule areas. "They come out of the -80 Fahrenheit zone and live in that area and charge their batteries there," Hirsch said. "Fork trucks work in -80 Fahrenheit for short durations, and then they need come out and warm up. But you don't take them all the way out into an ambient space, because just like when you take a super-cold can of Coke outside on a hot summer day, it's going to sweat all over the place. That condensation will freeze back up. That damages the electronics and really causes issues with the batteries."

Controls and sensors: Microscopic temperature control inside the ultra-cold room is vital. Each vial of COVID-19 vaccine in an ultra-cold room can only have a degree and a half of variance over any five-minute period. "The sensors we're purchasing for these applications have a 1% variance where you usually have a 3% variance," said **Michael McGinnis, Jr.**, president of Innovative Refrigeration Systems. "That can drive the cost of the sensors up by a factor of 10." Additionally, humidity control is important in ultra-cold spaces to keep material-handling equipment dry and prevent condensation from freezing.

Loading docks: Some facilities will have refrigerated dock space with specialized shelters to minimize the amount of outdoor air coming in.

Facility locations: Last-mile urban locations for ultra-cold storage will increase in order to be close to medical clinics and pharmaceutical manufacturing. ■

The Meier & Frank Building:

At a Glance

- The Meier & Frank department store is a landmark in downtown Portland, Oregon, that is on the National Register of Historic Places.
- The $16.6 million renovation project took a year to complete and included 200,000 square feet of core renovations and 23,000 square feet of interior renovations.
- The finished building features 40,000-square-foot floorplates and floor-to-ceiling clear heights that range from 13 feet, 6 inches to 14 feet, 6 inches. ■

Courtesy of KBS

The Meier & Frank Building in downtown Portland, Oregon, was for decades a popular shopping destination. It has since been renovated into a Class A mixed-use space.

A New Life for an Old Department Store

An adaptive reuse project revitalizes an iconic retail tower in Portland, Oregon.

By Brent Carroll

For residents of a certain age in Portland, Oregon, the phrase "meet me under the clock" meant the clock on the main floor of the Meier & Frank department store, which first opened nearly 150 years ago. The 16-story terracotta landmark building at 555 Southwest Morrison Street encompasses an entire city block near Pioneer Courthouse Square, widely known as "Portland's living room."

In November 2016, a new era for the Meier & Frank Building began when KBS purchased the asset for $54 million in a joint venture with private development firm Sterling Bay with the intent of repositioning the property. Converting part of a beloved former department store into a fully leased Class A mixed-use space while preserving the historical integrity of the original property required hard work as well as some creative problem-solving.

The History

In 1857 German immigrant **Aaron Meier** founded a dry goods store in downtown Portland; by 1873, employee **Emil Frank** joined as partner. Meier and Frank were pioneers in experiential shopping. The "Friday Surprise" started in April 1887 as a weekly sales event that drew crowds from across Portland for decades and generated record sales. The store was the site for memorable Christmastime events for generations of Oregonians. The company expanded through the years, adding locations in Oregon, Washington state and Utah.

Architect **A.E. Doyle** designed part of the current building, which was completed in 1909, with major expansions occurring in 1915 and 1932. It was added to the National Register of Historic Places in 1982 as an outstanding example of the Commercial Style in architecture. It was also the largest retail outlet west of the Mississippi during the 1930s.

In 1966, Meier & Frank was sold to the May Department Store chain, and in 2006 the store was converted into a Macy's department store. It closed in May 2017, making way for the historic renovation ahead.

KBS chose Bora Architects in 2016 to convert the first five floors and basement levels into flexible creative office and retail space. The Bora team included interior designer **Sarah Weber**, project architect **Josh Brandt** and project manager **Leslie Cliffe**, along with contractors who restored the façade to its original terracotta exterior, allowing passersby and tenants alike to enjoy the beauty of the restoration. The $16.6 million project, which took a year to complete, in-

Courtesy of KBS

The Meier & Frank Building in downtown Portland, Oregon, won Best in Category and Jurors Choice awards in 2019 from the Oregon chapter of the International Interior Design Association (IIDA).

cluded 200,000 square feet of core renovations and 23,000 square feet of interior renovations.

The luxury hotel The Nines occupies the top nine floors, offering tenants access to two restaurants and an expansive rooftop bar and lounge. The name "The Nines" is an homage to Meier & Frank's reputation as a destination for "dressed to the nines" fashion shopping.

Recognizing the Potential

KBS recognized many valuable reasons to reposition this historic building.

First, Portland offers a lower cost of living than other major West Coast cities and has drawn a steady stream of millennial residents, many of whom are employed in the tech industry. Portland's tech-talent labor pool is the 26th largest nationally at 60,550 workers, comprising 5% of the city's overall workforce. (The national average is 3.7%.) This talent pool attracts top companies, many of which are seeking to expand in the months ahead to accommodate social distancing as Americans return to the office in a post-COVID world.

Secondly, numerous investment-grade tenants have signed long-term leases in downtown during recent years, including Nike and Intel. Intel is the largest private employer in Oregon, and its Portland office employs more people than its Silicon Valley headquarters.

Finally, the Meier & Frank Building's proximity to numerous walkable amenities, including all four of the city's rail lines, supports the live/work/play lifestyle demanded by today's office tenants. Within a mile are hundreds of restaurants, cafes, local and national retailers, and breweries. The Pine Street Market, a popular food hall with gourmet vendors, is also nearby.

The renovations to the property integrated numerous enhancements and functionality while appealing to tenants and the local community. **Upgrades included exposing the terracotta stone tile and removing the awnings to restore the building's exterior to its original state, then transforming the interior into a modern creative mixed-use space.**

Courtesy of KBS

Longtime Portland residents remember the phrase "meet me under the clock," which referred to the clock on the main floor of the Meier & Frank department store. The renovated mixed-use building has preserved the community landmark in the lobby.

The Renovation

The renovations to the property integrated numerous enhancements and functionality while appealing to tenants and the local community. Upgrades included exposing the terracotta stone tile and removing the awnings to restore the building's exterior to its original state, then transforming the interior into a modern creative mixed-use space.

In addition, the team converted one of the building's basement levels into a 15,000-square-foot amenity floor that offers tenants complimentary access to a professionally operated spin/yoga/meditation room, a full fitness room with available personal training, showers, a bike-storage facility equipped with 200 bike-parking spaces, lockers and drying closets (ventilated compartments designed to dry clothing throughout the day, a welcome amenity given Portland's frequent rainy weather).

The bike amenities are especially popular as many employees in the Meier & Frank Building take advantage of its centralized location by cycling to work.

KBS also completed upgrades on the property's common areas, including building out multiuse gathering spaces and lounges for tenants, adding exposed concrete ceilings and brass finishes, restoring the lobby's iconic clock, and revealing the original elevator's marble stone, which had been covered up during a previous renovation. These upgrades highlight Portland's historic charm and reinforce the community's ties to the building.

As Portland is known for having an established coffee culture, it was important to include a lobby-level coffee bar for tenants and the community.

Navigating the Demands of a Historic Renovation

The Meier & Frank renovation presented several challenges for the redevelopment team.

The redevelopment team also worked to gain buy-in from the local community, who were reassured that the property would retain its historical integrity after the renovations were finished.

Courtesy of KBS

Upgrades to the Meier & Frank Building's common areas include building out multiuse gathering spaces and lounges for tenants, and adding exposed concrete ceilings and brass finishes.

As the building is a local and national historic landmark, they worked closely with the State Historic Preservation Office (SHPO) and the City of Portland Design Commission (CPDC). The team also collaborated with historic consultant **Peter Meijer**, who regularly works throughout Oregon on SHPO compliance issues. Meijer advised on exterior changes and helped to develop an interior renovation standard that was pre-approved by SHPO. This strategy enables tenants to implement improvements without having to seek an additional SHPO review and approval, saving time and cost.

The redevelopment team also worked to gain buy-in from the local community, who were reassured that the property would retain its historical integrity after the renovations were finished.

Another challenge was the preservation of the property's historic tax credit. The project had an existing historic credit/special assessment that had carried over from its original renovation. The redevelopment team was careful to maintain compliance with the terms of that special assessment in order to preserve the credit and avoid triggering retroactive taxation.

Additional compliance covered regulatory issues surrounding the exterior improvements to the building, which are governed by the city of Portland and subject to review by the Historic Landmarks Commission. The team was thoughtful in crafting a strategy that would deliver the necessary upgrades while staying true to the rich history of the property. Ultimately, exterior improvements included removing canopies and reopening several historic entries that had been closed off for 50 years.

Opening the space required moving building systems that were on the

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Courtesy of KBS

Oversized floor plates, high ceilings and flexible work spaces are among the signature design elements in the Meier & Frank Building.

Opening the space required moving building systems that were on the perimeter of the floorplate. **The chief concern was ensuring that the leasable areas were flexible enough to appeal to a wide range of tenant types, from traditional office users to modern high-tech companies.**

perimeter of the floorplate. The chief concern was ensuring that the leasable areas were flexible enough to appeal to a wide range of tenant types, from traditional office users to modern high-tech companies.

Another requirement was keeping the Meier & Frank entrance on the southwest corner of Pioneer Square. After the renovations, the entryway would be 54 inches above the lobby floor. To bridge the gap, the team installed a ramp between the initial entryway and the property entrance, which added to the building's ambiance.

The size of the building required a combination of high-tech and low-tech construction processes. While Bora Architects was familiar with building information modeling (BIM) software and Revit as a documentation tool, these systems were not comprehensive enough to deal with the realities of a 109-year-old building. During meetings with Turner Construction and the mechanical consultant, Bora manually drew the planned locations of duct work and conduit routings on the floor, and the team walked the paths to determine the proper course of action.

Perhaps the most innovative solution arose from one of the team's mechanical partners. Typical offices, which are filled with employees and heat-generating computers, demand air-cooling systems that are larger than those required by retail spaces. Accessing the roof during construction was necessary in order to replace a smaller cooling system with a larger one — an obstacle the team needed to accomplish without tearing through the nine-story hotel above the space that was being renovated. PAE Engineers installed a high-efficiency evaporative fan from an existing cooling tower on the roof that pipes cold water down to the office floors. This impressive solution worked around the constraints unique to the building while maintaining the positive relationship between the redevelopment team and The Nines Hotel.

The hotel was also fully operational during the project, so another challenge involved reducing vibrations and loud noises during construction. To address this, Bora Architects scheduled louder activities for later in the day, set a curfew for work and shut down construction when needed. It also scheduled deliveries during times that wouldn't impede the flow of traffic into the hotel.

The Surprises

As interior space is demolished when renovating a historic property, surprises are nearly always revealed, and Meier & Frank was no exception. Fortunately, all of the building's surprises were positive.

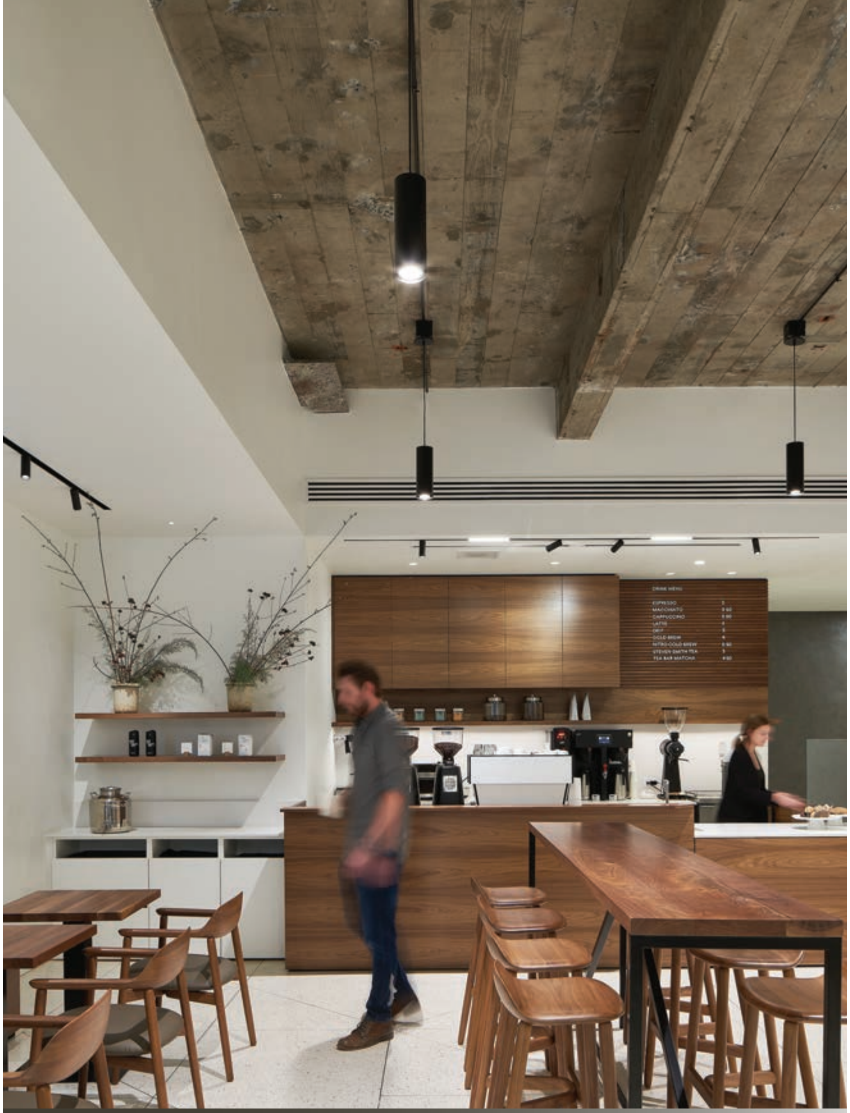
The building had been expanded in three phases in 1909, 1915 and 1932. The strategy was to leave the ceiling exposed because the processes for pouring concrete during each of those eras required different technologies. As it happens, exposed ceilings are currently a popular trend in the office sector, so this design element was an unexpected win for the redevelopment team.

Other surprises emerged when removing finishes revealed beautiful details, such as the original terrazzo floor in the lower level — over which carpet had been installed — that simply required patching to repair it.

Project Summary

Project Location		Portland, Oregon
Project Name		Meier & Frank
Type of Site		Urban
Development Type		Adaptive Reuse, Mixed Use, Transit Oriented
Transportation Modes		Car, Transit, Pedestrian
Mix of Uses		
	Office/Retail	191,106
	Recreational (SF)	11,080
Number of Floors		Office/Retail floors 1-5. The Nines Hotel floors 6-16.
Site Dimensions		Total SF 202,186
Development Team		
	Developers	KBS and Sterling Bay
	Project Architect	Josh Brandt of Bora Architects
	Interiors Architect	Sarah Weber of Bora Architects
Financial Partners		
	Co-owner	Sterling Bay
Timeline		
	Building Acquisition	2016
	Project Completed	2018
Development Cost		
	Building Acquisition Cost	$54 million
	Renovation Cost	$16.6 million

The building had been expanded in three phases in 1909, 1925 and 1932. The strategy was to leave the ceiling exposed because the processes for pouring concrete during each of those eras required different technologies. As it happens, exposed ceilings are currently a popular trend in the office sector, so this design element was an unexpected win for the redevelopment team.



Courtesy of KBS

The city of Portland is known for its coffee culture, so the Meier & Frank redevelopment team made sure to include a coffee bar in the lobby for tenants and the community.

Renovating this building meant embracing its history while pulling back the layers to reach the impressive design elements.

Renovating this building meant embracing its history while peeling back the layers to reach the impressive design elements. The team wanted to celebrate and honor the previous design, and in doing so, it uncovered the property's beauty and sense of place.

The Results

The restorations KBS has implemented at Meier & Frank pay homage to the property's historic roots and classic architecture while providing state-of-the-art tenant space. This combination differentiates the property in the Downtown Portland market.

While the downtown office market faced significant challenges in 2020 due to social unrest and COVID-19, this building's amalgam of ideal location, rich history and leading-edge amenities has resulted in continued significant interest from a broad spectrum of tenants.

The project received the LEED Silver (Core + Shell) designation when finished. It also received accolades from the design community, winning Best in Category and Jurors Choice awards in 2019 from the Oregon chapter of the International Interior Design Association (IIDA).

In addition, the recent renovations serve to enhance the property's suitability for office tenants of all sizes.

The extensive 40,000-square-foot floorplates and floor-to-ceiling clear heights that range from 13 feet, 6 inches to 14 feet, 6 inches can accommodate the future build-out needs of large companies as well as current requirements for social distancing in the era of COVID-19. A sizable tenant can fit on one floor rather than spreading out across several floors, eliminating the need to duplicate break rooms, conference rooms and other common areas.

Most importantly, by collaborating with all parties involved in this project, the team delivered a property with unique features that is right for the market, driving interest in leasing space, and providing the local community with a tribute to the original building that can be enjoyed for many years ahead. ■

Brent Carroll is asset manager of Meier & Frank and senior vice president with KBS.



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NAIOP RESEARCH FOUNDATION

Cutting-edge Research That Has an Impact

2021 ANNUAL REPORT

Looking Ahead, Moving Forward in 2021

With 2020 in the rear view, the NAIOP Research Foundation is looking to the horizon to capture information and insights on what opportunities, challenges and transformations lie ahead for the industry.

Recurring research, such as the industrial and office space demand forecasts, always offers a valuable snapshot of various aspects related to commercial real estate, and will take on an increasing depth of importance and help shed light on the continued impacts from an unprecedented year.

New reports, including those on emergent construction technologies, wellness standards in industrial real estate, and tools for ranking real estate markets, will continue to explore topics most important to the people who work together to shape the experiences of individuals and where they live, work, shop and play.

There is a sense of underlying optimism among the Research Foundation's Trustees, Governors and Visionaries. Many have experienced at least one recession or market correction in their careers, and they know that patience and perseverance are the key to making it through. The ship will right itself, some parameters will be reset, and an adaptable, imaginative and dedicated team will lead the commercial real estate industry in a new, changed world.

Join the NAIOP Research Foundation as we celebrate the accomplishments of 2020 and prepare for what's next, as new trends, technologies, and tenaciousness propel us forward.

> "There is no doubt the coronavirus pandemic will continue to have a tremendous impact on commercial real estate, and you can count on the Foundation to move forward with new research and continued investment into the resources our industry needs to weather the storm."
>
> – Eva Stevens, 2021 Chair, NAIOP Research Foundation

The Latest in Innovative Research

Economic Impacts of Commercial Real Estate, 2021 U.S. Edition

Development and construction of commercial real estate across the United States – office, industrial, warehouse and retail – generates significant economic growth at the city, state and national levels. This study measures the contribution to GDP, salaries and wages generated, jobs supported, and more from the development and operations of commercial real estate in the United States.

In 2020, combined commercial, residential, institutional and infrastructure development and operations generated the following economic benefits:

- Contributed $4.3 trillion – 21.0% of U.S. GDP
- Supported 28.5 million American jobs (a measure of both new and existing jobs)
- Significant personal earnings and state revenues, adding inventory to attract new businesses and jobs

naiop.org/econtrubutions21

The Evolution of the Warehouse: Trends in Technology, Design, Development and Delivery

This report provides the real estate development community with insight into current and future trends in building and logistics technologies and their implications for industrial real estate. Steve Weikal and James Robert Scott, researchers at the MIT Real Estate Innovation Lab, interviewed professionals specializing in industrial building design and automated systems to identify emerging trends that will be of interest to industrial developers, building owners and tenants.

naiop.org/evolutionofwarehouse

Looking Ahead

JAN

Economic Impacts of Commercial Real Estate, 2021 Edition (U.S.)

Recognize Sustainers Fund donors who supported the Foundation with an annual gift

FEB

Development Approvals Index: A New Tool to Evaluate Local Approvals Processes

This Index will allow jurisdictions to be evaluated across several approvals-related metrics and quickly compared. Index results could be used as a benchmark for jurisdictions to improve their permit and entitlement processes and could empower developers to call for best practices in their local areas. The Index could also serve as a tool allowing developers to make more fully informed decisions about expanding into new markets.

A New Look at Market Tier and Ranking Systems

Dividing and grouping the major metropolitan regions of the United States into ranked groups or "tiers" is a frequently used method to evaluate, prioritize and rank markets for investment. This project provides an understanding of the origins, methodologies and uses of market tier models.

naiop.org/markettier

Midyear Economic Impacts of COVID-19 on Commercial Real Estate Development Industry

The NAIOP Research Foundation commissioned Steve Fuller, Ph.D., professor emeritus at George Mason University, to undertake a study of the 2020 mid-year economy and how second quarter shocks may influence commercial real estate development in the future. After examining government and private-sector data, Fuller found declines in expenditures and values across most building types.

naiop.org/midyear2020

CONTINUED ON PAGE 75

> "Companies have learned how to function [during COVID-19] but often by downsizing and better management. These are really important lessons for the future because it will be a much more competitive economy going forward."
>
> – Stephen S. Fuller, Ph.D., Professor Emeritus, Schar School of Policy and Government, George Mason University; Author, "Midyear Economic Impacts of COVID-19 on Commercial Real Estate Development Industry."

Industrial Space Demand Forecast Q1

Emergent Construction Technologies Research Report

This report will provide an overview of emerging information technologies, building technologies and manufacturing processes related to commercial construction and will examine the barriers and opportunities that companies face to adopt these new technologies, including their utility during a viral outbreak like COVID-19.

MAR

APR

COVID-19 Research Briefs

Working Together as a Team: Negotiating With Tenants and Leasing Space During COVID-19

This research brief draws from interviews with brokers and building owners, news sources, NAIOP webinars, and NAIOP survey data to identify best practices for triaging office and industrial tenant requests, offering reasonable accommodations to those tenants who need short-term assistance, and responding to uncooperative tenants. It also examines how owners are adapting the ways they show and lease space as well as new tenant preferences and safety expectations.

naiop.org/negotiatingwithtenants

Using Capital Improvements to Create Competitive Advantage in the COVID-19 Era

This brief evaluates the merits of frequently discussed capital investments and their potential to create durable competitive advantages. It draws from an analysis of recent coverage in commercial real estate trade publications, as well as conversations with seven industry practitioners that took place in June 2020.

naiop.org/capitalimprovements

Navigating a Safe Return to Work: Best Practices for U.S. Office Building Owners and Tenants

Measures to contain the coronavirus outbreak temporarily slowed economic activity and dramatically reduced occupancies at many commercial buildings. As state and local governments outline plans for a phased reopening of the economy, office building owners and employers are formulating plans that will allow employees to return safely to work.

naiop.org/safeofficereturn

MAY

New Governors and Visionaries inducted

Governors, Trustees and Industry Trends Task Force meet at National Forums Symposium

Office Space Demand Forecast Q2

JUN

Alternative to Market Tiers Research Report

This report will present a new method for analyzing and describing regional commercial real estate markets in the U.S., comparing markets' size to their risk/return characteristics and conveying this information on a two-dimensional grid. This tool will allow users to quickly compare the characteristics of different markets when identifying opportunities for investment or conducting due diligence reviews.

CONTINUED FROM PAGE 73. *THE LATEST IN INNOVATIVE RESEARCH*

Industrial and Office Space Demand Forecasts

These forecasts provide an outlook on current and future conditions in the U.S. commercial real estate market. The reports help to define linkages between economic and specific sector activity and the demand for office and industrial real estate.

The most recent Office Space Demand Forecast (Q4 2020) predicted that given the continued challenges facing the U.S. economy, office net absorption is forecast to be negative 18 million square feet in Q4 2020 and negative 10 million square feet in Q1 2021. However, growth in net absorption is forecast to resume in Q2 2021, and the total net absorption over the period from Q2 2021 to Q3 2022 will exceed negative absorption from the recession, resulting in overall gains in absorption over the next two years. (See Table 1)

naiop.org/officedemand

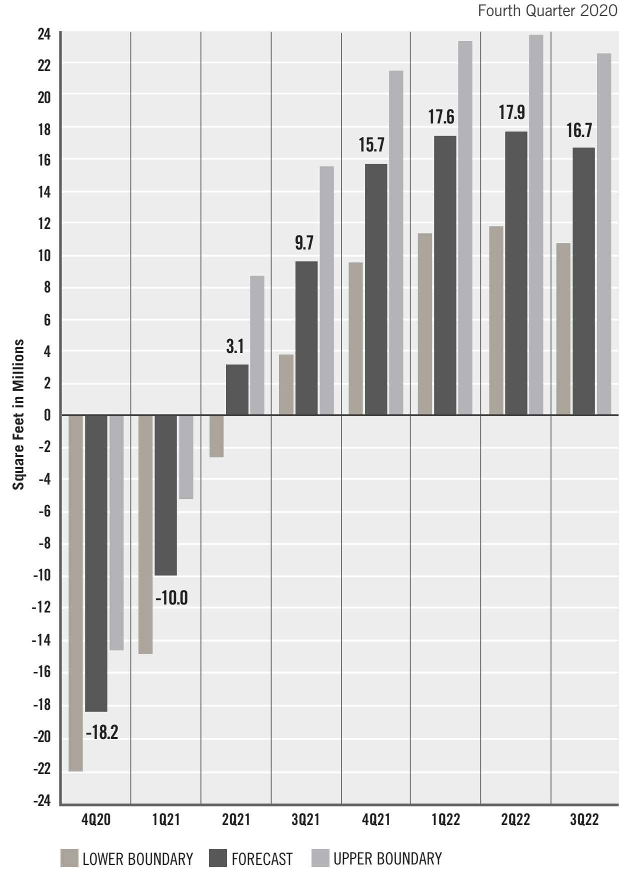
The most recent Industrial Space Demand Forecast (Q3 2020) predicted negative 141 million square feet of industrial space absorption in Q3 2020. Actual absorption proved to be positive 67.7 million square feet, due to a surge in demand for e-commerce distribution facilities that had not accompanied past recessions. The authors of the forecast are monitoring absorption and economic trends and will update the predictive model underlying the forecast as needed.

naiop.org/industrialdemand

TABLE 1

The NAIOP Office Space Demand Forecast with 70% Confidence Intervals

U.S. Markets, Quarterly Net Absorption



NAIOP hosted a series of webinars that explored these reports in greater detail throughout 2020. Listen on-demand at **naiop.org/foundationwebinars.**

Summer Research Foundation E-newsletter

JUL

Wellness in the Industrial Workplace Report

This report will explore how warehouse and distribution center design can be improved to promote employee health and well-being and thereby improve recruitment and retention. It will evaluate working conditions and workforce needs within distribution centers and recommend design features that optimize work environments to improve employee well-being.

Meet Our Distinguished Fellows

The Research Foundation's Distinguished Fellows Program engages the nation's foremost commercial real estate, economic and public policy experts. Distinguished Fellows are active participants in NAIOP and contribute articles to NAIOP's Development magazine, present to the association's leadership via the Board of Directors or National Forums, participate on corporate committees, and provide advice, feedback and information regarding research being conducted in commercial real estate.

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University of California, San Diego

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Silver Family Research Fellow Senior Research Scientist, The MIT Center for Transportation & Logistics
Massachusetts Institute of Technology

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Professor and Timothy R. Price Chair, Brookfield Centre in Real Estate & Infrastructure, Schulich School of Business
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University of Denver

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Marquette University

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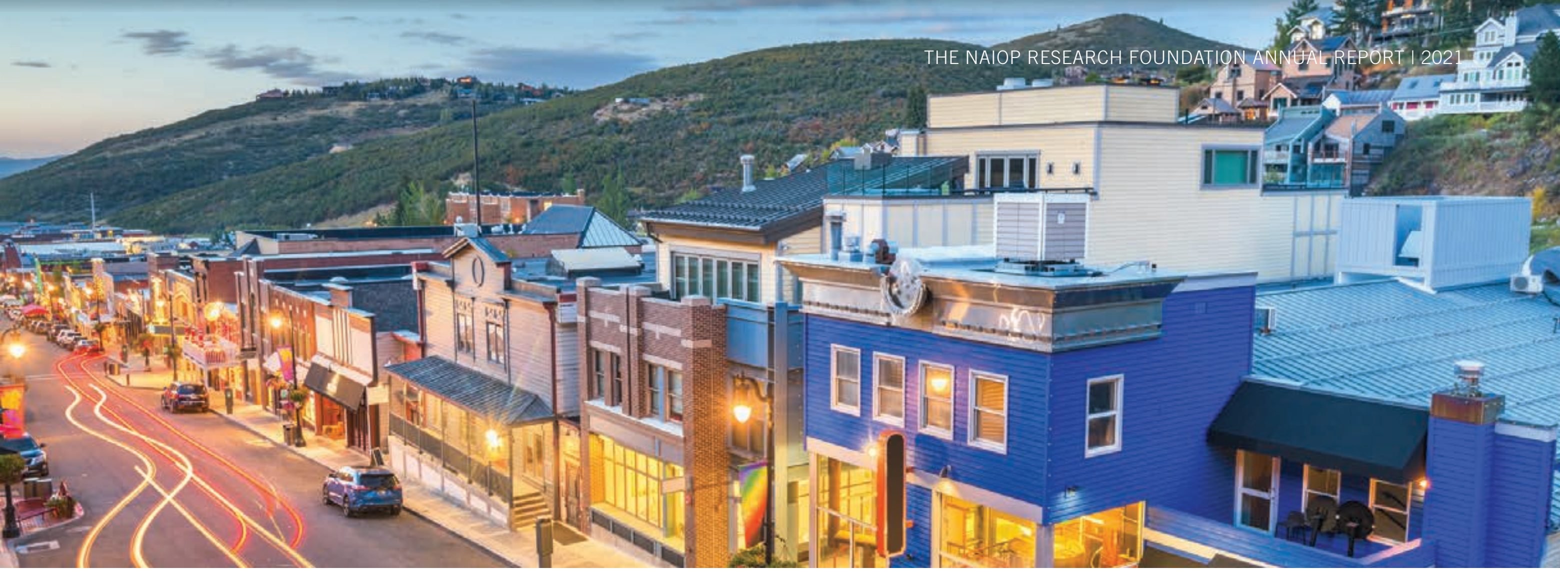
Associate Professor of Economics
Robert Morris University

Read more about this elite group at **naiop.org/distinguishedfellows.**

★ *Denotes new Distinguished Fellow*



Research Foundation Thought Leaders Present to NAIOP National Forums

The Foundation's Distinguished Fellows, Research Directors and researchers delivered over 50 presentations to NAIOP National Forums members in 2020, helping to catalyze discussion and share insights during a time when Forums members were unable to meet in person. Topics ranged from reshoring to retail and more.

Distinguished Fellows

Chris Caplice, Ph.D.
Silver Family Research Fellow Senior Research Scientist, The MIT Center for Transportation and Logistics, Massachusetts Institute of Technology

Presentation: "Making Sense of an Uncertain Future: From a Supply Chain Perspective"

Jim Clayton, Ph.D.
Professor and Timothy R. Price Chair, Brookfield Centre in Real Estate & Infrastructure, Schulich School of Business, York University

Presentation: "Beyond Building Certification: The Impact of Environmental Interventions on Commercial Real Estate Operations"

Zhou Yang, Ph.D.
Associate Professor of Economics, Robert Morris University

Presentation: "The Differential Impacts of the Coronavirus Pandemic on Small Business Operations and Finances"

Garrick Brown
Director of Research, Cushman & Wakefield of California

Presentation: "COVID: The Great Retail Reckoning and Mixed-use Reimagining"

Adam Brueckner
Vice President, Research and Global Portfolio Management, Oxford Properties Group

Presentation: "Capital Allocation – A Global Perspective from a Pension Fund"

Jim Costello
Senior Vice President, Real Capital Analytics

Presentation: "Commercial Property Investment Trends in the Age of COVID"

Tejaswi Ponnada Parker
Managing Director, Barings Real Estate Advisors

Presentation: "Is the Return of Manufacturing to North America Inevitable and Imminent?"

Foundation Researcher

Ed Klimek, AIA, NCARB
Partner, KSS Architects

Presentation: "Applying WELL to the Industrial Workplace" and "Mixed-use Industrial Development"

NOV — Office Space Demand Forecast Q4

NOV — Winter Research Foundation E-newsletter

Ways to Support the NAIOP Research Foundation

There are a number of ways that your financial support can help to underwrite the important work of the Research Foundation, including special occasion giving, memorial gifts, planned gifts and annual donations.

Sustainers Fund

Income raised through the Sustainers Fund helps the Research Foundation continue to fulfill its mission by providing a sustainable and flexible source of unrestricted income to be allocated where it is needed most. Funds raised allow the Foundation to be more responsive to industry-related issues that arise throughout the year.

Honor a Loved One or Colleague

Individuals, groups and organizations may make memorial gifts in support of the Research Foundation's mission to remember someone who has passed away, honor a living person, or mark a significant life event. Notification of a gift received, along with the donor's name, is sent to the person or persons being honored or memorialized. Those being honored or memorialized are recognized in Foundation materials and online.

Planned Gifts

Planned gifts are designed to help you meet your financial and charitable goals while supporting the Research Foundation in the long term. By making a planned gift, you can make a lasting impact by expanding the Research Foundation's capacity to address the industry's most pressing issues through its cutting-edge research, education and outreach activities. You can provide significant support through a gift that costs nothing in your lifetime through a charitable bequest in your will.

The *Legacy Society* recognizes those individuals who have made estate plans to benefit the Research Foundation.

Thank you to our founding Legacy Society members, **Ron Rayevich** and **Joan Woodard**, for their commitment to the Foundation's future.

Sustainers Fund – 2020 Donors

We are grateful to the donors who generously contributed to the Sustainers Fund in 2020. With their help, we exceeded our goal for the year.

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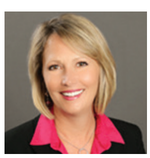
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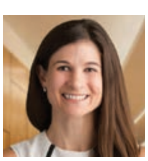
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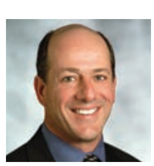
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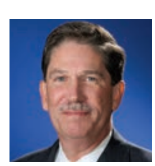
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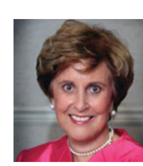
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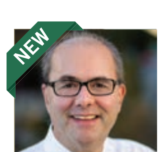
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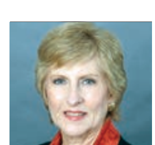
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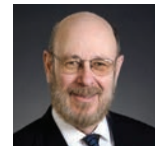
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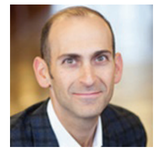
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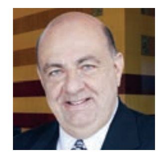
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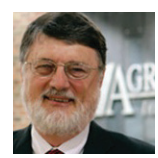
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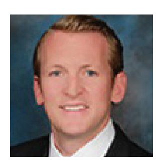
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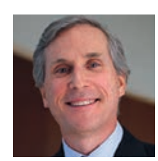
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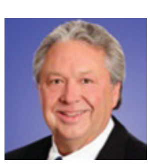
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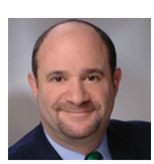
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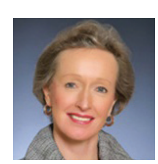
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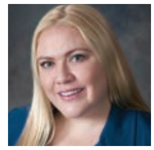

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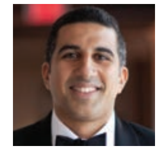

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Foundation Research in the News

Research by the Foundation has been cited in leading news publications:

NAIOP: How Landlords Can Reopen Buildings While Avoiding Liability Risk

"From implementing nonessential access bans to staggering arrival and departure times, a NAIOP brief highlights how building owners should adjust to occupants returning to the office."
GlobeSt.com | June 11, 2020

Primary, Secondary, Gateway? NAIOP's Two-Dimensional System Brings Clarity to Market Tiers

"This is the situation that NAIOP sought to rectify when one of their reports introduced a new matrix-style market ranking system earlier this year."
Propmodo | June 30, 2020

Industrial Real Estate Will Need More AI and Robotics: NAIOP

"As the rapid growth in e-commerce continues to redefine last-mile delivery, new building uses and logistics technologies emerge."
Commercial Property Executive | Oct. 15, 2020

NAIOP study examines how retail, office buildings will become part of the 'last mile'

"The tech-fueled evolution of industrial real estate is creating opportunities for underused assets, large and small."
Puget Sound Business Journal | Nov. 5, 2020

NAIOP report: Office leasing to rebound in 2021 with short-term leases

"A new report by NAIOP shows negative absorption rates in office leasing is expected to continue through the first quarter of 2021 and then possibly rebound."
Baltimore Business Journal | Nov. 18, 2020

Industrial Real Estate Faces Short-Term Decline in NAIOP Report

"The resilience that e-commerce offers the industrial market is unlikely to overcome the powerful headwinds of a recessionary economy, according to the latest quarterly forecast from NAIOP."
Commercial Property Executive | August 24, 2020

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For more information about the work of the NAIOP Research Foundation, complimentary downloads of completed research, lists of Distinguished Fellows and Governors, and more, please visit **naiop.org/research.**

Commercial Buildings a Key Focus of President Biden's Green Agenda

NAIOP supports incentive-based approaches to achieving energy efficiency.

By Aquiles Suarez

Even before his inauguration, President Biden's designated chief of staff made clear to incoming White House advisers that action on climate change would be an immediate priority. While any quick action would have to be based primarily on executive orders that would not require legislation, the clear signal was that President Biden and his administration intends to pursue an ambitious agenda to address climate change and provide for the clean energy future he outlined during his presidential campaign.

An overarching goal of the plan is to achieve a carbon-free power sector by 2035. But the plan encompasses more than simply shifting the country to renewable energy sources. It also includes proposals aimed at increasing the energy efficiency of the built environment, both commercial and residential. For commercial real estate specifically, Biden would seek to upgrade and retrofit four million buildings to increase their energy efficiency.

Getty Images

The Biden administration is planning legislation to address climate change and improve energy efficiency in the built environment.

Coupled with a weatherization program primarily aimed at the residential sector, the Biden campaign claimed it would create one million construction, engineering and manufacturing jobs for Americans to produce, install, service and maintain high-efficiency LED lighting, electric appliances, and advanced heating and cooling systems.

An overarching goal of the plan is to achieve a carbon-free power sector by 2035. But the plan encompasses more than simply shifting the country to renewable energy sources. It also includes proposals aimed at increasing the energy efficiency of the built environment, both commercial and residential.

In his campaign materials, Biden also promised to pursue legislation that would require a net-zero emissions standard for all new commercial buildings by 2030. The goal would be to cut the carbon footprint of the national building stock in half by 2035.

A closely divided Senate and lingering partisanship will no doubt complicate achieving all these goals in legislation, particularly on issues that have an impact on the energy industry. But on commercial real estate matters, there is substantial opportunity for consensus on policy approaches that make for increased energy efficiency in buildings.

NAIOP has long held that improving the energy efficiency of commercial

In his campaign materials, Biden also promised to pursue legislation that would require a net-zero emissions standard for all new commercial buildings by 2030. The goal would be to cut the carbon footprint of the national building stock in half by 2035.

buildings, if done through incentive-based approaches that recognize the differences in local markets, makes sense from economic, social and environmental perspectives. The association has worked with Congress on bipartisan measures aimed at modernizing the process for updating energy efficiency building codes. It has supported legislation, such as the Energy Savings and Industrial Competitiveness Act (S.2137), sponsored by Senators **Rob Portman** (R-OH) and **Jeanne Shaheen** (D-NH). This would ensure that energy-efficiency building codes are developed subject to the federal rule-making process, allow for industry input, and whose standards include technical feasibility and reasonable payback periods for energy-efficient investment.

Voluntary efforts, such as the Energy Star program administered by the Environmental Protection Agency (EPA), can also be an important factor in achieving the Biden administration's goals. The Energy Star labeling system helps consumers identify energy-efficient microwaves, televisions, doors and windows, and other items. And of particular importance to the commercial real estate industry, the program features Portfolio Manager, an online tool used to track energy and water consumption in buildings. Data from the program helps building owners and architects assess energy use relative to similar buildings in the program. Furthermore, buildings that meet certain EPA criteria for energy efficiency are deemed "Energy Star certified," making them more attractive to tenants and investors.

While modernizing energy-efficiency building codes and continued funding and improvements to voluntary programs such as Energy Star are important elements of an overall policy to increase energy efficiency, additional incentive-based tools must be developed for substantial progress to occur. To that end, a broad coalition of real estate industry associations, including NAIOP, is working with energy-efficiency and environmental-advocacy groups to establish a new category of energy-efficient qualified improvement property eligible for accelerated depreciation of 10 years, rather than the 15- or 20-year depreciation periods for other improvement property.

The previous Congress introduced legislation establishing a 10-year cost recovery period for such improvement property, and that will be a focus of NAIOP's public policy agenda in the current Congress. According to an analysis by the American Council for an Energy-Efficient Economy, the proposed incentive would help save businesses and households a cumulative $15 billion on energy bills and reduce the equivalent of the carbon emissions from 22 million cars and light trucks in a year.

Government at all levels and industry can work together to develop practical approaches to increase energy efficiency in commercial structures. NAIOP will be an important voice as the Biden administration and Congress debate legislative and regulatory proposals that will undoubtedly shape the future of commercial real estate. ■

NAIOP has long held that improving the energy efficiency of commercial buildings, if done through incentive-based approaches that recognize the differences in local markets, makes sense from economic, social and environmental perspectives. The association has worked with Congress on bipartisan measures aimed at modernizing the process for updating energy efficiency building codes.

Aquiles Suarez is NAIOP's senior vice president for government affairs.

NAIOP's Chapter Merit Awards Honor Top Programs and Individuals

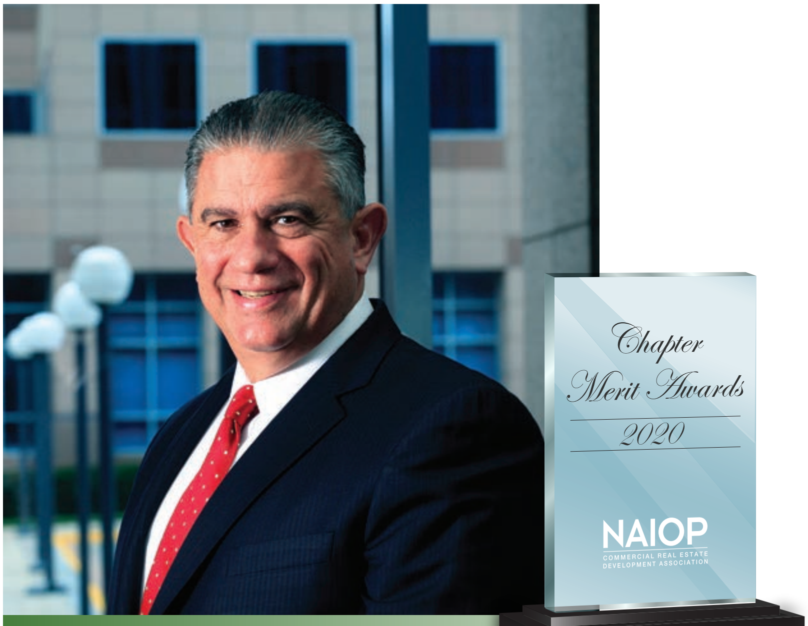
Recognition goes to exceptional leadership and impressive local efforts in education, special events, membership and legislative advocacy.

By Trey Barrineau

In early February, NAIOP honored outstanding work by chapters and individuals in 2020 with the Chapter Merit Awards, which were presented during the virtual Chapter Leadership and Legislative Retreat.

The Chapter Merit Awards recognize success in education, special events, membership, legislative affairs and leadership. Winners are selected by a committee of their peers comprised of volunteer judges. These programs included virtual events, charitable initiatives, competitions for college students and much more.

"For me, the awards have a new importance this year as we recognize the hard work, ingenuity and innovation of our chapters as they pivoted over the last year to keep our members engaged and continued to develop exceptional membership value," NAIOP President and CEO **Thomas J. Bisacquino** said. "Congratulations to all the 2021 Chapter Merit Award winners and nominees for their significant accomplishments in a very challenging year."



NAIOP President and CEO Thomas J. Bisacquino presented the awards during the virtual Chapter Leadership and Legislative Retreat in February.

Chapter of the Year

NAIOP Southern Nevada was named Chapter of the Year in the Large Chapter category.

In 2020, the chapter transformed its three biggest events — the Spotlight Awards, the Bus Tour and its largest members-only mixer, Oktoberfest — into educational and entertaining virtual events. The chapter also hosted 13 programs and educational events in 2020.

NAIOP Central Florida was honored as Chapter of the Year in the Medium Chapter category. The chapter hosted 38 events and welcomed more than 80 new members. The chapter also raised more than $15,000 for Feeding Children Everywhere, and members packed more than 57,000 meals for needy families during the holidays.

Outstanding Leadership by a Chapter President

Julie Cleaver of **NAIOP Southern Nevada** was honored in the Large Chapter category for a wide range of accomplishments. In addition to her efforts that led to a Chapter of the Year award, she was also instrumental in securing an impressive group of speakers for a closing keynote panel discussion at CRE.Converge 2020 — **Brian Sandoval**, president of the University of Nevada, Reno; **Marc Badain**, president of the Las Vegas Raiders; and **Kerry Bubolz**, president and COO of the Vegas Golden Knights.

David Murphy of **NAIOP Central Florida** received the award in the Medium Chapter category. Murphy helped spearhead the chapter's new IDEA Task Force to bring greater diversity and access to the commercial real estate profession.

Chapter Volunteer of the Year

Rosanne Beattie of **NAIOP DC-Maryland** was honored in the Large Chapter category. She helped guide the chapter's participation in the Year Up organization, which empowers and mentors low-income young adults to move from poverty to professional careers or higher education.

"For me, the awards have a new importance this year as we recognize the hard work, ingenuity and innovation of our chapters as they pivoted over the last year to keep our members engaged and continued to develop exceptional membership value."

— Thomas J. Bisacquino, NAIOP President and CEO

Jim Chynoweth of **NAIOP New Mexico** and **Bob Moser** of **NAIOP Central Florida** shared the award in the Medium Chapter category. Chynoweth has been active with his chapter since 1994. He served on the board twice (2011 and 2014) and was the chapter's president in 2014. Moser stepped up to lead the NAIOP Central Florida programs committee in 2019. In 2020, he created new and inventive program to combat Zoom fatigue, a side effect of remote working brought on by the COVID-19 pandemic.

Brent Nasset of **NAIOP Northern Nevada** was recognized in the Small Chapter category. Nasset, a Registered Professional Engineer, put in many hours working on a complex update to the city of Reno's development code.

Outstanding Contribution by a Chapter Executive

Lynne Andersen of **NAIOP New Mexico** was recognized for many accomplishments during her long tenure at the head of the chapter.

Education

NAIOP Georgia was the winner in the Large Chapter category for its Georgia School Challenges, an academic competition between teams from the Georgia Institute of Technology, Georgia State University and the University of Georgia. The case study involved complex current market conditions relating to office and industrial real estate in Atlanta. The teams had to research the available market data and present the best solution for the given case parameters.

NAIOP South Florida was honored in the Medium Chapter category for programs focusing on industrial properties. These consisted of two moderated, industrial-focused Zoom panels and an Industrial Update Virtual Bus Tour focusing on three large submarkets: Miami Dade, Broward (Ft. Lauderdale) and Palm Beach.

NAIOP Northwest Florida won in the Small Chapter category for its What's Up chat series, which educated members on issues that affect the commercial real estate industry and the community as a whole.

Special Events

NAIOP Southern Nevada won the award in the Large Chapter category for reimagining and re-creating its annual bus tour to be an all-virtual event, including a flyover video, interactive website and speaker panels.

NAIOP South Florida was honored in the Medium Chapter category for transitioning its popular Awards of Excellence event into an all-virtual format.

> **“Congratulations to all the 2021 Chapter Merit Award winners and nominees for their significant accomplishments in a very challenging year.”**
>
> *— Thomas J. Bisacquino, NAIOP President and CEO*

Legislative Affairs

NAIOP Arizona was the winner in the Large Chapter category. The chapter worked with Arizona Gov. **Doug Ducey** to minimize the exposure of NAIOP members to the effects of an executive order related to commercial tenant evictions by limiting the scope and duration of the order. NAIOP Arizona also worked with the governor to ensure that construction and real estate services were included in the definition of an essential business in a separate executive order.

NAIOP Central Florida was recognized in the Medium Chapter category for helping secure passage of a bill that removes the witness requirements for commercial real estate leases in the state.

The Capitol Dome Award for overall excellence in government affairs was awarded to six chapters in California for their efforts to defeat SB 939, a bill that would have boosted taxes on commercial real estate by $11.5 billion. The chapters are **NAIOP Inland Empire, NAIOP Sacramento Valley, NAIOP San Diego, NAIOP San Francisco Bay Area, NAIOP Silicon Valley** and **NAIOP SoCal.**

According to a June 2020 article from The Business Journal, SB 939 “would have established tenant protections for lessees impacted by COVID-19 by instituting an eviction moratorium on all commercial tenants until 90 days after the emergency order that began on March 4 is lifted. … For restaurants, bars and entertainment venues that saw reductions in revenue of 40% or more because of shelter-in-place orders and (faced) occupancy reductions of 25% or more, the bill would have forced landlords to renegotiate lease terms. If terms couldn’t be reached, tenants could leave without loss of their personal guarantee.” ■

Trey Barrineau is the managing editor of Development magazine.

Leveraging Diverse Teams to Build a Profitable Culture of Inclusion

Get past assumptions and act with intention to create the workplace of the future.

By Trey Barrineau

Equality Institute

Bernadette Smith of the Equality Institute says diversity and inclusion efforts inside organizations have to be carried out with intention.

The lack of a diverse workforce in commercial real estate is a critical issue facing the industry.

In 2017, the Bella Research Group and the Knight Foundation conducted research showing that white men held more than 75% of C-suite jobs in the U.S. commercial real estate industry, while Black men held just 1.3% of those positions. White women were in 14.1% of senior executive-level jobs, while women in minority groups held fewer than 1%.

Bernadette Smith, CEO of the Chicago-based Equality Institute, led a session at NAIOP's 2021 Chapter Leadership and Legislative Retreat that provided strategies to help real estate companies address this longstanding issue, which has taken on greater urgency amid the country's rapidly changing demographics.

Assumptions and Bias

According to Smith, diversity and inclusion efforts often suffer due to a basic human tendency to make unfounded assumptions about other people.

"The subconscious part of our brain categorizes people into little boxes," she said. "These boxes are essentially stereotypes. To 'unassume' these assumptions, we have to slow our brain down. We have to pause and be thoughtful."

Smith said some assumptions are harmless, but many are not.

"Some assumptions prevent us from seeing the full picture," she said. "They prevent us from seeing someone's unique gifts and what others might offer an organization. When we don't take the time to be deliberate about including others, we actually end up excluding others, because inclusion requires intention."

Smith said the same concept can be applied to the networks that help real estate professionals advance their careers.

"The reality is if your network looks like you, you are inadvertently communicating that you're unavailable to people unlike you," she said. "You're sending a signal without even realizing it. In companies, we tend to offer opportunities to further our career goals to people like us."

To bolster that point, Smith cited research from the Women in the Workplace 2018 study by Leanin.org and McKinsey. It revealed that talent pools at U.S. corporations are fairly diverse for entry-level positions, but much less so at the C-suite level.

"As people get promoted, there is a much higher percentage of white men in leadership roles," she said. "The leadership provides opportunities to people who look like them. It perpetuates on and on and on. We have this really subconscious way of being with people who are just like us because it's comfortable and familiar."

Inclusion Requires Intention

How can organizations be more diverse? Smith said systems must be changed, and everyone on the team must be dedicated to changing.

One way companies can do that is to stop using résumés to find job candidates. She cited the example of the financial services firm Capital Group, which was concerned that its pool of interns mostly came from the same cultural backgrounds. After getting rid of résumés, the next class of interns was 50% female and 58% nonwhite.

Smith said another way to find diverse candidates is to take extra efforts to reach out to underrepresented groups such as veterans, those on the autism spectrum, people of color and LGBTQ individuals.

Smith said another way to find diverse candidates is to take extra efforts to reach out to underrepresented groups such as veterans, those on the autism spectrum, people of color and LGBTQ individuals.

"Change the system of how you hire and how you make decisions," she said. "It might mean stripping gender or information that might influence decisions such as what college they went to out of résumés. If you remove those things from résumés, it actually reduces bias."

According to Smith, IBM now requires degrees in only 43% of its open positions. Google has also done away with college requirements and offers a six-month program online that the company treats as the equivalent of a four-year degree.

Additionally, Smith said remote-first jobs will often attract a more diverse talent pool.

"If your company is in a city like San Francisco, not a lot of diverse talent can afford to live in the Bay Area," she said. "We've proven the past year during the pandemic that remote work works, and offering remote-first as an option for employees can help a lot."

The payoff to hiring more diverse personnel can be remarkable for both staffing and the bottom line. Smith said multinational consumer goods company Unilever recently achieved gender balance in its management team of 14,000 people. And a 2015 High Impact Talent Management Survey found that companies with inclusive teams have 2.3 times higher cash flow per employee over a three-year period.

"It doesn't happen by accident," Smith said. "It takes setting goals, making everyone on the team accountable for those goals, and making sure that all your directors, managers and employees specifically have diversity and inclusion accountability in their performance metrics."

The payoff to hiring more diverse personnel can be remarkable for both staffing and the bottom line. Smith said multinational consumer goods company Unilever recently achieved gender balance in its management team of 14,000 people.

Follow the ARC

Smith's Equality Institute teaches organizations to use the ARC method to gain clarity in any situation.

ARC stands for Ask, Respect, Connect. According to a post on the Equality Institute's website, ARC can be used in everything from "organizational strategic planning, 1:1 meetings with employees, and even difficult conversations."

Smith presented some questions that can challenge the status quo for hiring in an organization:

- "Why do we require résumés/degrees/geography in our job postings?"
- "How do we ensure our managers know how to effectively lead underrepresented employees?"
- "How do managers decide which employees get projects?"
- "What can we do to make this a great place to work for a Black transgender woman with a disabil-

ity?" (Smith said if your company is a great place to work for this person, it's probably an accommodating place for just about everyone.)

- "How do we manage performance at a similar pace to how the world is changing?"

Smith said these questions could be asked at companywide listening sessions.

Next, it's important for managers to respect the data and answers they gather.

"Actively listen to those answers," Smith said. "Don't dismiss them. Respect that this is a process."

Finally, it's important to connect the answers to solutions that have accountability for the organization's leaders. But connection doesn't stop there, Smith said.

"You have to connect your employees to each other, so that they can continue to have these conversations," she said. "You want your employees to feel like their voices matter, that they can feel safe at your organizations. Don't ask those questions and leave them hanging. This really requires some in-depth analysis to figure out what's happening right now to know where to go."

Why Allyship is Important

As part of her session at NAIOP's 2021 Chapter Leadership and Legislative Retreat, **Bernadette Smith** of the Equality Institute explored the concept of allyship. While the phrase is common in activist circles, it also has applications in the workplace.

Smith said allyship is an active and consistent practice of using power and privilege to achieve equality, lift others up and give them opportunities. This can include speaking up when someone make derogatory comments in the workplace about underrepresented groups, because silence is usually interpreted as tacit agreement.

"It's using power and privilege to lift others up, to give them opportunities," Smith said. "Use your power and privilege to offer people assignments and opportunities. Invite people to high-profile meetings. Modern leaders speak the names of underrepresented folks when they're not around. They make sure that they elevate those voices even when they're not in the room." ■

The Next Generation

Smith said companies must prepare for the arrival of Generation Z into the workforce. This is the population cohort born between the mid-to-late 1990s and the early 2010s. According to the Census Bureau, Gen Z represents 19.9% of the U.S. population.

"They are the youngest generation in the workforce, and they are incredibly diverse," Smith said.

According to Pew, 52% of Generation Z is non-Hispanic white. (By comparison, 61% of Millennials were non-Hispanic white in 2002.) A quarter of Gen Zers are Hispanic, 14% are Black, 6% are Asian, and 5% are some other race or two or more races.

"These young people are your future," Smith said. "What they are expecting is a commitment to antiracism and a commitment to equity. They value diversity and inclusion. They want to feel like their input is valued. You've got to do the work of analyzing where you are to know where you will go. You've got to have specific, clear goals, and you have to make those goals public."

Inclusion and Psychological Safety

Next, Smith explored ways to let underrepresented talent know that they are valued.

She said homogeneous teams that think in similar ways are not very innovative — but neither are diverse teams where people don't feel like their ideas are valued.

She cited the example of clothing retailer H&M, which in 2018 put an image in its online store of a Black boy wearing a hooded sweatshirt that read "coolest monkey in the jungle." According to the New York Times, "the image was widely criticized online for its reference to a monkey, an animal that has long featured in racial and ethnic slurs." H&M removed the image from its online catalog and pulled the sweatshirt from its product line.

So how did an image that was so offensive to so many people get approved? Smith offered some possibilities.

"Maybe there were no Black people taking part in the process," she said. "Or maybe there were, and they felt like they couldn't speak out. So it's unclear if H&M's problem was a lack of diversity or a lack of inclusion."

According to Smith, companies should strive for teams that are psychologically safe. These are teams where the members feel that their voices matter and make a difference.

"If you have a culture of psychological safety, you'll find that it is a much healthier workplace with a higher retention rate," she said.

In 2012, Google began a project "to study hundreds of Google's teams and figure out why some stumbled while others soared," according to a 2015 article in the New York Times. After two years of research, the company found that psychological safety is the No. 1 factor for their most successful teams.

That level of comfort is not common in U.S. workplaces, however. According to the Deloitte University Leadership Center's 2013 report "Uncovering Talent," 61% of employees "cover" some part of themselves at work, causing them to be less productive. A 2014 Harvard Business Review article that cites the report provides examples:

According to Smith, companies should strive for teams that are psychologically safe. These are teams where the members feel that their voices matter and make a difference.

"A gay person might be technically out, but not display pictures of his partner at work. A working mom might never talk about her kids, so as to appear 'serious' about her career. A straight white man — 45% of whom also report covering — might keep quiet about a mental health issue he's facing."

Smith challenged managers to share their vulnerabilities and give their teams permission to do the same.

"You'd be shocked how much it opens people up," she said. ■

Trey Barrineau is the managing editor of Development magazine.

NAIOP represents commercial real estate developers, owners and investors of office, industrial, retail and mixed-use properties. It provides strong advocacy, education and business opportunities, and connects its members through a powerful North American network. **For more information, visit naiop.org.**

Programs and Services

NAIOP Membership
For membership, information or changes to your membership record, contact membership@naiop.org.

Chapter Network
NAIOP chapters provide local and regional education, networking and legislative affairs.

naiop.org
NAIOP's central resource for industry and association news, programs, advocacy efforts and connections.

National Forums
Special-interest groups that comprise senior-level NAIOP members in a non-competitive environment for exclusive networking and experience exchange.

Center for Education
The principal learning resource for the commercial real estate development professional. Offerings include online, on-demand and live courses, plus two certificate programs.

Development Magazine
Current and past issues are available online and are mobile-responsive for those who want to read Development magazine on-the-go.

NAIOP Research Foundation
Research projects and initiatives to improve the understanding of the built environment and the challenges that lie ahead for individuals and organizations engaged in real estate development, investment and operations.

Career Center
Online resource designed to help employers and job seekers find new commercial real estate job opportunities.

Business Development Industry Partners
Enhance your company's presence as an industry partner by sponsoring, exhibiting or advertising.

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Strong, effective support and guidance to create, protect and enhance development and property values. NAIOP's government affairs team is active on Capitol Hill, in state legislatures and in Canadian provinces.

Market Share Blog
Insights on trends, CRE-related topics and professional development tips. Subscribe to weekly posts, interviews and news at blog.naiop.org.

Mobile Apps
Take NAIOP wherever you go. Access the membership directory, find news, chapters and events, and connect on social media. ■

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NAIOP wishes to thank our Industry Partners, whose financial support helps us to provide quality programs and communications to you throughout the year. We encourage you as a NAIOP member to include these partners, wherever possible, when you are considering services and products for your business.

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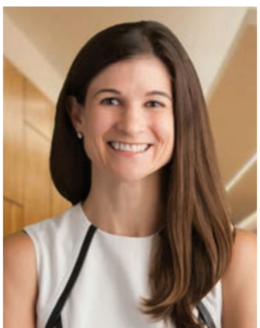
Moving Forward Together in 2021

One year ago, we were celebrating the longest economic expansion on record. Almost overnight, everything changed. Although we're still navigating this new normal, I believe the horizon is clearing and brighter days are ahead.



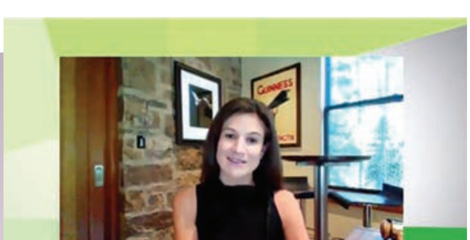
Molly Ryan Carson

Commercial real estate will always be an industry based on relationships, and I'm confident that there's no better place to sustain us in the tough times and propel us forward in the good times than NAIOP. This will undoubtedly be a transitional year for our industry and our association as we establish our "new normal" and navigate all the ways the pandemic has changed our industry.

Every chair begins his or her term by establishing goals for the year. My focus will be on supporting our members in a post-pandemic industry. This includes the significant benefit of mentorship within NAIOP. Meaningful connections — especially in the challenging times — are what will determine whether we remain stagnant or grow. Personally, I know I would not be where I am today without the help of a couple of key mentors as well as the many connections I've made through my NAIOP membership.

In previous economic downturns, we lost significant numbers of talented individuals who opted to leave our traditionally risk-filled industry. The ones who stayed did so thanks in part to a mentor who coached them through it. Our Developing Leaders will look to those of us who have weathered other crises, and I know I can count on our members to share their time and insights.

Secondly, diversity, equity and inclusion have always been priorities at NAIOP, and I'm dedicated to continuing these efforts and making meaningful progress. I believe we can have the greatest impact if we start early, working with high school and university-level programs to create a strong pool of diverse talent by gender, age, ethnicity and sexual orientation.



VIDEO: See Molly Ryan Carson talk about NAIOP and her vision as chair. naiop.org/mollycarson ■

Equally important, we must prioritize an inclusive workplace culture in our companies and at NAIOP. We critically need more diverse leadership in our businesses and industry to better reflect our tenants and communities. It's going to take us all working together, but I believe our efforts, carried out in respectful and intentional ways, will move us in the right direction.

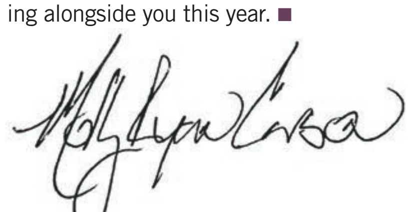
Every chair begins his or her term by establishing goals for the year. My focus will be on supporting our members in a post-pandemic industry. This includes the significant benefit of mentorship within NAIOP.

The road ahead will be filled with both curves and opportunities. The new presidential administration and Congress provide us the chance to work with policymakers to ensure our voices are heard and that NAIOP continues to serve as a beacon for responsible development.

This pandemic has forced us to find new ways to communicate and connect. NAIOP is delivering valuable resources — through courses, webinars, research and more — to keep us on top of industry trends and transformations, and I encourage you to take advantage of all it has to offer. An important way that NAIOP is supporting its chapters is by reimbursing them 100% of the revenue generated by their members' on-demand course registrations. With a vast selection of courses that span career levels and industry focuses, now is the time to explore what you can learn through our NAIOP Center for Education.

While we can't predict with 100% certainty what's to come next, we can commit to moving forward together, staying connected, and striving for the greater good for our organization and industry.

I am grateful for this opportunity, and I look forward to working alongside you this year. ■



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