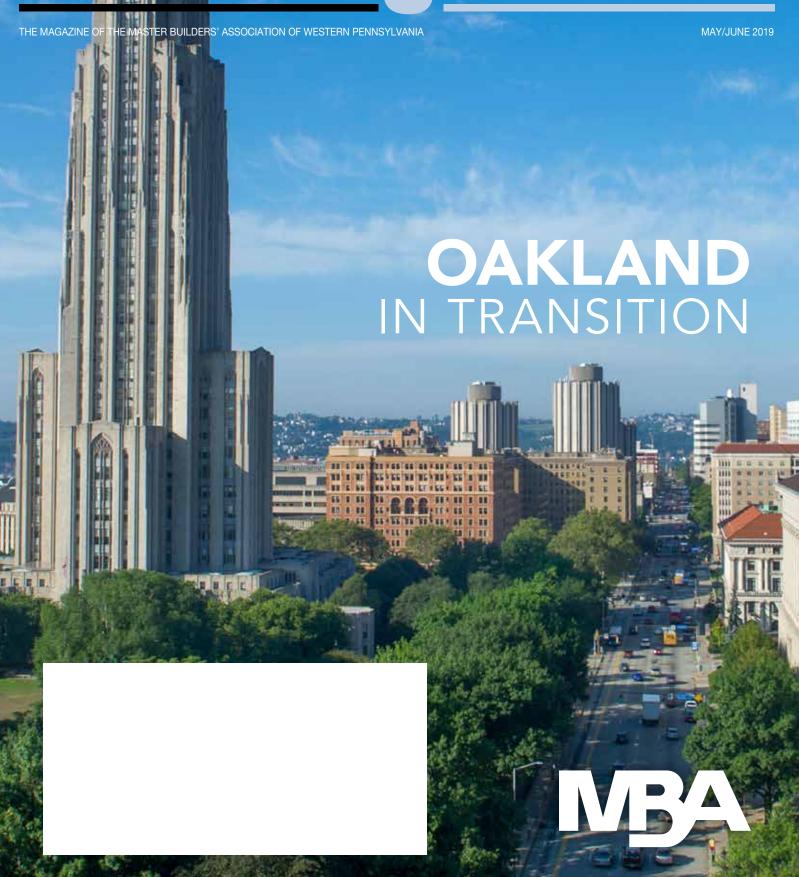
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Photo by Mike Drazdzinski/University of Pittsburgh



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Gregory A. Scott, Senior Vice Chancellor for Business and Operations, University of Pittsburgh

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## **PUBLISHER'S NOTE**

hat if our government was about doing what's best for all, instead of getting re-elected? What if the billions spent on elections every two years went to building connections between people and opportunities?

As I researched this edition of BreakingGround, I found myself wishing for a little "what if" magic. The momentum building in Oakland around emerging technologies is astounding. The only precedent I can relate to the research and development being done now is the early decades of the industrial revolution, of the steel industry here. The innovation of that era transformed how humans did almost everything. In Pittsburgh, the development of steel and heavy industry provided the economic base for hundreds of thousands of immigrants and moved millions of people up the value chain. This city was one that transformed the world.

Instead of industrial engineering, the ideas being explored in Oakland today involve artificial intelligence, robotics, immunotherapy, and energy efficiency, among other technologies. These are disruptive ideas being pursued here in Pittsburgh. The disruption will ultimately move mankind up the value chain.

The "what if" I was wrestling with had nothing to do with moving mankind up the value chain. I'm not that philosophical. Whether or not mankind is lifted to higher pursuits by some hotshot at Pitt or CMU or UPMC, it seems obvious to me that there will be enormous economic activity that results from the trying. We can already see the shoots of that activity by driving through 3 Crossings and Robotics Row (neither of which existed in 2015), Hazelwood Green and Bakery Square. The problem is that each of these tech hotbeds could become an island if convenient transportation connections aren't built between them. That's my "what if." What if money or politics weren't an issue? What would you build to connect these growing industries to the geniuses who will grow them further?

Our public transportation is not up to the challenge. That's not a shot at the Port Authority, which continues to improve service since Katherine Kelleman arrived. But if your vision of a 21st Century system of moving smart people around to smart businesses is more buses, you probably need to visit another city.

Within a decade, I believe you'll find Forbes and Fifth hard to recognize, lined with ten-to-twelve story office/research buildings that will be rented by corporate partners of the universities and hospitals. I think there will also be a handful of major buildings at Hazelwood Green devoted to developing robots to manufacture things in the U.S. If you have been to Cambridge, MA or Austin, TX (let alone Palo Alto, CA) you have an idea of what the Strip District could look like. Innovators in labs in these other cities get fast, reliable access to facilities where innovation can become reality. More importantly, the innovators working in those labs and proving grounds get where they are going via fast, reliable transportation.

It turns out that smart, talented people today prefer not to use

cars to commute to work. It also turns out that in areas of great economic activity, the highest and best use for land is not parking, structured or otherwise.

The public transportation model in the U.S. is broken. Federal investment in infrastructure is woefully inadequate. Pennsylvania's model is lurching towards bankruptcy. Lawmakers aren't motivated to look forward past their next election. There doesn't appear to be the next Dwight Eisenhower in the wings, ready to inspire us taxpayers to invest in a transportation system for the next generation. And local civic leadership appears to have moved on from the problem.

Back in 2013, a transportation act that was considered dead on arrival was passed. Lawmakers didn't want to touch it and voted it down. The Allegheny Conference was part of an unlikely coalition of business, labor and local leaders that organized corporate CEOs to convey their displeasure with the legislature. Within 48 hours, a new vote was taken and Act 89 passed easily.

Today, Act 89 is in sunset. Fewer miles of roads and bridges are being maintained. The idea of adding capacity or creating modern urban transit in Pennsylvania's brightest economic center isn't on the table. The politics are too hard. Even the politicians who care to fight know that the odds are impossible.

Since the completion of the Imagine Transportation 2.0 study in 2017, the Allegheny Conference has reorganized, eliminated transportation-oriented positions, and moved on to other issues. The Southwestern Pennsylvania Commission is the remaining agency with responsibility for transportation planning. Beginning May 6, you can go to www.spcregion.org to view draft documents of what the SPC is calling Smart Moves for a Changing Region. It's supposed to be a multi-modal proposal to address the region's future needs. I haven't seen Smart Moves yet. Perhaps it's visionary. Perhaps it's just a proposal of more of the same. Whatever you think of the proposals that SPC is putting forth, I hope you'll express it. Loudly. There are a series of ten meetings in each of the counties in SPC's purview. Go to them. Be a pain in the neck if you feel it's warranted.

While you're at it, be a pain in the neck to your elected representative. Tell them you'll vote for them even if they show some vision about the future. Great things are happening in Oakland. The future of Pittsburgh is bright, but it's not guaranteed. Somewhere in Sacramento, or Austin, or Nashville, or Boston there are leaders planning better ways to connect innovation to innovators in the hopes of attracting the kinds of companies that will grow out of the emerging technologies being perfected in Pittsburgh. What if those companies were to stay here instead?

leff Burd





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### **REGIONAL MARKET UPDATE**



onstruction data collected through the end of the first quarter of 2019 suggests a residential market that is range-bound and nonresidential contracting that has broken free of the indecision that slowed down activity in the latter months of 2018.

Through March 31, Tall Timber Group data on nonresidential/commercial starts showed \$1.17 billion in 2019. That volume is the highest first quarter total since the company began tracking the market in 1994. The total does not include an estimate of the construction put in place at the Shell Franklin plant or consider the later revisions that typically bump the first quarter volume five percent higher.

Included in the data was the new UPMC Mercy Vision and Rehabilitation Hospital but none of the region's other \$100 million proposed projects got underway during the first quarter. The level of activity suggests \$6.7 billion for the full year, based upon the historic average of between 15-20

percent of construction getting underway during the first three months. The labor capacity within the region should begin to be reached before mid-year, however, and an outlook of closer to \$5.5 billion is more likely.

At a granular level, there are a couple of trends emerging in the market that relate to the number of unusually large projects moving through the pipeline.

First is that the amount of publicity about the numerous large projects seems to have spurred owners to frontload the bidding activity in 2019. Most of the major public education projects planned for 2019 came out to bid shortly after the start of the year. With the exception of the Franklin Regional elementary school bids, owners were rewarded with competitive bidding that brought projects in under budget. Likewise, many of the major projects (between \$10 and \$50 million) for which construction managers were lined up during design last year also bid during the first 90 days of 2019.

PITTSBURGH CURRENT DOLLAR GROSS DOMESTIC PRODUCT \$145,000 6.0% \$140,000 5.0% Pittsburgh Current Dollar GDP \$135,000 GDP Growth 4.0% \$130,000 (In \$ millions) \$125,000 3.0% \$120,000 2.0% \$115,000 1.0% \$110,000 \$105,000 0.0% 2012 2013 2014 2015 2016 2017

GDP gains in Pittsburgh have outpaced the U.S. rate of growth since 2012. Source: U.S. Census Bureau.

The combination of 2018 project delays and 2019 urgency created market conditions that were somewhat exhausted by the time spring began. Bidding since April began has been slower than in recent years.

Α somewhat related trend has the shift been in approach to market conditions the firstby tier specialty contractors, many of whom had become selective about pursuing opportunities to prepare for the large projects in the pipeline. UPMC's decision defer three of its four \$100







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East Liberty Presbyterian Church - Building Our Future Interior contractor: Alliance Drywall Interiors, Inc. Another high quality MICA project Andrew Yourish Photography million-plus projects – with only the South Hills hospital potentially advancing in 2019 – has impacted the larger specialty contractors. The delays threw a monkey wrench into the backlog strategies of those contractors, which may work in favor of the larger commercial projects – like the Esplanade or the development of the former Civic Arena site – that get out to bid this year.

Residential construction remained sluggish. Permits for new single-family homes numbered 495 of detached units and 142 units of townhomes/attached units. That was a decline of eight units, or 1.3 percent, from the same period in 2018. Permits for apartments were off nearly 25 percent, but the outlook for multi-family – given the known projects in the pipeline – is for construction to be 60-80 percent higher in 2019.

Homebuilding remains mired in a supply problem that has created a Catch-22 for the market. There is strong demographic demand from the opposite ends of the spectrum. Empty nesters and seniors who are looking for downsizing or assisted living find little or no available inventory for sale or for construction. That freezes those potential buyers from selling their homes, which stifles the inventory of existing homes that could be first homes or move-up homes for Millennial buyers. High development costs and zoning that restricts or prevents more dense suburban development are the two main obstacles to new construction expanding back to pre-recession levels.

Nonresidential/commercial construction has not been restrained by the problems that the housing market has experienced. Some of the potential hiccups for the nonresidential building boom – higher costs and short labor – have been less of a problem than feared. Construction inflation has eased and there is still sufficient competitiveness among local contractors that work has been able to proceed within budget expectations on most of the projects in the pipeline. Labor capacity is expected to be an issue by midspring, but construction has not slowed yet.

The economy underpinning construction in Western PA remains extremely strong, if not booming. Final data on 2018 from the Bureau of Labor Statistics showed 13,000 more jobs created in the metropolitan Pittsburgh seven-county market. That placed Pittsburgh smack in the middle of its 15 peer cities for job growth, at 1.1 percent. A record 1.186 million people were employed in Pittsburgh as of December 31. Unemployment dipped to 3.9 percent. Construction employment grew faster (4.6 percent) than all other industries except mining/logging (10.1 percent). It was encouraging that manufacturing was positive again in 2018, and the 1.1 percent gain in manufacturing jobs trailed only construction and mining/logging.

While those employment metrics are positive for Pittsburgh, the low rate of population growth – or, perhaps more accurately, the high rate of retirements – leaves the region ranked weakly against the cities that are benchmarks for Western PA. But there are business metrics that reveal a picture of the Pittsburgh economy that is not often trumpeted, but speak to a strong and stable market.

Regional gross domestic product (GDP) is a little hard to judge and lags the measure of U.S. GDP by about a year. The latest report on Pittsburgh's regional GDP shows that businesses grew by 3.7 percent in 2017, a rate that was significantly above the national rate of 2.3 percent and fourth best among Pittsburgh's benchmark rivals. That's a strong grade for the productivity of workers in Pittsburgh. It also suggests that Pittsburgh's sluggish job growth is more about demographics than the growth of businesses.

Above-average growth in weekly wages is an indicator that the job growth rate reflects demographics rather than a weak labor force. For 2018, average weekly wages grew 4.1 percent. That is third among Pittsburgh's benchmark regions, trailing only St. Louis and Seattle. The median household income in Pittsburgh is also expected to have jumped by at least four percent last year, pushing that figure above \$61,000. Pittsburgh ranks in the bottom three for household

Total Pittsburgh MSA 2019:1 Total Pittsburgh MSA 2018:1	495 498	142 147	171 227	808 872
% Change	-0.6%			-7.3%
By County	SFD	SFA	M/F	Total
Allegheny	174	96	47	317
Beaver	19	7	0	26
Butler	138	30	0	168
Fayette	19	0	0	19
Washington	98	7	124	229
Westmoreland	47	2	0	49





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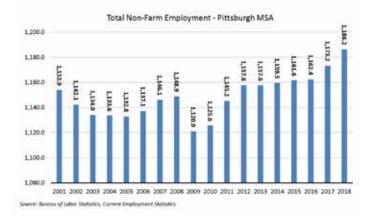
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income but the relatively low cost of living in Western PA may be a contributor. There are fewer two-income families in Pittsburgh and local employers aren't finding it necessary to offer significantly higher salaries to offset higher living costs.

Another favorable economic metric for Pittsburgh, the rate of bankruptcy filings, tends to get overlooked until times are tough. The number of bankruptcy filings in Pittsburgh during 2017, the most recent year recorded, was only 7,089. That number was lower than all of the benchmark cities except Charlotte NC. Bankruptcy filings declined some 18.4 percent in 2018, the largest decline in rate of bankruptcy of the 15 cities.

One bit of unfavorable news for the region was the release of the updated U.S. metropolitan census estimates, which saw Pittsburgh slip one spot to 27th largest U.S. city. Based upon the April estimate of the 2018 population, Pittsburgh had 2,324,743 residents in June 2018, a decline of 1.3 percent compared to the 2010 decennial census.



Total non-farm employment reached a record high for the seventh consecutive year in 2018. Source: Allegheny Conference on Community Development.

The impact of declining population, if the estimates are accurate, is primarily felt in the region's business attraction and retention efforts. With workforce potential as the top concern for businesses around the U.S. at the moment, population growth is seen as a key metric for evaluating cities for potential locations. Companies that plan for rapid growth assume that cities with growing population will be more likely to have the available workforce that growth demands. Lack of growth is also a risk for existing businesses, which need access to more workers in order to grow in place.

Amazon's attempt to locate a million square foot fulfillment center is an example of how this has impacted Pittsburgh. Plans for the massive warehouse were approved by Findlay Township in August 2016, but the online retailer delayed the project as a result of changes in strategy. That project is now about to get underway, with 974 parking spaces approved for employees, but the workforce risk remains. When Amazon posted the center to employment websites listing 1,000 jobs, there were fewer than 100 responses.

"The preconstruction process continues on the \$1.1 billion Terminal Modernization Program at the Pittsburgh International Airport, for which enabling packages may hit the street at year's end."

Thus far, the concerns about population growth haven't dampened the commercial real estate market, which is driven by job growth. According to quarter-ending reports by commercial real estate service companies, JLL, CBRE and Newmark Knight Frank, the office market in Pittsburgh is very healthy. While concerns about excess supply continue in several Downtown towers, developers are building roughly one million square feet of new space. That's more than the total construction volume for the full year 2018. A significant share of the space under construction is build-to-suit, or leased up as construction proceeds, meaning there is room in the market for additional construction. And an additional two million square feet of office projects are into the entitlement process at the Esplanade, in Oakland, 3 Crossings, and the Civic Arena site.

As of April, the workforce at the Shell Franklin project topped 4,000, with the expected peak of 5,000 workers approaching in mid-year. Peak labor utilization is expected to last for 12-14 months before tapering off over the following 18 months. That timing will give PTT the room to finalize its plans. The project proposed at Dilles Bottom, OH, which has grown in capacity to 1.6 trillion pounds per year, has not been given the final investment approval yet. Recently, the preconstruction services agreement with Bechtel ended without reaching a budget that met the project's feasibility. A new selection EPC process will have to occur before design can continue.

The preconstruction process continues on the \$1.1 billion Terminal Modernization Program at the Pittsburgh International Airport, for which enabling packages may hit the street at year's end. Likewise, University of Pittsburgh has been selecting architects and construction managers for the first of its numerous \$100 million projects to develop in the next few years. Assuming UPMC reactivates one of its major projects in 2020, next year should set a record for construction volume in Pittsburgh.

For many companies, however, the market in 2019 may be more favorable, as the volume of projects that better fit the capabilities of the mainstream regional contractor nearly matches that of 2020 and 2021.





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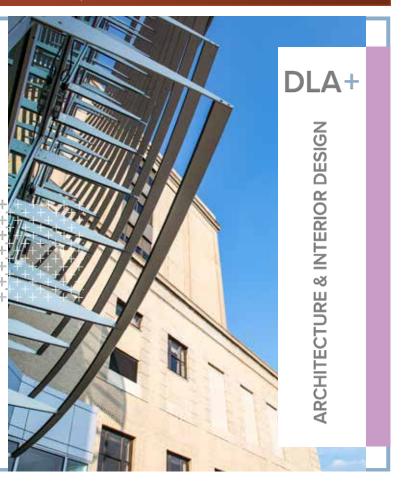


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## NATIONAL MARKET UPDATE

he pessimism that accompanied December's 15 percent stock market correction faded by the end of the first quarter of 2019. While the underlying data suggests that first quarter gross domestic product (GDP) growth will be slower, fears that the U.S. economy is on the verge of a pullback are unfounded.

GDP growth for the full year 2018 came up just short of three percent. The 2.9 percent year-over-year pace was the best since 2015. Boosting growth was the windfall from the 2017 Tax Cut and Jobs Act and improved business investment, particularly during the third quarter. Significantly lower exports and weaker consumer spending, especially during the fourth quarter, were drags on GDP. First estimates of GDP for the first quarter of 2019 were still lower, coming in at 1.8 percent, but consumer spending and business activity during February and March pushed the second estimate to 3.2 percent. The consensus of economists still points to GDP growth in 2019 that will be in the 2.5 percent range.

Signs of strength in the global economy are also easing concerns about a downturn in the near term. BCA Research, which tracks and creates the Leading Economic Indicators (LEI) index worldwide, reports that the index continues to slip towards no growth in the first quarter; however, BCA also sees stability in the index's trend. A diffusion index of the LEI finds that more countries are growing than declining, even though the overall index fell slightly.

Job creation remains the most supportive data point for the economy. After a disappointing addition of 33,000 jobs to U.S. payrolls in February, the Bureau of Labor Statistics reported gains of 196,000 in March and 157,000 in April. The

Commercial Property Price Index Index, 100=2006 175 Apartment: Jan @ 172.7 -Retail: Jan @ 101.3 -Industrial: Jan @ 128.7 Office - CBD: Jan @ 149.8 150 150 Office - Suburban: Jan @ 109.8 125 125 100 100 75 09 10 11 12 13

Prices for commercial properties have risen to levels well above the 2006-2007 peak of the last business cycle. Source: Wells Fargo Securities.

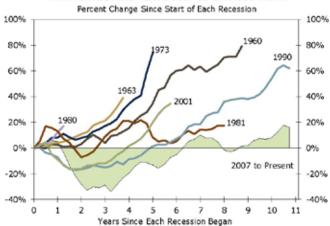
rolling 12-month average of 203,000 jobs created monthly are on pace with the high-growth years of the late Obama Administration, and the Trump Administration has signaled that maintaining employment gains is a high policy priority. Just as important was the year-over-year 3.2 percent gain in wages, an increase that gives workers roughly twice the rate of inflation.

After witnessing the strong negative reaction to its December rate hike, the Federal Reserve Bank has been signaling more reluctance to raise rates in the near term, or even at all in 2019. Most economists have baked a late-year 25 basis point increase into their forecasts for 2019, but a majority of Fed regional presidents have spoken publicly about remaining watchful of the rate of core inflation as an indicator. With inflation falling to below the Fed's two percent target, the imperative to increase rates has eased.

With the cycle of regular hikes to the Fed Funds rate seemingly ended, there is anticipation that the decline in long-term interest rates will breathe life into the housing market. That would be consistent with a demand-driven forecast for home sales and construction, but the housing market is being constrained, at least in part, by supply-side issues.

Residential construction sees more volatility in its monthly data reporting than nonresidential in any business cycle. The shorter duration of the construction cycle, especially in the southern and western regions of the country, means that a minor delay that throws new construction into a different month can skew the start and put-in-place numbers significantly. In the current market conditions, well into a long tepid residential real estate recovery, that volatility is

#### Nonresidential Structures Investment



Source: U.S. Department of Commerce, Wells Fargo Securities

more pronounced. It's more instructive to look at the market quarter-to-quarter or on a rolling 12-month average basis.

Both new construction and existing home sales have see-sawed back and forth in the past two quarters. What has been consistent over the past 18 months, however, is the declining mortgage volume. A large part of that decline has come from the exhaustion of the refinance market. But the number of new mortgages is also off slightly. U.S. households are in strong fiscal condition but the inventory of homes to buy is lower than normal, leading to fewer transactions and fewer mortgages. Delinquency on mortgages remains low as well, which makes a recent move by the Federal Housing

Administration (FHA) curious.

The agency revised its loan standards for 2019 to include a minimum credit score of 500. FHA also created a tier of mortgages that would require a ten percent down payment if the applicant's credit score was below 580. The standard FHA equity level is 3.5 percent. This change addresses borrowers in the category that was addressed (catastrophically so) by the sub-prime mortgage market in the mid-2000s. Sub-prime mortgages were the kind that sunk the residential mortgage-backed securities market when foreclosures began spiking in 2006 and 2007.

What makes the move curious is the overall credit performance

of the FHA's government-backed portfolio. Delinquency and loan defaults on FHA loans tend to be slightly higher than the overall mortgage market but the current levels aren't trending higher, despite reporting to that effect. While 10.26 percent of the FHA portfolio is past due, only 2.3 percent are delinquent greater than 90 days, and only one percent are in foreclosure. Moreover, the share of mortgages past due has fallen from 12.21 percent in 2014 to 6.77 percent in 2017 and 2.46 percent in 2018. Delinquency tends not to occur as often in the first few years of indebtedness but the number of past due loans are not rising relative to earlier norms.

FHA's underwriting standards don't drive the market in the same way that Fannie Mae's standards do, since the latter essentially dictates what the secondary market can buy. However, this specific tightening of standards will have a negative impact on younger buyers, who have already seen lower levels of home ownership.

The lagging demand for home ownership from the Millennial generation is one of the reasons for the uneven performance of the U.S. housing market. While lot inventory is insufficient to fuel stronger growth in new construction and higher levels of existing homes for sale, hot demand from the first-time buyer cohort would create incentives for developers to solve the problems that are limiting supply. Absent that high demand, builders and developers are maintaining the current trend of low growth, rather than extending the risk of overbuilding.

Low growth in single-family home construction should help support the multifamily market, as the pace of household formations continues to grow. The recent months' data on housing starts shows that the household formation rate is keeping apartment construction from sliding.

Housing start data may be less reliable



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during the first half of 2019, as there is fallout from the month-long government shutdown on the collection and verification process. Through February and March, permit information appears to be running closer to the long-term trend, suggesting that permits may be a better indicator of housing construction in 2019. Permits, which require less verification and research, are a good indicator of start activity in the months that follow. Thus far, permits are showing new construction at the 1.2-million-unit pace, with between 800,000 and 850,000 new single-family units approved (although March starts dipped to 785,000). Data on multi-family permits and starts have been slightly elevated

at between 350,000 and 400,000 units. Construction of multi-family units has been within that range quite consistently since January 2013.

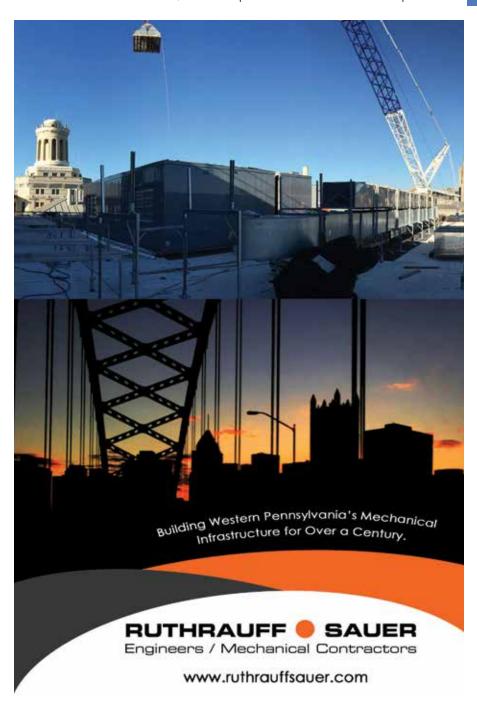
Wells Fargo Securities presented a sanguine outlook for the nonresidential construction segment for 2019 in its March Commercial Real Estate Chartbook. That forecast seemed to draw primarily upon data that represented the market's potential, like the AlA's Architectural Billings Index (ABI) and the relatively modest level of investment in nonresidential structures during this business cycle.

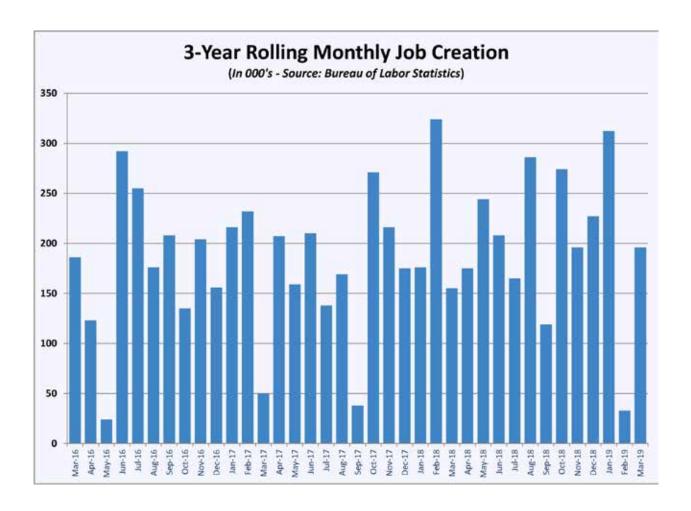
The former tends to be a reliable indicator of construction activity nine months to a year hence, as the ABI measures growth in activity by billings month-over-month. With ABI above 50 for the 25 months (before falling to 47.8 in March), and inquiries remaining at or above 60, the construction activity that follows design is likely to keep growing. The latter indicator, investment level, is less reliable as a predictor.

Two things jump out from a comparison of nonresidential investment growth in the current business cycle to cycles going back to the 1963 recession. The first is the duration of the recovery that began in spring 2009. Assuming GDP remains positive in the second quarter, the current business cycle will become the longest recovery period in U.S. history. The second observation is the more relevant to the 2019 forecast. By a wide margin, the level of investment in nonresidential construction fell further than any of the other business cycles, and has remained more muted. The cumulative growth of the expansion cycle of 2009-2019 has been 48 percent. At the peak of the 2001 cycle, investment in nonresidential structures was up 81 percent cumulatively. The 1990s expansion saw investment grow 75 percent cumulatively. Wells Fargo economists see this lagging level of investment as an indication of further upside, but the low level of

investment may also simply signal less confidence and less public intervention.

Cushman & Wakefield also sees a comparison of the current cycle to previous cycles in office construction as potential for continued expansion. The commercial real estate service company sees the underlying health of the private sector economy as a strong driver of demand for space, particularly as the tech sector adds more jobs. New office construction during the current cycle pales in comparison to the volumes of the previous two cycles. The 54.7 million square feet (MSF) added in 2017 was 56 percent lower than the 124.5 MSF built in 2001, and 29.1 percent lower than the 2008 peak.





Cushman & Wakefield forecasts an increase in construction in 2019 to 64.4 MSF.

This lower level of new construction has also changed the makeup of the office market, Cushman & Wakefield found. Only 34 percent of the U.S. office inventory is less than 20 years old, leading to the conclusion that property owners had "under renovated" lower-class buildings during the past ten

Barring an unexpected hiccup in the employment market, the untapped potential in office development - along with the continued strength of logistics-driven industrial development -brighten the outlook for private nonresidential construction in 2019. With interest rates falling back again since year end, the market's potential should find investors seeking long-term

Commercial real estate investment in nonresidential structures has matched or exceeded that of most previous cycles. In fact, a look at the property values for commercial buildings shows that investment interest is high. All categories of commercial property have outstripped the value of commercial real estate at the peak of the last expansion in 2006-2007, with apartments reaching 172.7 percent of that period. Absent any meaningful inflation, the rise in value indicates strong investment. What has been missing compared to previous cycles is government investment. Previous recessions

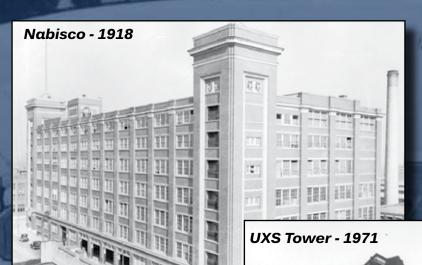
were met with state and federal investment programs that included public buildings. The Great Recession resulted in massive declines in state and local revenues, which limited or eliminated their ability to stimulate construction. The only federal construction program, the American Reinvestment and Recovery Act of 2009, focused on infrastructure instead of vertical construction.

Given the fiscal health of the government, and the prevailing aversion to increasing revenues through taxes or fees, it is difficult to envision a meaningful program getting through Congress or state houses that would result in a meaningful increase in nonresidential building investment.

Even without a meaningful boost in government spending, construction activity remains near all-time highs, although March marked six months below \$1.3 trillion. March's \$1.28 trillion continued the trend. Well into a decade of increased spending, the forecast of three percent growth in construction for 2019 looks solid. Likewise, the long-term trends for the share of private construction and nonresidential construction have held in tight ranges. Nonresidential spending peaked at \$781 billion in March and remains at around 60 percent of the total construction activity. Private sector investment was 75 percent of the total in February and March, a share that is at the high end of a long-term trend that has seen public construction make up 30 percent or less of the market since 2010. 🤒

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# WHAT'S IT COST?

he government's reading on producer prices over the past six months has eased worries that an extended inflationary cycle has begun. As of the March report on Producer Price Indexes (PPI) for construction and manufacturing, it appears that the mid-2018 spike was related to tariffs alone. Assuming that the upward pressure on construction inputs going forward should come from cyclical forces like pent-up wage growth or profits, construction pricing should more closely resemble the level of inflation in the overall economy.

Those individual materials that experienced significant year-over-year changes followed the prevailing trends in the industry. The stagnation of housing construction and residential investment, along with a buildup in supply, have put pressure on lumber and drywall prices, which fell 10.3 percent and 8.6 percent respectively. The early spring run

up in oil prices translated into increases in #2 diesel fuel (9.2 percent) and asphalt products (8.2 percent). Year-over-year prices for steel and industrial metals were roughly ten percent higher but those prices have been falling since fall and are higher in comparison to 2018 prices that predated the implementation of tariffs on steel and aluminum. That year-over-year gap will disappear after May, as the long-term trend relating to over-supply drives pricing.

Inflation pressures overall are coming from two related sources. First is the upward pressure on wages and profits as the tight labor markets create supply constraints on contractors. The second source of inflationary pressure is from flat or declining productivity. Late in a business cycle, with unemployment at record low levels, there will be little opportunity for productivity gains except through technology improvements. Economists see these factors, along with the declining impact of central bank fiscal stimulus and global expansion, as a recipe for higher inflation.

"We now stand at an important point," writes Ryan Severino, chief economist for JLL. "[T]he Fed sits on hold, wage growth is still accelerating, productivity growth will likely decelerate in 2019, and the blowback against globalization is causing some of the integration of the last few decades to reverse."

March's reading on inflation showed that inputs to construction were increasing at a rate that was only slightly higher than overall producer price inflation. The producer price index (PPI) for inputs to construction rose 2.7 percent year-over-year in March. One trend worth watching closely is the volatility in fuel prices. Along with the decline in steel and basic metals prices, the ten percent decline in fuel prices since mid 2018 has been a major factor in construction input price stabilization. Since the data was collected for February, however, prices for oil and energy overall have climbed higher, which could put prices for #2 diesel fuel, asphalt, roofing and other oil-related materials back to 2018 levels if the trend holds. The long-term trend for oil prices is for a return to higher prices – likely peaking well above \$100 per barrel – before breaking downward by 2021 into a much longer cycle of low prices.

An increase in oil-related inputs would push construction inflation slightly higher, but more stable trade conditions and labor rates should offset the upward pressure. U.S. tariffs - or the threat of them - were the primary driver of mid-2018 price spikes. Assuming that trade deals with China, Europe and the United States-Mexico-Canada Agreement are finalized (or that no further tariffs are imposed), construction inflation should primarily come from higher wages, productivity declines, and lower competitive pressures on contractors for the balance of 2019.

PERCENTAGE CHANGES IN COSTS	March 2019 compared to				
	1 mo.	3 mo.	1 yr.		
Consumer, Producer & Construction Prices					
Consumer price index (CPI-U)	0.6	1.2	1.9		
Producer price index (PPI) for final demand	0.7	1.0	2.2		
PPI for final demand construction	0.2	0.7	4.9		
Costs by Construction Types/Subcontractors					
New warehouse construction	0.3	0.3	3.5		
New school construction	0.1	0.9	5.4		
New office construction	0.1	0.4	4.9		
New industrial building construction	0.0	0.9	5.9		
New health care building construction	0.2	1.6	5.3		
Concrete contractors, nonresidential	0.9	1.6	6.9		
Roofing contractors, nonresidential	0.4	1.8	2.3		
Electrical contractors, nonresidential	0.6	0.2	4.2		
Plumbing contractors, nonresidential	0.0	0.8	4.5		
Construction wages and benefits	N/A	0.5	2.8		
Architectural services	0.4	0.8	0.9		
Costs for Specific Construction Inputs					
#2 diesel fuel	12.7	4.4	9.2		
Asphalt paving mixtures and blocks	(0.8)	3.9	5.1		
Cement	0.1	1.0	2.4		
Concrete products	0.0	0.5	1.1		
Brick and structural clay tile	0.0	1.0	1.3		
Plastic construction products	0.0	0.8	2.3		
Flat glass	(0.7)	0.4	0.4		
Gypsum products	(1.2)	(2.4)	(8.6)		
Lumber and plywood	0.1	0.9	(10.3)		
Architectural coatings	0.0	2.2	9.7		
Steel mill products	0.0	(2.6)	10.3		
Copper and brass mill shapes	2.2	4.4	(4.6)		
Aluminum mill shapes	0.0	1.3	2.2		
Fabricated structural metal	0.0	3.5	7.4		
rabricated structural metal		_	(8.7)		
Ison and stool seson	Iron and steel scrap 5.9 (5.1) (6 Source Bureau of Labor Statistics, Updated April 17, 2019				





hen you talk about the things that are changing in Pittsburgh, most of them come back to the institutions that call Oakland home. Regional leaders have been describing the dynamic Pittsburgh economy by saying "eds and meds" for a decade. The economic impact of Oakland's higher education and healthcare institutions has changed the physical landscape of Pittsburgh, but little of the landscape of Oakland has changed at the same time. That is no longer true.

Over the last few years, a few projects developed on Forbes Avenue that gave an inkling as to what the future Oakland will look like. Two large-scale private apartments, Skyvue and Bridge on Forbes, and the Murdoch Building pushed new construction towards and beyond ten stories. During that period, the University of Pittsburgh developed a new master plan, which includes planning for a number of non-university buildings along Forbes and Fifth for its private partners. Recently, three of those potential partners proposed new buildings that will reach or exceed ten stories.

Space for occupants looking to be in Oakland has been nonexistent for decades. Space for new construction has been just as scarce. The solution is to develop vertically. Most of the new buildings in Oakland in this century have been at the height limits of the zoning for the neighborhood. What is changing is the pace of the new construction and who will be doing it.

Oakland has three distinctly different occupant characteristics. The most obvious class of occupier is institutional, comprised of three universities and four hospitals. The universities make up the largest of the three and drive the lion's share of the development in

Oakland. The second class of occupants is residential, which includes both private residents and students. The final occupier class is commercial, with a relatively small amount of retail and hospitality and a growing share of office users. It is this last category of real estate that will define the transition that Oakland experiences.

#### **Commercial Office to Innovation District**

Oakland's office market is unquestionably the healthiest in the region. Its newest Class A office buildings are full and commanding the highest rents in the city. The vacancy rate for Oakland/East End is uncomfortably low, so much so that users looking for more than a few thousand square feet of space are out of luck. According to CoStar, a real estate information service, there are less than 68,000 square feet available in Oakland/East End, in all classes of buildings, out of more than two million total square feet of office space. The average rent is \$27.17 per square foot, just 29 cents less than the average rent in Downtown; however, the newest buildings in Oakland are getting \$10 more per square foot in rent.

When you dig a bit deeper into the data, you find that even these healthy market statistics are skewed slightly because of the inclusion of the East End neighborhoods. In Oakland proper, the occupancy level is nearly 99 percent. The three significant office projects underway, the Murland project at 3420 Forbes, the conversion of the former Pittsburgh Athletic Association and the Craft Place re-use, have all been fully leased during construction. It's this unprecedented level of demand that is driving the pipeline of development that is still to come in Oakland.

"Having looked at a lot of markets where the great universities are all over the country, often the areas right



feature

adjacent to the universities are in highest demand. For some reason in Oakland we haven't gotten there yet," says Todd Reidbord, president of Walnut Capital, which is in the midst of four Oakland projects. "I think the Brookings Institute study is changing that, with the promotion of this whole Oakland innovation zone. I think chancellor Gallagher has really stepped up to the plate in terms of fostering corporate partnerships. Most of our inquiries are from companies that want to be right on campus."

One of the conundrums facing developers in Oakland is the way in which the institutions have historically expressed their needs for space. Pitt, UMPC and – to a lesser degree – Carnegie Mellon have generally been noncommittal about pre-leasing commercial space in development. That created a problem for developers, and lenders. Financial institutions prefer leases to winking assurances of tenants to come. And the developers in Pittsburgh have generally been averse to the risk of purely speculative office development. Over time, developers have come to expect that Oakland's educational, research and healthcare users would line up once construction was underway, but Pittsburgh has not been a "build it and they will come" real estate market.

What has changed? Recent success stories like Schenley Place, the Murdoch Building, and the projects currently under construction have reduced the perception of risk in spec development. The rents that have accompanied the recent leases have also been a great incentive. Perhaps the most persuasive factor has been the explicit, rather than implied, demand from the universities for private sector real estate partners in creating the hottest real estate product in higher education: the innovation district.

One of those institutions, Carlow University, announced a

memorandum of understanding with The Elmhurst Group on April 10 for the development of a 225,000 square foot office/mixed-use building on Fifth Avenue at Craft Place. Carlow will occupy almost half the building (and eventually more) and Elmhurst's CEO Bill Hunt sees the demand as an opportunity to move innovators closer to where the innovation is occurring.

"I have a sense that there is so much activity in the Strip from this sector but that these technology companies would rather be in Oakland if a critical mass were to be developed," Hunt says. "There in West Oakland you have, potentially, the portal site, our site and then the building Walnut Capital is planning. I think there is enough critical mass that it could be an interesting opportunity for Oakland."

Hunt was quick to point out that the proximity of the Walnut Capital project, which is directly across Fifth Avenue from the Carlow site, presented more opportunity than competition, much like the collocation of major retailers tends to boost both stores. Hunt is also sanguine about having the proposed Bus Rapid Transit (BRT) system stop at or near the new project.

"I am really optimistic about the BRT. I toured a project in Culver City, California recently and saw that no one is building office buildings there unless it is on a public transportation route," he observed. "I think the BRT is going to have a lot more upside than people are giving it credit for right now."

Pitt's plans for partners on Forbes/Fifth will get a boost from the BRT as well. In its master plan, Pitt shows new buildings in the last few blocks on the western end of Forbes/Fifth that are not specifically under its control, but



Pitt's master plan envisions private developers and corporate partners infilling Forbes Avenue with taller, higher density commercial properties. Rendering by Ayers Saint Gross.

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that the university anticipates will arise organically as private developers look to have proximity to the research assets to the east. Two of the first projects that have unfolded in that area – the 80,000 square foot Murdoch Building and Walnut Capital's repurposing of the 49,000 square foot former dealership building at Craft and Boulevard of the Allies – have essentially been build-to-suit successes. Both projects started as spec developments, but each was rewarded with full leases during the early stages of construction.

The new projects that have been proposed will up the bet on the depth of the innovation economy in Pittsburgh. Walnut Capital's Innovation Research Tower will add 285,000 square feet across Fifth Avenue from the Elmhurst project. A building proposed by developer Wexford Science & Technology would bring another 200,000 to 250,000 square feet to Forbes Avenue, adjacent to the Murdoch Building. Wexford is partner to Pitt and UPMC in the renovation of the former Ford Motor Building in Shadvside to become home to the \$200 million Immune Transplant and Therapy Center.

Wexford executives say that the 3440 Forbes Avenue project is still too speculative to comment about end use and occupants, but the Baltimore-based developer has become a leader in developing high-end facilities for university-led research near some of the top institutions in the U.S. Wexford senior vice president, Tom Osha, noted in a presentation in Pittsburgh last year that the medical and technology research being conducted in Oakland made for an excellent market for private development that caters to an innovation district.

This concept of an innovation district has been a catalyst for development thinking in Pittsburgh since the 2017 release of a Brookings Institute report on the opportunities that such a district could represent. Public policy and dramatic investment would be necessary to fully link the university and hospital research nexus to all of the innovations centers – including the Strip District and Hazelwood Green – but it is a happy coincidence that so much ground-breaking research being

conducted along a narrow strip that is a few blocks wide and 15 blocks long. That coincidence offers the kind of density – the critical mass of which Bill Hunt speaks – that encourages heavy commercial development.

"We think there is more demand in Oakland for these kinds of Class A office buildings. We think the Forbes Avenue corridor is great. It's easy to walk to and there are lots of shops and restaurants," says Reidbord. "Anything in central Oakland is a great location. So much of that real state is in the hands of the university or UPMC that when you can get property in the hands of a private owner it's a great opportunity to build first-class space for corporate partners who want to be on campus."

Were this vision of dense commercial development to come to fruition, the results will alter what Oakland's major corridors will look like. The paucity of available sites in Oakland means that density will come from vertical construction. The view of the Cathedral of Learning from the Forbes/Fifth corridor will be framed by buildings that top 100 feet.

## Hail to Pitt – The Universities Will Drive Development

Much has been written – for good reason - about the impact that the universities and their technology transfer has had on development in Oakland. Aside from the new construction being done on the campuses, the demand for proximity to the students and professors at Carnegie Mellon, Pitt, Chatham, and Carlow has made for successful commercial real estate projects in the neighborhood. Occupancy has been near 100 percent for the better part of two decades and new buildings have leased up as quickly as they have been built in recent years. Class A rental rates in Oakland are the highest in the region.

Yet, for all the activity in this current "boom" of construction in Oakland, Pitt's plans for the next five to ten years is that much more overwhelming.

If you are a casual observer of the Pittsburgh construction market and your perception is that the University of Pittsburgh has been a less active participant in recent years, you wouldn't be wrong. After building a number of









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new facilities during the 1990s and early 2000s - including the Peterson Events Center construction spending at Pitt slowed dramatically. The priorities that faced Mark Nordenberg as chancellor didn't preclude capital spending, but the imperative to prepare Pitt to compete in the 21st Century pushed investments other than physical plant. There were major improvements done to science and engineering buildings, but those projects were done through PA's Department of General Services. Since Patrick Gallagher became chancellor in 2014, the physical footprint of the university and the role of its facilities became a higher priority.

While its neighbor was building a handful of new buildings further up Forbes Avenue, Pitt was quietly laying the groundwork for what will be a revitalization of its campus. The most important of those groundwork tasks was the preparation of a new campus master plan, done by architects Ayers Saint Gross, which was completed in February 2019. Pitt has complied with the city's requirements of maintaining an Institutional Master Plan (IMP) but the university hadn't done a thorough master plan since 1968.

Ayers Saint Gross identified two main axes through which most of the universities activities flow. A north-south axis connects the residential central and south Oakland apartments to the OC Lot and athletic facilities above Allequippa Street. Most of the residence halls and student activity centers lie along this axis. A second east-west axis runs from the Cathedral of Learning to the UPMC hospitals, creating an academic and research axis along O'Hara Street and Fifth Avenue. The projects identified in the new master plan seek to enhance these two axes, creating facilities that improve the student and academic experiences.

The plan developed five goals that will each spur the investment of hundreds of millions over the

coming decade. The first two - creating a place of academic excellence and innovations, and enriching student life have spawned roughly a dozen projects of \$100 million or more. Roughly \$400 million will be invested in athletics, both varsity and intramural/student activities. Some 1,600 to 1,900 new beds will be added to Pitt's portfolio, allowing each student the opportunity to live on campus through at least their sophomore year. This initiative also includes the replacement of two apartment-style residences along Bouquet Street that were built in the late-1990s. And several major academic buildings will be built along the O'Hara Street/Fifth Avenue corridor to upgrade existing schools of study, support growing new colleges, and enhance research. The latter includes a major redevelopment of Lothrop Hall, which links Pitt's medical research and academics to the new UPMC Heart and Transplant Hospital at UPMC Presbyterian.

The master plan is still in the process of community review and the IMP update with the city. Pitt's preparation for the Avers Saint Gross planning process was very inclusive, making significant changes unlikely.

While this review process is proceeding, University of Pittsburgh has been moving forward quickly with the first of these \$100 million projects. An addition and major renovation of Scaife Hall, the School of Medicine, is being designed and construction should begin by 2020. PJ Dick and Payette Architects are the construction manager and architect. Pitt chose Mascaro and Moody Nolan as the construction and design team for a new Student Recreation and Wellness Center, to be built on O'Hara Street where the current LRDC Building sits. An \$85 million new chilled water plant, being designed by Burns & McDonnell, is expected to go out for proposals in June.

feature

Two other \$100 million projects were in the process of architectural selection at the beginning of May. One, the Human Performance Center, is the first of the new buildings in the athletics complex at the top of campus, which Pitt is calling Victory Heights. New facilities for varsity athletics and student sports will replace or remake venerable Trees Hall and Fitzgerald Field House. The other major project for which architectural selection is wrapping up is the One Bigelow Square academic building. This project will be located on the former Syria Mosque site on Bigelow Boulevard. The site was one that attracted high interest from Chancellor Patrick Gallagher from his first days on the job.

One interesting aspect of the master plan is its allowance for projects that Pitt will not undertake. The completed master plan identifies seven mid-rise buildings along Fifth and Forbes "Innovation District Potential Opportunities." Several of these are identified above, but several exist only as potential and Pitt is clear that the potential is not limited by the master plan. The master plan is limited to the footprint of the university, implying that the logical conclusion will be for other "Innovation District Potential Opportunities" to continue to develop to the west of Oakland, through Uptown.

In 2019 dollars, the completion of the master plan will exceed \$1 billion and take a decade or more. Given the pace of change in technology

"Yet, for all the activity in this current "boom" of construction in Oakland, Pitt's plans for the next five to ten years is that much more overwhelming."



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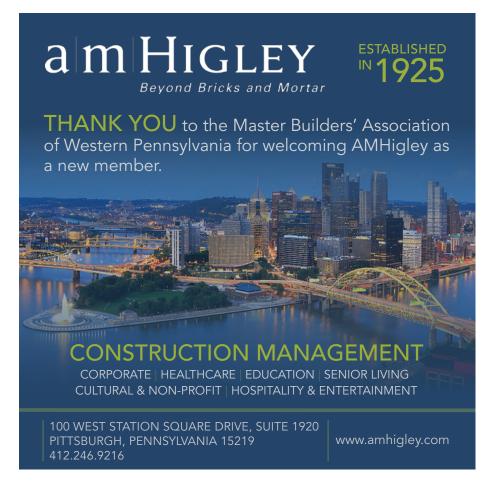
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and medicine, it's likely that the final products that result from this plan will be somewhat different, especially those on the academic/research axis. Regardless of the final details of the construction, the execution of this plan will position University of Pittsburgh as one of the top 50 universities in the U.S. Assuming that goal is attained, Pittsburgh - and the Oakland neighborhood - will be home to two major university economic drivers at a time when universities as a whole are struggling to exist.

Major construction projects have been part of the CMU campus for more than a decade, as the university's technology transfer mushroomed. Most of the new buildings on campus have been in support of the expansion of new technology education and research. Projects like the Gates/ Hillman complex, Scott Hall, ANSYS Hall, and the TCS Building were devoted to emerging technologies. The \$13 million renovation of Hamerschlag Hall to create maker space was built to allow researchers a place to put theoretical breakthroughs to the test.

While there will still be capital spending on its technology colleges – plans are underway for a \$50 million replacement of Scaife Hall the next few projects on the horizon at Carnegie Mellon are focused on student life. Construction has just started on the Hall of the Arts at Posner Hall, a \$30 million renovation and expansion being managed by PJ Dick Inc. Plans call for a major renovation of the student athletic facility, Skibo Hall, for which Mascaro Construction

"It's really, really important. I don't think it's sufficient but it's necessary from a development standpoint to have a transit connection to Oakland,

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is construction manager. Two new \$45 million residence halls are in early stages of design. Rycon Construction will build one at Fifth Avenue and Clyde Street. Mosites Construction is the construction manager for a residence at Forbes Avenue and Beeler Street.

Carnegie Mellon's impact on Oakland has primarily been in pushing out beyond its Forbes Avenue and Panther Hollow borders. While that now means a physical presence as far north as Fifth Avenue, CMU expanded its presence beyond the campus through the commercialization of the research done under its auspices. Robotics Row, Bakery Square and Hazelwood Green would be very different (and much smaller) without the corporations that fight for Carnegie Mellon's graduates and their research. There is a place in CMU's institutional master plan for more new construction north of the new Tepper Quad, but the university's greater influence on Oakland is more likely to come from the new technologies that it spins out, looking for space to land nearby.

#### **Making Better Connections**

The paucity of space in Oakland for the many technology transfer spinoffs from Oakland's innovative institutions has created opportunities for development in adjacent – and near adjacent – communities. As more than one million square feet of new space becomes available in Oakland over the next few years, there are several ways things could unfold.

The worst of the potential scenarios is for the pace of technology transfer and development to accelerate beyond what the workforce and commercial real estate infrastructure can support. Robotics and artificial intelligence are in their infancies. While these advanced technologies are centered, or at least heavily invested. in Pittsburgh, companies involved in researching and commercializing robotics and Al are invested elsewhere too. Should talent attraction or facilities



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A second - and least likely - outcome is a zero-sum scenario. This seems to be the fear that is most palpable among real estate observers. This potential future is predicated on the assumption that the growth of the industries emerging from CMU, Pitt or UPMC is peaking, and that building significant inventory in Oakland will result in relocation from Bakery Square, Lawrenceville and/ or the Strip District. The commercial applications of these new technologies are practically nonexistent compared to the potential. The Good Friday announcement that a trio of Japanese companies had invested \$1 billion in Uber's autonomous vehicle efforts is but one indication that the surface has barely been scratched on the technologies.

Most promising - and likely - is a future where the investment in research and facilities by Oakland's major institutions yields so much downstream benefit that growth in demand for space in Oakland and the near adjacent neighborhoods continues simultaneously. Anecdotal evidence is everywhere that the new development in all the areas that are currently supporting emerging technology research is insufficient for the demand.

The Murdoch Building was essentially fully-leased before steel was erected. Craft Place's tenant has chosen not to announce its plans yet but that project was committed by the time construction started. Oxford's Stacks at 3 Crossings has enough deals being finalized that three spec/build-to-suit buildings could be underway by Christmas. Google is reported to be looking for ways to expand by more than 200,000 square feet.

This optimistic scenario will become increasingly dependent upon smooth connections between the university campuses and the surrounding business neighborhoods. Some of the critical research activities, especially in robotics, will involve vehicles and equipment that aren't appropriate for Oakland real estate solutions. Robotics Row and what develops out of the Advanced Robotics for Manufacturing (ARM) Institute in Hazelwood Green will require more industrial real estate solutions, like those already in place. The talent driving AV, ARM and other robotics will want to move smoothly and quickly between those industrial locations and the academic locations. Right now, that connection involves a car or buses.

A BRT system will be a first step towards connectivity. The proposed BRT project will comprise 7.4 miles of dedicated bus lanes running east-to-west between downtown and Oakland. Feeding the BRT will be three neighborhood extensions from Squirrel Hill, Highland Park, and the East End. Oakland's six inbound stations begin at Craig Street running all the way down Fifth Avenue to Maurice just past Carlow University. There are six outbound stations



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"As the commercial real estate boom in Oakland brings millions of square feet of research and development space, it also brings thousands of jobs. Buses, bikes and ride-sharing will help connect workers to those jobs."

on Forbes Avenue starting at UPMC McGee-Women's Hospital. The new service will have stops every one-quarter mile compared to the current one-sixth mile. Beyond Oakland, the BRT connects to Downtown through the Uptown section of the Hill District.

As Bill Hunt points out, use of the BRT will be a boon to the new development on the western end of Oakland. The system also paves the way for tech companies to see Downtown real estate as a logical expansion site. As of today, the status of the BRT is still indefinite, although the Port Authority says that service could begin before 2022.

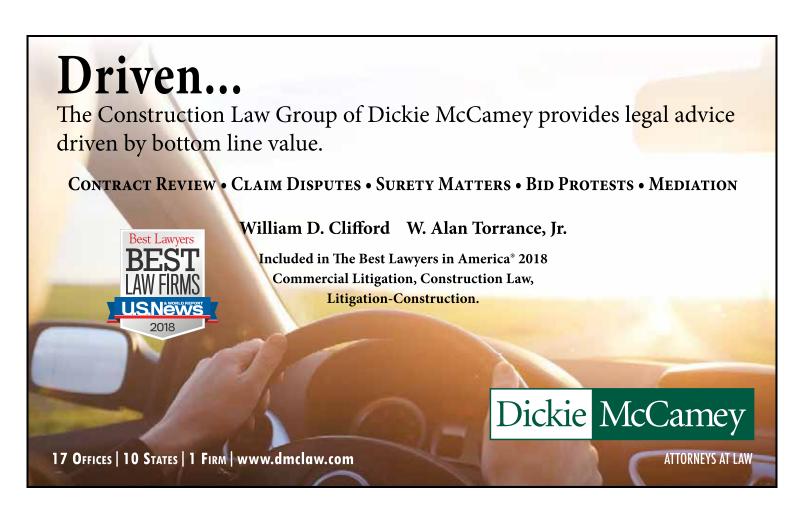
"We are currently awaiting a notice of funding from the Federal Transportation Authority," says Adam Brandolph, public relations manager for the Port Authority of Allegheny County. "If that is received roughly before the end of the calendar year, we anticipate construction to begin by the end of 2020. Construction is expected

to take about a year and service would begin shortly thereafter."

County Executive Rich Fitzgerald is more cautious, noting that the BRT's fate is mostly out of local hands.

"Funding for the BRT is reliant upon the federal government. The project scores very highly with the FTA but, I hate to say, it depends upon Washington, DC getting its act together," Fitzgerald says. "All of the funding will come from the federal transportation act, which hasn't been updated in years."

Assuming the optimism about the BRT is well-founded and a rapid transit connection is operating between Downtown and Oakland by the end of 2022, its timing will be perfect for linking the intellectual assets of the job creators to legal, financial and government assets in Downtown. But a functional BRT in three years will make







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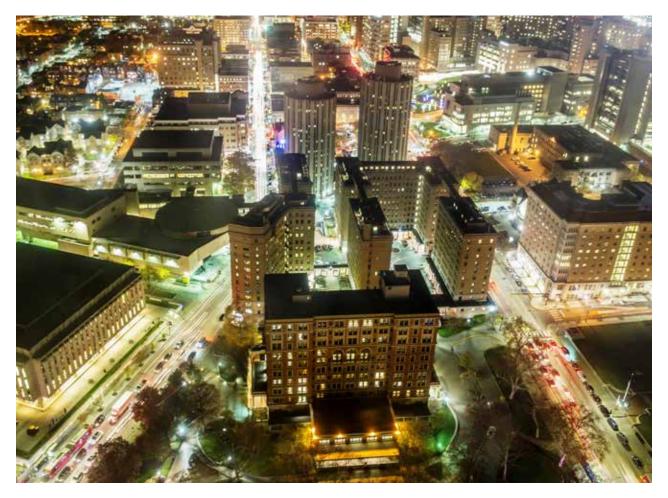


Photo by Monica Synett/University of Pittsburgh.

little improvement to the connections between Oakland's intellectual assets and the places where those assets have already created thousands of jobs. And a functioning BRT doesn't address the problem of connecting Hazelwood Green, a development with more than \$100 million in public assistance, to the places that are supposed to drive its expansion.

"It's really, really important. I don't think it's sufficient but it's necessary from a development standpoint to have a transit connection to Oakland," says Don Smith, president of the RIDC, the original developer of Hazelwood Green for the Almono Partners. "Companies would view that as a connection to Carnegie Mellon, University of Pittsburgh and UPMC. That would allow us as a region to capitalize on the tremendous growth potential of those institutions. It's also important for the residents of Hazelwood, who have poor access to Oakland for healthcare and the jobs being created there."

Smith was the vice president of economic development jointly for Pitt and Carnegie Mellon during the time when Mark Nordenberg and Jared Cohon were moving the two universities into closer alignment to maximize the benefits of technology transfer. Almost 20 years after his

appointment to this unique position, Smith sees the fruits of that collaboration throughout the region. The vision for Hazelwood Green, in which RIDC is currently developing Mill 19, is for the property to be occupied with mature research and industrial spinoffs from the technologies currently being developed at the universities. Those corporate occupants will employ the workers who will live and shop in the residential and commercial portions of Hazelwood Green and the Hazelwood neighborhood. Absent a transportation connection to other key neighborhoods, there is a risk that Hazelwood Green could become an industrial island, or that traffic congestion will prevent consumers from frequenting the neighborhood's burgeoning assets.

Smith emphasizes that a solution to connecting Oakland needn't be complicated.

"The easiest thing to do would be through Panther Hollow. Boundary Street has never actually been legally vacated, so it could be reactivated for shuttles, electric vehicles or autonomous vehicles," he suggests. "It could come up Boundary to CMU or continue up Neville Street to Fifth Avenue, which puts you close to Pitt. You could also enhance Bates Street. Or you could have a BRT

Proposed Project	Owner/Developer	CM	Description
Innovation Research Tower	Walnut Capital	PJ Dick Inc.	10-story, 285,000 square feet
McKee Place Office	Walnut Capital	PJ Dick Inc.	300,000 square feet
Carlow/Fifth & Craft Office	The Elmhurst Group		225,000 square feet
3440 Forbes	Wexford Science & Technology		250,000 square feet, 170-car garage
II Sterling Plaza	Sterling Properties		105,000 square feet

that follows the 'jail trail' to Hazelwood Green, and then connects up to Oakland and back to Downtown."

"Given that we are at the epicenter of autonomous vehicle research, wouldn't it be a great idea to establish a test route here?" Smith asks playfully. "It seems like a good test case for our fastest-growing industry to have a real street, with limited automobile access, to have the driverless vehicles work out operating in the real world and creating a solution to a real problem at the same time."

One of the connections that doesn't require capital spending and government cooperation to achieve is the walking connection between where people work and live. Oakland had more than 22,000 residents at the time of the 2017 U.S. Census revision, only 8,863 of which weren't students. That's about 805 people per square mile, although when you eliminate the commercial and institutional footprint the density grows six-fold.

As the commercial real estate boom in Oakland brings millions of square feet of research and development space, it also brings thousands of jobs. Buses, bikes and ride-sharing will help connect workers to those jobs. So could a short walk. That's something that is attractive to employees and employers.

"It's interesting. One of the companies interested in our new building at Bakery Square was telling me that they view being close to Carnegie Mellon and Pitt as an asset, especially with the ability to have employees live a walkable distance from the office," says Reidbord. "They view that as one of the strongest attributes of the market. It's something they are looking for."

Reidbord was speaking of the housing stock in East Liberty but he could be talking about the Oakland neighborhoods, especially if Walnut Capital and its peers intend to draw companies with young, educated workers to the new buildings along Fifth and Forbes. Oakland is officially home to four residential neighborhoods, with much diversity in income and housing stock. Outsiders generally don't think of Oakland as a residential community, at least in the way they might consider Squirrel Hill or Lawrenceville, but the Oakland Planning and Development Corporation (OPDC) does. OPDC's Oakland 2025 Master Plan lists the creation of "innovative, sustainable housing choices" among the plans' five major objectives.

"There are a lot of strategies to employ to stabilize and attract homeowners," says Wanda Wilson, executive

director of OPDC. "It's certainly a priority of OPDC and Oakland 2025 to support neighborhood quality of life so we don't end up with just absentee ownership."

Wilson is addressing one of the challenges of changing the residential landscape of Oakland. With a student population that is almost double the permanent residents, and universities with dormitories that don't house even half of those students, Oakland is a ripe market for rental housing. In certain neighborhoods, especially Central and South Oakland, properties have a significant share of absentee landlords. That dynamic creates a number of issues, including code violations and lapsed maintenance. OPCD's goal is to promote ownership so that the mix of owner-occupied and rental properties is 50/50. Achieving that goal would give more people who work in Oakland a chance to live nearby, which Wilson agrees is an opportunity.

"It's good for employers and employees if there's an opportunity to walk to work," she says. "It's good for retention and attraction of employees."

Attraction and retention of talent has been the primary factor in this latest renaissance in Pittsburgh. Not all of the transformation of Pittsburgh's economy has come out of Oakland - the natural gas and financial services sectors also contributed significantly - but without the technology transfer from Carnegie Mellon, the region would look dramatically different in 2019. Talent attraction is an existential problem in Western PA, as demographics are creating a hole in the workforce during the coming decade. The momentum gathering as Pitt leaps forward and healthcare research invests billions in the region could potentially fill that hole. Success in that endeavor would truly set the stage for Pittsburgh's final transformation.

Virtually no one still working in Western PA experienced that last time Pittsburgh had such a transformation. Most Pittsburgh business people know only what the transformation from industrial to vacant looks like, or they have no idea what that industrial version of Pittsburgh looked like. What is underway in Oakland is a template for what Pittsburgh 2030 may look like. We have already seen the Beta versions of that transformation in East Liberty and the Strip District. Oakland 2030 will be the ready-forprime-time version. BG

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- 3: an organization representing the interests of investors, developers and owners of commercial real estate.
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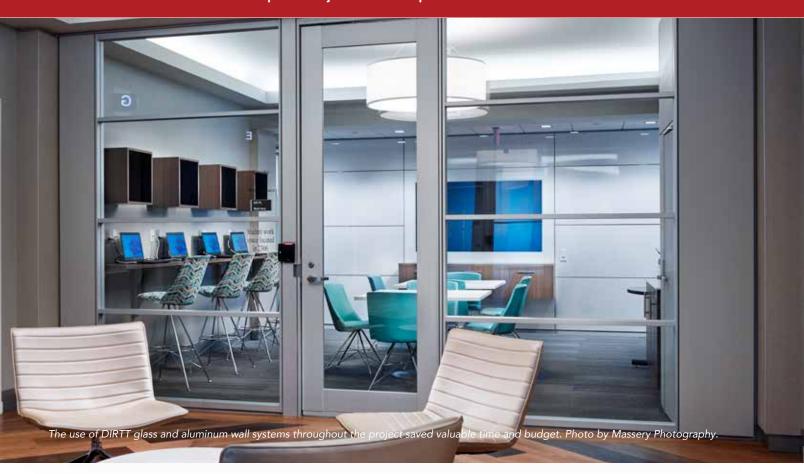




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### **PROJECT PROFILE**

# UNIVERSITY OF PITTSBURGH SCHOOL OF SOCIAL WORK, CATHEDRAL OF LEARNING 22ND AND 23RD FLOORS

hile the University of Pittsburgh was planning a multi-billion dollar capital program that will transform the campus over the next 10-15 years, there have been smaller, but equally important, projects undertaken to update some of Pitt's oldest buildings. One such project is the multi-phased renovation to the School of Social Work, which had spread out on parts of seven floors in the Cathedral. During the winter of 2018, Pitt undertook the first phase of a plan to consolidate the School of Social Work into four floors, beginning with its office and classroom space on the 22nd and 23rd floors.

"We recognized that we were very fragmented," says Matthew Rendulic, project manager at the time for the university. "We had done quite a few floors in the Cathedral. These two were in the middle of the stacking program. It was really just a realignment for Social Work. It was legacy space and in some areas their space hadn't been renovated for 20 years. We needed to get them upgraded."

The project involved renovations to 17,000 square feet of classroom and office space. The \$4.2 million renovation was programmed for two main phases, the first of which was going to have to be accomplished during the break between

commencement and the start of classes in the fall. Pitt hired Pieper O'Brien Herr Architects to design the space. The Pieper O'Brien team consisted of Project Architect Scott Maritzer, Principal Loren Wright and Heather Dice as interior designer.

Renovating the two floors during the School of Social Work's downtime was going to require successfully managing a compressed and rigid schedule. Pitt issued a request for proposal (RFP) to a handful of construction managers early in the design process. Among the factors that would be considered, the ability to demonstrate that it could deliver the project within the narrow time constraints was the one that proved successful for the winning contractor, AIMS Construction.

"AIMS really stepped up in its initial presentation to us about the ability to handle the compressed schedule. Their level of understanding and coordination from day one was what sold us on this particular project," says Rendulic. "We knew they needed to hit the ground running and they pitched how they were going to ramp up to get ahead of the schedule, so that if we had any hiccups we would have some float in the middle of the schedule to deal with them."



Existing elevator lobbies served only as secured access points. Photo by Pieper O'Brien & Herr Architects.

"During the RFP process we showed how we use a submittal tracker to ensure everything gets to the site on time. Pitt had a lot of concerns about how we were going to ensure that so during the interview process we detailed our submittal tracking process," recalls Alicia Densmore, project manager for AIMS. "We identify the very last date that something has to get to the job site and then work backwards. We estimate the longest time for each step in the submittal process and then work backwards to plug that into the schedule."

Rendulic says that AIMS gave them comfort that it could handle the swing management process that would be needed to complete the schedule. The project staging was going to be self-contained within the two floors and temporary walls and conditions had to be built and deconstructed in a well-coordinated sequence. Pitt felt that the construction manager that could best articulate a plan for accomplishing that would be the most successful. AIMS also put forward a team whose strengths matched the critical needs of the project.

"We think through our teams during the proposal for the project," says Densmore. "Our superintendent, Brent Guenther, is fantastic. His planning abilities and scheduling abilities really played into this project because it has such a tight timeline."

AIMS also had experience working with the DIRTT wall system, which was a critical component of the project's design, and a key factor in meeting budget and schedule.

DIRTT is a prefabricated wall system that integrates the building's systems into an interior demising wall that includes the door and trim and is installed fully assembled rather than built on site. For

the School of Social Work, the walls were aluminum and glass, which maximized the amount of natural light that could flood the offices and classrooms with the DIRTT walls. Workscape/ Construkt provided and installed the DIRTT systems, working with Pieper O'Brien and AIMS during the design stage to provide detail and estimates.

"We worked with them from day one of the design process, so that when we hit the construction phase, we had figured out a lot of the pieces. The submittal for the DIRTT system alone was about 1,000 pages," says Maritzer "We were challenged to prove that demountable walls would actually be the more affordable way to go and it ended up being that. Once you factor in labor, electrical, data in such a small footprint, it was a significant savings. To be able to have one person come in for two weeks and install 50 percent of the walls saved a lot of effort."

"The DIRTT wall system was a big help with the schedule because we just had to get flooring and ceilings in and they could come in and install the walls," agrees Densmore. "I think the biggest benefit was the doors. If we had to wait for standard doors for every door in the offices on the 23rd floor, I don't think we would have hit the schedule. We only had five or six standard doors on that floor, and we had to really push to get them here by the completion date."

Another complicated part of the project was the mechanical work, which made up roughly one-third of the budget. Part of the scope of work as the Cathedral is being re-stacked is a conversion from its steam heating system to a forced-air, four-pipe HVAC system. The work involved removing the radiators on each floor and connecting the steam system to new heat exchangers,



After renovation, drab elevator lobbies (see opposite page 38) were converted into public spaces where students could gather and collaborate between classes. Photo by Massery Photography.

from which the hydronic piping would emanate. Fin tubes were installed on the perimeter and 24-inch and 36-inch ductwork was installed for the forced air. In a hundred-year-old building, there were risks at every turn.

"We don't really have great as-built drawings in those areas and the conditions don't allow the architects and engineers to field verify the conditions," says Rendulic. "We can't do selective demolition to get up and see what is above the ceiling. It took a team effort to really design that in the field."

The structure of the Cathedral of Learning and the wide variance in the floor-to-floor heights made the mechanical work more challenging. Ongoing renovations at the Cathedral were sequenced according to the needs of the users, rather than phased as a systemic updating. On some of the floors, the steam converters fed floors above and others served floors below. On the 23rd floor, the floor-to-floor height was 14 feet, but the structure didn't allow consistent clearance.

"It was difficult working mechanical systems in two floors that were never intended to have duct work," says Densmore. "Matthew gave us a heads up so we knew it was going to be tight. There are some major concrete beams that go out from the elevator lobby and, unfortunately, that is where all the big duct work had to go. We were still able to achieve 8' 6" ceilings in most of the areas."

A lot of the project's budget was going to be going behind the walls and above the ceilings, so the finishes were more institutional than monumental, but there were still plenty of contributions to the aesthetics of the space that the design team was able to

make. Maritzer notes that the Pieper O'Brien team took the time to walk all of the Cathedral's floors when they competed for the project, to get a sense of what they liked and disliked about the spaces. Several of those observations became key elements of the design of the new space for the College of Social Work.

"Some floors, when you get off the elevator it was literally just card access. That's not very inviting," Maritzer notes. "You didn't see any windows. You didn't see any signage. You're just stopped unless you have authority to go beyond that point. That was the case at the School of Social Work. What we saw on some floors that we liked was that students literally took tables and pushed them together to have small study corrals, making do with what they had. We wanted that to be intentional."

"We also tried to use the materials to give a sense of direction," he continues. "When you get out of the elevator, the flooring has a herringbone pattern that gives you the sense that this is the center of the Cathedral of Learning and everything emanates out from there."

One disadvantage of the iconic architecture of the Cathedral of Learning is that the interiors are darker than most of Pitt's newer buildings and the tracery windows – although architecturally significant – don't allow the occupants to get the views that would be expected in a high-rise located on an elevated part of the city. Several of the windows were also divided by demising walls that were built to create offices or classroom space. Pieper O'Brien steered the palette and material choices to offset that disadvantage.

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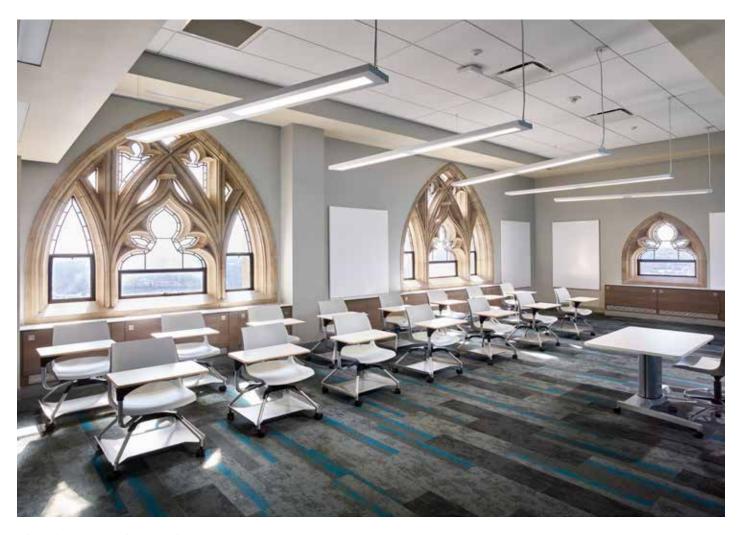


Photo by Massery Photography.

"We went a little bit against the grain in finishes in that a lot of previous projects in the Cathedral went with dark colors," says Maritzer. "We wanted the space to be lighter and more refreshed, which is why we liked the clear anodized aluminum and lighter color palette. There are all these magical views up there. We tried to celebrate that rather than hide it."

With AIMS coming on board in February, the team worked through the design details for about a month, putting construction documents out to bid to the subcontractors in late March. The construction manager and Matthew Rendulic evaluated bids and completed scope reviews so that AIMS could proceed on April 29, 2018. The clock began ticking towards completion on August 15.

The tight schedule was compounded by the vagaries of summer work at the Cathedral of Learning. Densmore recalls that they discovered that there was inconsistency in the status of hazardous materials from floor-to-floor. She says that an unexpected layer of nine-by-nine floor tile (which is typical for vinyl asbestos tile) was discovered during demolition. The tile turned out to be free of asbestos but several days were lost in the demolition. There were other logistical challenges as well.

"Working in the Cathedral itself is a bit of a challenge. The building has its own quirks about it," Densmore chuckles. "There

were also five other construction projects going on that summer in the Cathedral of Learning. There is only one loading dock that serves the whole building, so we had to coordinate with food services and other building services, along with the other contractors. There was only one dumpster and it had to be pulled by 6:00 a.m. and could not be brought in until 6:00 p.m. because of all the deliveries coming in-and-out through the day."

Rendulic developed his own schedule for access to the loading dock. It was distributed to the superintendents on all projects and they were responsible for coordinating the dock access for the subcontractors on each project.

Construction on the two floors did not go off without a hitch but, as might be expected with the level of preconstruction coordination, the team was prepared to manage the potential disruptions without losing control of the schedule. The new offices and two classrooms on the 23rd floor were turned over in mid-August. AIMS then rolled its team to the 22nd floor, which was completed during the Christmas break. The participants make a point of crediting their peers for the project's success.

"It was a good match of cultures," says Mike Tarle, vice president of operations for AIMS Pittsburgh office. "With Piper O'Brien, Loren and I are friends. Brent was all about the team. Everyone was looking out for each other and no one threw anybody under the bus. Matt was one of the rare owners who gave us a clue about mistakes made on other floors. It was so helpful. He had lived the lessons learned and shared those so that the project was more successful."

Scott Maritzer appreciates the level of coordination and professional courtesy that was shown throughout the project. He points out that Alicia Densmore and Mike Tarle are both degreed architects, which he feels facilitated communication.

"We were very happy with the process and the project," Maritzer says. "I think their having an architectural background meant that our conversations could be a little quicker and more direct. They understood my perspective and I understood theirs, and we were just trying to come up with a solution as quickly as possible."

Densmore echoed Maritzer's point about the focus on solutions,

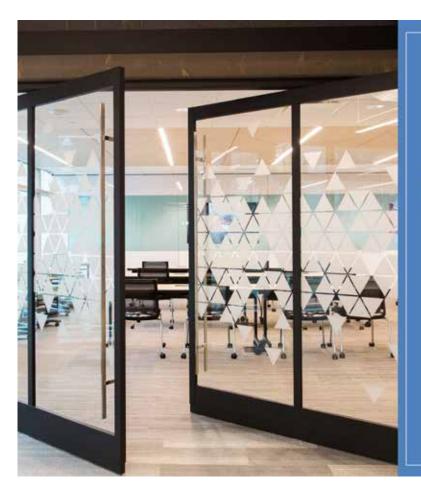
noting that any field issue was met with a response by Matthew Rendulic and the relevant member of the design team, in person at the site.

For his part, Rendulic commended Brent Guenther for his commitment, noting that the superintendent worked every weekend from April through July to get the 23rd floor done.

"On any project teamwork is truly critical. AIMS and the entire team worked very well together. They pitched that from day one and both floors were delivered ready and waiting, versus being what I usually called 'done enough'," says Rendulic. "They delivered a first-class project for the School of Social Work. I know from numerous conversations with the end users, it really was a home run. They are absolutely ecstatic and appreciative of all the hard work.".

### PROJECT TEAM

AIMS Construction	Construction Manager
University of Pittsburgh	Owner
Pieper O'Brien Herr Architects	
Tower Engineering	MEP Engineer
Greer Tile Co.	Tile
L. Cannon Communications	Tele Data
T. F. Coran Co.	Accessories
Steinberger Floors	Flooring
Graphics 22 Signs, Inc	Signage
Ruthrauff Sauer	
V. O. George Group	Wall Protection
Workscape/Construkt	Demountable Walls
HOFF Enterprises	
M & J Electrical Contracting	
Preferred Fire Protection	
Modany Falcone, Inc	Concrete
Pittsburgh Interior Systems	Demolition & Carpentry
BLT Contracting, Inc.	Abatement
Zottola Steel Corp.	Metals
The A.G. Mauro Co	
Allegheny Installations	
Caldwell's Windoware	Window Shades



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### FIRM PROFILE

EASLEY & RIVERS, INC.



With its fifth generation of leadership in place, the partners at Easley & Rivers (E&R) believe the key to maintaining strong stable ownership has been the willingness to embrace the instability of the construction industry.

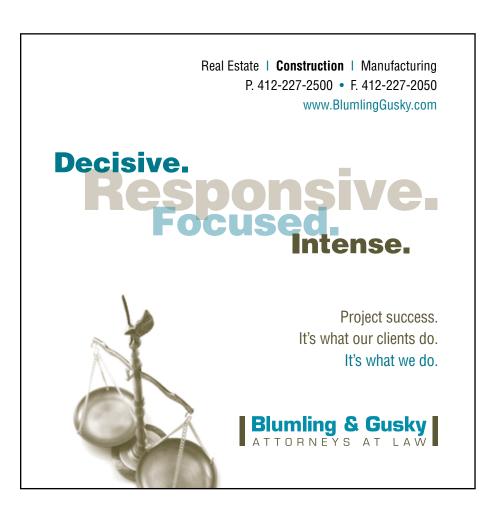
"We are always trying to stay out on the cutting edge. We're never going leap out of our area of expertise but

we're always looking for that next area of growth," says Glenn Sieber, E&R's president. "We haven't been afraid to embrace change because we have experienced people who thrive on new challenges. We have been willing to learn from experience and carry that knowledge forward."

Easley & Rivers has been operating steadily for 65 years, a track record very few companies have in the construction industry. E&R is a specialty contractor that does drywall, framing, ceilings, fireproofing, insulation and specialty carpentry. E&R also sells and installs contract office furniture and folding partitions. The owners of the company, in addition to Sieber, are Rich Yohe, vice president, Neal Rivers, vice president, Frank Poerio, and past presidents of the firm, Dick Rivers and Laird Smith.

It's a little misleading to talk about the business in terms of generations. As Dick Rivers points out, the company has had leadership from outside the family since his father's time leading the company. In terms of shareholders, there have been as many owners from outside the founding families as family members, and two of the company's six presidents have not been family members.

"We have always had leaders from outside the family. My father promoted Laird Smith to president shortly after I joined the business and he made it clear that he had earned the job," Rivers says. "That's the way it was when it was my time to retire. The most qualified person should get the job."





"Now we see the value in cross-marketing. We are able to get in on the front end of a project with the furniture and the follow with construction, or vice versa."

Frank Easley and Herbert Rivers started working together in the early 1950s, doing residential plastering in Natrona Heights, at first working from Easley's kitchen. Moving first to an office in Natrona Heights and then to Cheswick, Easley and Rivers grew to add acoustical and drywall companies. When Dick Rivers, Sr. joined the company in the mid-1950s, he pushed the business to move more to commercial work, sign with the local trade unions, and to incorporate under one roof in 1958.

Within a few years, in the mid-1960s, Herb Rivers passed away and Frank Easley retired after succeeding Rivers as president. Easley had no heirs in the business. From 1967 until 1983, Dick Rivers, Sr. was E&R's president and oversaw several important

At the urging of one of its executives, Jim Dixon, E&R opened an office in Morgantown, WV in 1979, well ahead of other companies from Pittsburgh. Dixon saw growing opportunities at the University of West Virginia and West Virginia University Medicine facilities. Sieber notes that the West Virginia operations remain an important piece of the business and have been a good way to help even out the ups and downs in the Western Pennsylvania market. Tim Gooden is the current vice president in charge of the West Virginia Division.

Two years later, E & R took the suggestion of another executive and began selling and installing contract furniture. Sieber says that E&R has worked at integrating the furniture group fully into the construction operations. He says the cross marketing has benefitted both business units, and led to a surprising revelation.

"For the longest time we kept construction and furniture separate. It was thought to be a great idea when we added the furniture lines but the people running the construction side of the business saw furniture as unrelated," Sieber explains. "Now we see the value in cross-marketing. We are able to get in on the front end of a project with the furniture and the follow with construction, or vice versa. We were surprised to find out how many people knew us as a construction company but didn't know us as a furniture company. The more surprising thing was the people that knew us as a furniture company but not as a construction company. That was a real awakening for us, so now we try to crossmarket everything."

In 1982, Dick Rivers, Sr.'s son, Dick, joined the company following a dozen years in the military. Rivers was a graduate of the Air Force Academy and had served in the Air Force before moving back to Pittsburgh to raise his family.

Dick Rivers, Sr. retired the following year and the younger Rivers became the project manager for the new V.A. Medical Center on Highland Drive. The V.A. hospital was one of the two or three largest construction projects in the region at a time when very little was going on in Western PA. That project spurred E&R's growth, as they were able to maintain a large crew and pursue larger projects.

Laird Smith had run the office that E&R had in Boardman, OH, which closed in the mid-1980s. Smith started in the field and gravitated into sales. He was the company's president from 1983 until 2000. During that time, the remainder of E&R's current management team joined the company.

Glenn Sieber was working in facilities at Federated Investors. He had been responsible for purchasing and maintaining the computer communications systems for Federated in its new headquarters on Liberty Avenue.

Rich Yohe joined E&R in 1999, after spending the first part of his career working for smaller interiors and millwork contractors. Yohe joined as an estimator and spent the next 14 years estimating and selling projects.

Dick Rivers' son Neal joined E&R in 2000, after spending the year after college graduation working out of town. He became an assistant project manager and



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has worked in operations since.

"There was never any kind of pressure to join the company, especially with my dad having joined the business the way he did," Neal Rivers says. "I think there was probably more pressure on him to join the business, but ultimately he took his time doing so. Believe it or not, I just missed Pittsburgh."

Dick Rivers became president in 2000, when Laird Smith retired, and ran E&R for 13 years. During that time, the company was involved in some of the signature construction projects of that era, including the new Children's Hospital, David L. Lawrence Convention Center, Peterson Events Center, Westinghouse Headquarters and The Tower at PNC Plaza. Yohe, Sieber and Neal Rivers have worked under several management teams, during fairly challenging times. They believe that the dynamic attitude of the leaders has been consistent.

"One of the things that Glenn definitely opened my eyes up to was not getting into a comfort zone," says Yohe. "Don't get too content or the world is going to pass you by. See what's new, assess it, and get in the game."

E&R has had success looking for changing trends. Sieber notes that although they have done few K-12 projects lately, E&R's growth in the 1990s was fueled by their volume of public schools. Yohe recalls that they shifted focus to the growth of panelized wall systems in the early 2000s, which resulted in E&R's landing several college residence/apartment projects as the school boom ended.

"We tend to go where the market is," says Yohe. "A couple of years ago, when we looked at our year end market statistics, we were doing an awful lot of apartment buildings. A few years before that, when companies were moving around downtown trying to find better lease rates, a lot of our work was in office buildings. When Southpointe II took off we ended up doing most of the buildings there."

Today, they see opportunities in the trends towards more construction management and in design-assist projects, which are new to E&R.

The company's first experience with the latter trend is at the Allegheny Health Network's new Wexford hospital. Design-assist is usually associated with the building's systems, structure or building envelope. Neal Rivers says he's seen how bringing an interior contractor to assist with design has been valuable.

"I think the difference is that building codes change so quickly that a lot of people have a hard time keeping up with acoustical requirements, fire rating requirements, thermal requirements for the building envelope, and how all these things come together," he says. "I think people are still trying to figure out how to draw these things. Some of it is a pricing exercise but mostly we are helping them figure out how all these systems can come together most efficiently."

Yohe explains that the related trend towards hiring construction managers early, instead of hard bidding among general contractors, has created more opportunities for specialty contractors.

"As our customers have done more CM work, where they're not allowed to self-perform, we've had those general trades packages thrust upon us," he says. "I think that's something that we have taken on more often over the last two or three years. I think there will be more opportunities like that."

Those construction managed projects end up with E&R's traditional scope of work expanding to include doors and hardware, window systems and specialties that often go to multiple small subcontractors. It's given E&R opportunity to expand into other specialties, like window shading. That also means picking up a lot of miscellaneous items that others might prefer not to do.

"We are a service and it's our job to make our customers look good. It's our job to relieve their headaches," says Sieber. "The CM doesn't want to write multiple subcontracts and they know if they hand them off to us it will be done right. It's one less factor that goes into the antacid budget. We have been careful about it but we have not shied away from taking on those risks. We recognized that there are rewards that go with it."

The company's payroll has expanded with the workload. E&R has 42 people in the Monroeville headquarters, with 12 more in other locations. They run between 200 and 400 craftspeople in the field, depending on the season. Like virtually all businesses, E&R

is finding staffing to be its biggest challenge. The leadership sees the challenge as a big opportunity too.

"The staff that we have now is the most talented staff that we've ever had. We're fortunate to have people with the diversity of skills that we do," agrees Sieber. "The diversity allows us to tackle a wide range of projects. There aren't any big egos here. Nobody fusses about pitching in. There's a culture of mentoring here that helps us retain people."

Sieber acknowledges that the culture existed before he joined E&R. He points out that there are a number of employees with 30 years or more at E&R. The company has workers in the field that are third and fourth generation employees. Neal Rivers notes that he has begun to see the sons of workers going into construction again, something that has been missing for a generation. While E&R's management is keeping an eye out for the next big opportunity, it hasn't lost track of what has turned opportunities into success for 65 years.

"The biggest challenge is always maintaining a good workforce. The quality of the people you hire makes all the difference in the world," says Dick Rivers. "You have to train the people in the field so they can do their best. The same is true in the office. I tried to be the one to take on the problems so the people in the office could just do their jobs. I think Glenn has done the same. We're only as good as our people."

Easley & Rivers, Inc. Glenn Sieber, President 207 Townsend Drive Monroeville, PA 15146 412-795-4482

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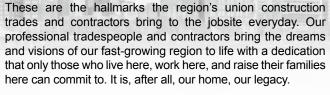












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### **LEGAL PERSPECTIVE**

## LIEN LAW AND CASPA AMENDMENTS: THE PRACTICAL SIGNIFICANCE OF THE EBB AND FLOW OF STATUTORY LEVERAGE

BY TIMOTHY D. BERKEBILE, ESQ.

Over the past twelve years, there have been many updates from Pennsylvania law firm construction practices educating clients and prospective clients regarding changes to the Mechanic's Lien Law of 1963 (the "Lien Law") and the Contractor and Subcontractor Payment Act ("CASPA"). A typical response has been a mix of gratitude that legal counsel was aware of changes in the laws and overall disinterest in the details. To this day, these laws are generally viewed by industry participants as lacking any practical relevance during performance of the construction project. While this may have proven true in the past, it is arguably no longer the case. The evolution of the Lien Law and CASPA has made it more crucial than ever to understand the big picture of how these laws function together during all phases of the project.

The cumulative effect of recent amendments to the Lien Law and CASPA has been to swing leverage in payment disputes back and forth in an attempt to balance the competing interests of the parties issuing and seeking payment. Attempts to address systemic issues have created new requirements and strengthened existing ones. The addition of new rules has complicated the landscape and made it easier to miss the significance of actions taken by others. A missed deadline or failure to provide required notice may result in a lost right or remedy for one party or the other. Coupling a missed opportunity with the other party taking advantage of the statutory tools at their disposal will have a profound effect on the bottom line if a dispute ultimately arises.

This article does not rehash every technical aspect of the 2007 and 2017 amendments to the Lien Law and the 2018 amendments to CASPA or provide legal advice on how these laws should be utilized. Instead, the following is intended to demonstrate how the recent amendments have morphed these laws from afterthoughts to relevant considerations during the course of the entire project.

### Payment and Performance Issues in Construction

The construction process presents timing and enforcement issues relating to payment and performance. When payment precedes performance, the party issuing payment (the "payer" in most cases being the owner or an upstream contractor) has little ability to influence the ongoing performance of the work by downstream contractors. This exposes the payer to the risks of deficient work, neglect, or abandonment of the project. For this reason, performance generally precedes payment. Contractors, subcontractors, and material suppliers incur significant expense furnishing labor and materials prior to receiving payment. While

nonpayment in the case of deficient or incomplete work may be justified, the consequences of encountering an owner that is unable or unwilling to pay in accordance with the terms of the applicable contract can be catastrophic. The risk of non-payment is generally even higher for lower tiered subcontractors and material suppliers. The costs and risks of enforcing contractual terms through dispute resolution procedures often embolden the parties issuing payment to pay less than originally agreed.

### The Lien Law & Upfront Waivers

The Lien Law was enacted to address the risk of nonpayment by those unable or unwilling to pay in accordance with their contract. This was accomplished by providing contractors and first-tier subcontractors the ability to a claim of secured interest in the improved property while the merits of any dispute were resolved. If successful, the prevailing lien claimant had the right to foreclose on the property and have it sold to cover the amount due. In theory, the Lien Law decreased the risk of the payer being insolvent or otherwise judgment-proof and increased pressures to pay from external sources with interests in the property, such as lenders. Further, it provided a potential source of funds to pay those that had been denied payment otherwise due and owing. As a practical matter, however, mechanic's liens were easily avoided through upfront lien waivers that eliminated the right to file a mechanic's lien claim against the project. Many potential lien claimants felt compelled to waive their lien rights or risk not being hired to perform the work. These potential lien claimants were forced to forego rights that were meant to level the playing field. For projects on which upfront lien waivers were executed, mechanic's liens had no effect as between the parties issuing and seeking payment. For projects on which upfront lien waivers were not executed, mechanic's liens could be treated as an afterthought, as the deadline for filing was months after the potential lien claimant's last work on the project.

### **CASPA's Limited Effect**

Made effective in 1994, CASPA's stated purpose was to address downstream payment abuses in the building industries. CASPA provided, among other things, gap-filler payment terms and the ability for parties that had not been paid in accordance with the terms of their contract to recover penalty interest and reasonable attorney's fees. CASPA also provided parties issuing payment the right to withhold payment in good faith for deficiencies in performance and invoicing. The withholding payer was required to provide timely written explanation for not

These changes constituted a monumental shift in leverage toward subcontractors and represented a mixed result for contractors. Owners could no longer rely on the general inapplicability of the Lien Law provided by upfront lien waivers and they faced claims by another layer of subcontractors.

issuing payment, but CASPA was unclear regarding the amounts that could be withheld and the consequences for failing to timely provide the written explanation. Because most construction contracts contain payment terms of the type the gap-fillers provided, CASPA was primarily raised in attorney demand letters after a payment dispute arose. The possibility of recovering penalty interest and attorney's fees lowered the barriers to pursuing enforcement of contract provisions, emboldening some to pursue claims they otherwise may have negotiated away due to the costs and risks of dispute resolution.

### 2007 Lien Law Amendments: **Expansion of Lien Rights**

In 2007, the Lien Law was strengthened by a prohibition against upfront lien waivers on commercial projects, except under specific circumstances. Lien rights were extended to second-tier subcontractors and the time to file a lien was extended to six months. These changes constituted a monumental shift in leverage toward subcontractors and represented a mixed result for contractors. Owners could no longer rely on the general inapplicability of the Lien Law provided by upfront lien waivers and they faced claims by another layer of subcontractors. Contractors were also disadvantaged by these changes to some degree, as claims by subcontractors could be tendered to contractors to remove and defend. If owners wished to oversee payment of potential lien claimants in order to protect themselves from lien waivers, the onus was on owners from the outset to attempt to secure and monitor the site to identify who provided labor or materials and require progress lien waivers. This method was onerous and largely ineffective. Owners were susceptible to mechanic's lien claims from a larger pool of lien claimants with no means to insulate themselves from downstream payment disputes unless they were willing to incur the cost of a payment bond. If an owner chose to withhold payment to a contractor due

to a deficiency, the owner risked claims being brought by numerous unknown subcontractors.

### 2017 Lien Law Amendments: State Construction **Notices Directory & New Subcontractor Notice** Requirements.

In 2017, the issues created for owners by the 2007 Lien Law Amendments were addressed by the creation of the State Construction Notices Directory ("SCND"). Upon fulfilling certain requirements, an owner may now opt to register a project over \$1.5 million with the SCND before the project commences. Upon owners registering the project and meeting certain notice requirements, all first and second tier subcontractors are required to timely file a Notice of Furnishing to preserve their mechanic's lien rights.

This additional step for subcontractors represents another prerequisite to filing a mechanic's lien claim that may easily be missed if proper attention is not paid early in the project.

Likewise, an owner must be aware of the SCND registration option at the outset of the project to take advantage of this fix to the unwieldy scenario created by the 2007 Lien Law Amendments. An owner must also be aware of the effect of a subcontractor filing a Notice of Furnishing. The preservation of first and second tier subcontractor mechanic's lien rights has a complicating and direct effect on an owner's ability to negotiate payment disputes with its contractor(s).

### 2018 CASPA Amendments: Right to Suspend Work for Nonpayment and Explanation of Basis for Withheld Payments Enforced.

The 2018 amendments to CASPA are the most recent attempt to even the playing field between parties issuing and seeking payment on construction projects. Contractors and subcontractors are now afforded the statutory right to suspend work if payment is withheld as little as 70 days beyond the date payment is due, even if such right is not afforded by the applicable contract. Owners withholding payment to enforce contract requirements now face a greater possibility that the project will grind to a halt with owners potentially having little to no recourse. The amendments also address the prior lack of clarity regarding amounts that could be withheld and the consequences for failing to provide timely written explanation for the withholding. Parties withholding payments that fail both to provide written explanation within 14 days of the date of invoice and withhold only the amount in dispute waive the basis for withholding and must pay the entire amount. These changes constitute a massive shift in leverage that require the parties issuing payment to be both (1) hyperdiligent in documenting reasons for withholding payment, and (2) extremely vigilant of how they seek to enforce contract requirements and the potential consequences.

### Conclusion

The amendments to the Lien Law and CASPA have shifted leverage between parties issuing and seeking payment back and forth over the past twelve years but have also increased the relevance of these statutes throughout the entire course of the construction project. While litigation strategy should not hinder cooperation and compromise as the first option in resolving a potential dispute, the Lien Law and CASPA can no longer be treated as afterthoughts to be handled exclusively by attorneys subsequent to a dispute arising. The rights and remedies of both parties to a dispute are dependent on choices made early on. Many of those choices have a direct effect on the parties' ultimate negotiating leverage, and the parties to the dispute are not even aware. 60

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### **FINANCIAL PERSPECTIVE**

# PREFABRICATE A SOLUTION TO IMPROVE YOUR RISK PROFILE, SUSTAIN YOUR WORKFORCE, AND SAVE MONEY

BY JOE KOPKO, MS, CSP

The growing trend toward prefab in construction poses any number of benefits, including process efficiencies that may make up for the worsening shortfall of workers. It also leads to a safer work environment, with a positive influence on a firm's total cost of risk.

Here's what more people involved in construction need to understand about prefabricated or modular building; there is probably a safer, more efficient, and profitable way to perform your work, and the rewards are plentiful for those willing to investigate and innovate. In today's construction landscape it is no longer enough to simply improve, we must evolve the way we work to maximize our sustainability and productivity.

When executed properly, prefabrication can make construction activities safer, greener, and less expensive. It can improve quality, and it can prove invaluable in compensating for the shortage of workers available to fill the 400,000 to 500,000 jobs ready to be filled with today's building boom. However, prefabrication decisions cannot be made in a vacuum, field level input is critical for success.

Prefabrication is a global market that's expected to reach \$135.9 million by 2023. It's a process that involves assembling components of a structure in a controlled indoor environment, typically away from the final installation site. The benefits of a controlled indoor environment present operational efficiencies far beyond just labor hours saved. Wasted motion is a rarely tracked metric, but a hot item with leading insurance carriers. With inefficiency comes increased risk. The consequences for one unnecessary trip up and down on a ladder could have catastrophic effects on a valuable, skilled worker. These types of opportunities on construction sites are simply not tracked enough to fully understand the opportunity cost of this inefficiency. The return on investment for identifying risky activities, and opportunities to reduce said risks can easily yield five-times multipliers. Construction leaders simply don't take the time to understand the true impact of their wasted motion and benchmark it against their productivity efforts. Challenge point: Dedicate 30 minutes on your next project visit to simply observe work activities that could be opportunities for prefabrication.

Yet, for all its advantages and pivotal role in reducing both construction costs and risks, the U.S. has been a slow adopter to see the full spectrum of strategic advantages that come with prefab, especially with regards to risk management. To truly understand the impact prefabrication will have on the construction industry, contractors need to measure more frequently and determine if the work to be performed is more efficiently done in the field or in a "factory" setting.

Projects with incomplete drawings, expected changes, or a developing scope are not good candidates for full blown prefabrication. In these scenarios' prefabrication could end up costing more if field modifications are expected. Uniformity in design as in hotel, healthcare, and dormitory construction present ideal prefabrication applications. However, even when changes are anticipated, or the work is expected to require some element of field measurement and installation, contractors can still take advantage of pre-cut hangers and other installation accessories that can be prepared in a controlled environment. Prefabrication can also encompass staging activities that improve onsite work efficiencies. Leveraging supplier relationships to have materials cut to size, and sorted by floor or zone set the stage for efficient work the moment your employees hit the job. Additionally, low impact tasks like preassembling grounding pigtails and threaded rod hangers can be meaningful work activities for your return to work program, assuming they are within the injured employees' restrictions.

Contractors who have experienced the benefits of prefabrication create opportunities to look for more efficient ways to perform their work. In speaking with Naley McKamish on how prefabrication methods have affected their business model, she had plenty to say about it.

"McKamish believes in prefabricating at every opportunity possible. Not only does it cut down on labor hours in the field, it creates a safer and more productive work environment," McKamish said. "We analyze each project

Contractors who have experienced the benefits of prefabrication create opportunities to look for more efficient ways to perform their work. In speaking with Naley McKamish on how prefabrication methods have affected their business model, she had plenty to say about it.

and develop solutions that will best fit a project's schedule, logistics and budgetary needs. On one project, McKamish re-engineered stacks that were putting the project significantly over budget. We were able to fabricate racks and combine all of the components in our shop and then ship it in four sections, saving the project a significant amount of money."

Prefabricated construction has a variety of aspects that can positively influence any contractor's risk profile. Imagine the effect on:

- Safety: Controlled environments create predictability, and well...control. No fall hazards, no other contractors to work around, and access to resources. With prefabrication, workers are laboring in controlled environments where the risks of stressors and exposures like awkward postures and repetitive motions are substantially reduced. Moreover, tasks that might have taken a day on a construction site can be done in a fraction of the time when material handling aids, space, and lighting are leveraged. As important as labor hours are, the greater payback comes in the form of reduced risks associated with fatigue and resulting injury. The controlled manufacturing environment for prefab combined with the resulting lowered onsite building time reduces the risk of accidents associated with construction sites by a "significant" amount, according to a report by the Chartered Institute of Building Services Engineers Journal.
- Loss Prevention: Everything from ventilation, exterior walls, supports, flooring, wiring and plumbing can be prefabricated. With prefabrication also comes the opportunity for on time delivery; materials showing up ready to be installed. Finished products and building materials are often damaged on job sites by other contractors. This can greatly reduce the amount of damaged materials and re-work associated with staging a quality product in an environment where little attention is paid to another contractor's finished work. Additionally, by leveraging off-site construction, it cuts down on (and may eliminate) the amount of heavy equipment and power tools needed on the work site, which are often easy targets for theft, leaving you with production hurdles to overcome.
- Quality: Adequate lighting and improved supervision contribute greatly to the allowed "quality tolerance" that comes with field installation. The benefits of work stations and the proper tooling play a vital role in producing consistent, quality fabrication. Have you ever observed a pipe being cut with one hand holding it against a knee, and a Sawzall in the other hand bouncing around producing a jagged masterpiece? Note: If this is your current method, verify that contractors' errors and omissions coverage with faulty workmanship coverage is paid!
- Green: Prefab also reduces waste that is common with traditional construction. Take drywall. It's common to see pieces of it lying around on a site, where there's

less precision involved in installation, versus prefab, where set quantities of board are cut at certain lengths and widths - producing less waste. Construction has, and always will be a game of pennies. Well executed prefabrication operations ensure those pennies are captured and aggregated for much greater savings. Socially responsible contractors leverage their reduced carbon footprint as a marketing advantage and owners and developers appreciate it.

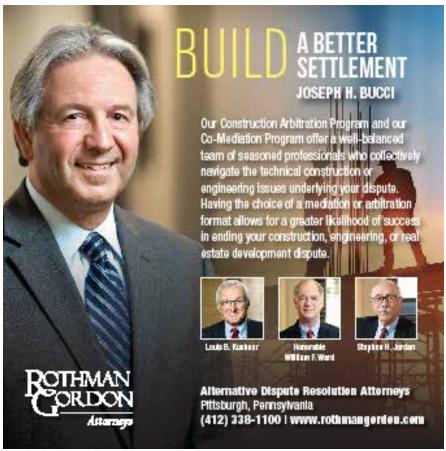
The fact is, construction companies that can demonstrate to their insurance carriers that they have a proven way to better control the hazards of their operations are going to have greater success in securing more favorable underwriting. In the simplest sense your insurance premiums are based on a few key factors, your exposure information such as payroll, revenue, prior losses, and the states you operate in. Underwriting discretion is the x factor. When insurance partners have been fully informed of the risk reduction strategies a contractor is using, the risk can be priced appropriately and typically the premiums will follow. To maximize your savings, couple your story with data collected demonstrating the positive impact on your operations. It's another reason for contractors to take a closer look at the benefits of prefab and measure the impact against their total cost of risk. It truly can change the nature of the risks that your workers face and may even become an attractive recruitment tool as well. If you can efficiently satisfy your work demands, reduce awkward postures that lead to fatigue and injury, and eliminate ladder use by 75% it's easy to see how your risk profile could change for the better.

"The fact is, construction companies that can demonstrate to their insurance carriers that they have a proven way to better control the hazards of their operations are going to have greater success in securing more favorable underwriting."

In the absence of a solution to the forecasted labor shortage, no contractor can afford to overlook work methods that preserve their workforce, improve process efficiencies, and create a safer workplace. Contractors should understand that implementing and maximizing prefabrication opportunities may not always be a top priority for their front-line employees. Managing change is critical with any process; focus on the benefits and create a competitive environment by incentivizing project managers and field supervision to identify the most impactful prefabrication opportunities. Engage your employees to identify tasks that could be better conducted through prefabrication. Start by asking the question: "what is the most difficult/ tedious task you perform?"; and ask it again, and again. Then listen. Often the dreaded tasks are the biggest opportunity to make an impact. Finally, collectively measure the productivity in both settings for objective validation and share the results company wide. Transparency with information further supports a culture of safety and accountability, and who doesn't like to smash a previously set record and push the boundaries of what can be accomplished? 60

Joe Kopko is executive vice president, client services and business development for HUB International, a North American insurance broker. He can be reached at joe.kopko@hubinternational.com.





### **MANAGEMENT** PERSPECTIVE

### YOUR COMPANY'S PROJECT RECORD RETENTION POLICY: WHAT EVERY CONTRACTOR (AND ENGINEER AND OWNER) NEEDS TO KNOW

### BY AUDREY K KWAK, ESQ.

There is no disputing that construction is a documentintensive industry. On every project, countless voluminous records are generated: contracts, specifications, daily reports, schedules, requests for information, change orders, emails, and so on. Once a project is complete, the inevitable question arises as to how long (or if) these papers should be kept. Do electronic copies suffice? Or do you need the original paper versions?

Every company should have a comprehensive, carefully considered record retention policy, drafted in conjunction with input from human resources, information technologies, operations management, and legal counsel. The following is an industry-specific guide to creating a record retention policy, specific to project records, suitable for you.

### Why a record retention policy is important

An effective document retention policy is essential to defending against a claim for liability arising from a project (or prosecuting your own), whether the claim is for delay damages, defective work, negligence, or otherwise. Claims may not arise until years after the project is over. Having a clear documented record of how the project progressed is vital, especially if employees or other witnesses are unavailable, or have simply forgotten what happened and

### How long to keep records

Determining how long to keep records is the first step to creating an effective policy. Two jurisdiction-specific laws provide guidelines to formulating appropriate retention periods: statutes of limitations and statutes of repose.

Statutes of limitations are time periods that limit when a party can sue. Generally speaking, they run from the date a defect has been discovered or an injury occurred. Since that date could occur long after the work has been completed, exposure to a claim arising from a project could, theoretically, last into perpetuity.

Statutes of repose were adopted to remedy this uncertainty. Unlike statutes of limitations, statutes of repose definitively bar claims after a set period of time, regardless of when a defect is discovered or an injury occurs. Most statutes of repose run from the date of substantial or final completion, though some statutes use other trigger dates (including written acceptance or occupancy). Most states (as of this writing, 46) have an applicable statute of repose, which range from four to fifteen years. For example, Massachusetts has a 6-year statute; New Jersey, Ohio and West Virginia have 10-year statutes; Pennsylvania has a 12-year statute.

As a rule, project-specific records should be kept three years beyond the expiration of the statute of repose.

Other laws and regulations will govern how long to retain ordinary business records: records relating to corporate structure, capital and fixed assets, accounting records, bank statements, salary records, and personnel records, and

### What project records to keep and policy guidelines

Deciding what to keep is as important as deciding how long to keep it. No company can (or should) keep every record generated in connection with a project. While every company's retention policy will be different, the following are some ground rules for an effective project retention policy to use as a starting point.

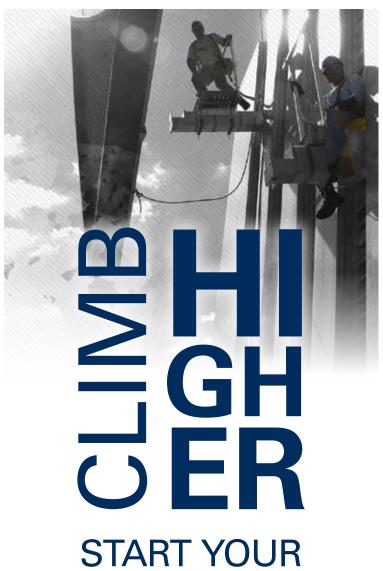
- Retain the following categories of documents for every project: contracts and purchase orders, drawings and specifications, design/engineering calculations, project diaries, reports, requests for information and responses, meeting minutes, change orders, iterations of shop drawings and submittals, progress photographs, field reports, certificates of insurance, emails and other correspondence, desk calendars and daily planners, and close-out documentation.
- As a general rule, destroy drafts or "working" documents as soon as a document is finalized. Retain only final versions to minimize confusion.
- To cut down on the volume of records to be stored, scan in and retain electronic versions, which are adequate for evidentiary purposes. See Federal Rules of Evidence 1003-1004 and state law counterparts. Note that paper copies may need to be retained if highly sensitive or classified information is implicated by the project—legal counsel should be consulted if this is a concern.
- 4. Archive electronic records on an appropriate storage medium. Consider keeping a backup copy off-site. If multiple copies are maintained, ensure that both copies are destroyed simultaneously.
- Ensure that the policy addresses the preservation of records and suspension of any destruction in the event of imminent or ongoing litigation. Destroying pertinent documents when a dispute is ongoing or even imminent can expose you to sanctions for spoliation (destruction) of evidence, and the consequences for doing so can be severe.
- Destroy records in a timely fashion, consistent with the prescribed schedule. Maintain a comprehensive destruction log, sorted by subject, noting date and manner of destruction. Shred paper records. Destroy electronic records in consultation with qualified IT experts; simply "deleting" an electronic file rarely permanently destroys that data.

"A thorough, thoughtful record retention policy is no small feat, but it is an essential component of every responsible company's risk management arsenal."

- 7. Distribute the policy to all employees. Obtain signed acknowledgements indicating receipt and review of the policy.
- 8. Abide by this policy and enforce it consistently, with respect to every project. This is the only way to ensure that destruction of records can be defended if, at some point in the future, those records appear to be relevant to a dispute.

A thorough, thoughtful record retention policy is no small feat, but it is an essential component of every responsible company's risk management arsenal. Equally important, regularly review and update your policy, as legal requirements and technologies evolve and change. Finally, given the possible legal consequences of a weak or inadequate policy, it is prudent to consult with legal counsel in drafting or updating your record retention policy.

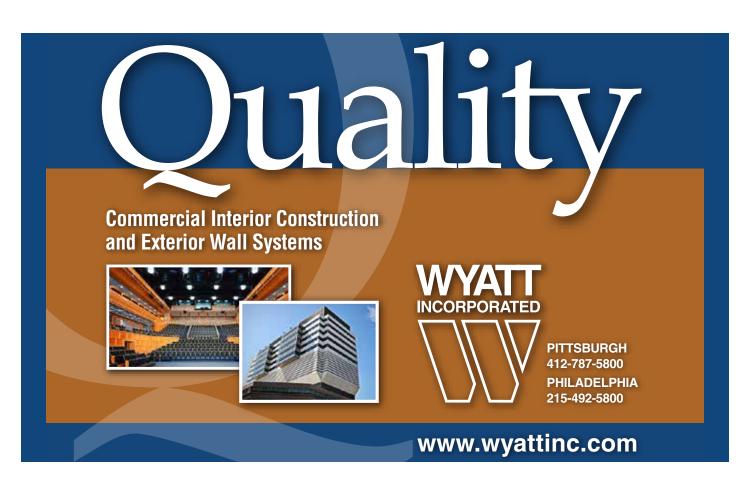
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### MBE / WBE COMPANY SPOTLIGHT

### **GRAPHICS 22 SIGNS**



Graphics 22 Signs manufactures and installs commercial and architectural signage in Western PA. The Hazelwood-based company was incorporated in 2000, when Jennifer Panian, president of Graphics 22 Signs, decided to take the chance that her entrepreneurial drive, and a growing demand, would lead to success.

Panian started her career in the signage business, working for Bunting Graphics, but left to work in a corporate setting. She married her husband Jeff, a former co-worker at Bunting, and left the workforce to start a family. During those years, Jeff Panian started his own graphics business. By 2000, Jennifer says she started believing that she could be her own boss too and founded Graphics 22 Signs.

Initially, Graphics 22 Signs was doing retail and small business signs. The Americans with Disabilities Act (ADA) had rolled out completely and was driving business. Panian says the company was getting more inquiries about commercial sign opportunities and investigated that sector of the market.

"We were doing retail and started getting more heavily into commercial around 2004," she recalls. "We were being approached to do those kinds of jobs and declined them for a while. We saw it as a niche that was not being served. We decided to try a couple project and were lucky we didn't get sued or killed! As we learned what that side of the business was like, we started working for contractors rather than the building owner who just needs a new sign for his pizza shop."

Panian's joking aside, the transition to commercial signage was more about process than capacity. Graphics 22 had the human and equipment resources to make the signs and Jennifer notes that the complexity of commercial signage is often less than retail or small business signage. Much of it is way-finding and identification plaques that do not require creative input. Graphics 22 already possessed the computer-aided design and manufacturing capacity and the cutting technology to do the manufacturing. The evolution was one of project management, something that Jennifer found out she had more aptitude for than she knew.

"It wasn't that it was a different manufacturing process. It's more project management where you need to be right on," notes Panian. "You need to babysit the project. You need to make sure all your t's are crossed and your i's are dotted,

and your paperwork is exact. You need to make sure your insurance is up-to-date. Now you have 70 pages of LEED documents. It's a matter of organization and follow up."

"Signs are always at the end and everybody forgets us. That's why I have to be a really good babysitter," Panian says. "I'm the call that reminds you that you're beginning to do close out and you haven't ordered the signs yet. Every month I lay out who I need to contact to remind that there are still things to be approved before we can start making signs."

The signage package is a relatively small part of a construction project and, because it is a last-minute item, signage is often overlooked as part of the critical path. But without the appropriate signage, the project won't receive a certificate of occupancy. That is more than a minor oversight. Panian vows that won't happen on her watch.

Graphics 22 Signs has grown to employ 12 to 14 people. Like most employers, Panian says that hiring qualified people is her biggest challenge. Managing the younger generation of workers is right behind that, she jokes. Graphics 22 adds a handful of college students for the summer push. Panian says she's lucky to have husband Jeff as vice president and creative force, while she sells most of the work. Graphics 22's estimator is an architect who is not only strong at figuring costs but also keeps their customers in compliance with ADA regulations, even if the plans and specs don't reflect the codes.

Its recent work includes the new residence halls at Penn State and the federal courthouse Harrisburg. Most Graphics 22 Signs' work is closer to its Hazelwood shop, however. Among recentlycompleted projects the Skyview in Oakland, and the award-winning Central Catholic STEM building and East Liberty Presbyterian Church.



Jennifer Panian

After almost 20 years in business, Panian says Graphics 22 Signs is fortunate to have many repeat customers who call them for bids. The company's hit rate is almost one in three, so the focus on project management and performance has paid dividends. Like most construction business owners, she has her share of headaches too.

"Probably the toughest part about the construction business is getting paid. I sometimes work with these jobs for more than two years and it takes forever to get paid," Panian says. "The other thing is people assuming that we have signs sitting on a shelf in the storage room. A lot of contractors drag their feet because I think they believe we can make signs in a couple of days. Yes, maybe we can make them in three days, but I have other jobs lined up and they have to get in line. We don't just make those lead times up to make a contractor unhappy."

Panian doesn't see her business expanding but believes that the changes in technology will have a bigger impact on her business.

"We could be bigger right now, but we choose to be the size operation that we are to keep our sanity," she laughs. "What I do think has changed is how technology has been helping us in a lot of different ways in the past two or three years. All of our installations are now automated on tablets. All the drawings are there; all the signs are placed. Our installers just click on the screen and they know what sign to install where. I see the technology changing even more rapidly."

Installers using tablets can verify proper installations by photographing finished work. Documents can be updated in real time to show when signs are delivered to customers who choose to install themselves. Panian says the use of smart devices in the field has made dispute resolution much easier.

Graphics 22 Signs has embraced some of the new methods and technologies in manufacturing. They invested in a new 3-D printing technology in December that Jennifer says is a significant enhancement to their capabilities. Graphics 22 now produces 3-D printed signs using ink that is plastic and can produce colors and textures that are taken from images that the printer can reproduce. The printers are also capable of producing the more generic identification and wayfinding signs. The print media is UV ink so that exposure to the sun enhances the curing process and extends the life of the signs.

While the 3-D printing technology may wow you with its creative capabilities, Panian says that it offers as much potential for meeting the demand of their day-to-day customers. She points out that the processes are on board so that it makes it very easy to do one-off sign requests like changing the name on a college professor's office plaque.

Regardless of the technologies employed, Panian expects that the success of Graphic 2 Signs will hinge upon the attention to detail the company shows to its customers.

"I found that I am very good at project management. I'm very organized and I like things to be done a certain way, and that works for project management," Panian concludes. "You have to keep your eye on all the balls in the air at the same time. And I enjoy the relationships we have with the contractors. At the end of the day I can look at a building and see that we accomplished something."

### **Graphics 22 Signs, Inc.**

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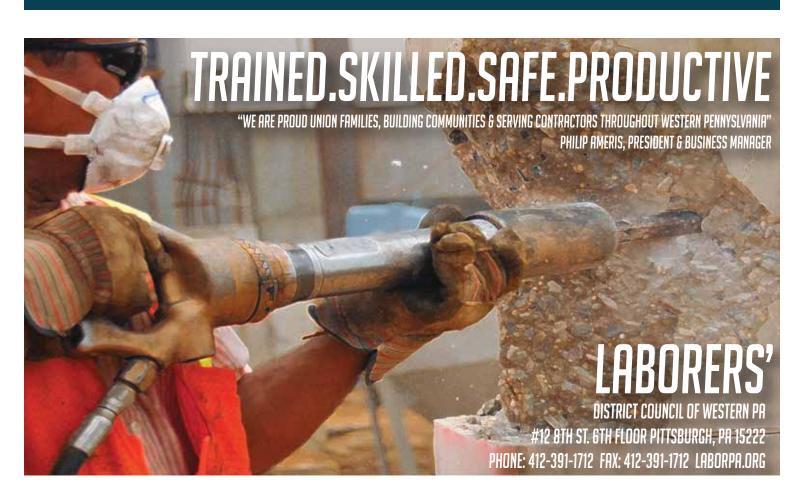
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### **BEST PRACTICE**

### A LAND TRUST IS AN AFFORDABLE HOUSING TOOL

One of the many problems plaguing American cities is the declining home ownership opportunity for working citizens. The problem has multiple origins. Regulation and overreaction to the housing crisis of 2007-2008 spawned an undersupply of construction and development that is playing out today. Baby Boomers have held onto family homes longer than expected. U.S. population growth, while slowing, is still outpacing the expansion of housing supply. Economic prosperity in major cities has expanded wealth but has not lifted the wealth of all.

Demand for housing exceeds supply in many major cities (including Pittsburgh). Prices are rising faster than historical norms. Younger buyers are finding fewer options in their price range, or in the range of what they can afford.

Urban planners, architects, builders, and housing pioneers of all sorts are spending considerable resources developing solutions to the growing problem. Tiny homes, a simple solution that reduces the cost of a home by reducing the size of the home, are appealing to a slice of the buying population, but that slice is relatively small. Modular construction is a growing alternative, allowing for more of the home to be built in a factory setting, which costs less than a stick-built home. Government agencies at all levels are offering incentives of all sorts to attempt to bring more affordable housing into the market.

Working on the problem from the perspective of the cost of the home makes sense but, in the Oakland neighborhood of Pittsburgh, the Oakland Planning and Development Corporation (OPDC) is tackling the problem from the ground up.

The primary goal of OPDC is to support the development of Oakland as a sustainable live-work-play neighborhood. The biggest challenge in meeting that goal is the promotion of owner-occupied home ownership. OPDC has several programs to raise the level of owner-occupied homes, including acquiring, renovating and selling undervalued properties to low-to-medium income families. An inherent weakness in that approach was the inability of OPDC to control how the property was treated after the sale. Homes that went through that process were often converted to rental properties. Borrowing from community development programs around the U.S., OPDC created the Oakland Community Land Trust (CLT) to acquire properties and maintain control of the land on which the house sits.

There are more than 200 CLTs throughout the U.S. A neighborhood like Oakland is an ideal candidate for a CLT in that the preponderance of high-value nonresidential properties in the community drive land values disproportionally high. Parcels sold in South Oakland within the past two years, for example, went for the equivalent of \$5.9 million per acre. The Oakland CLT works by acquiring

"The way the trust supports home ownership is to ensure properties remain affordable permanently. The trust keeps the subsidy with the property permanently,"

properties, and then selling the home with a nominal 99-year ground lease to a buyer. The buyer owns the home and any related structures and is responsible for maintaining the property. The terms of the CLT require that the property be owner-occupied, including for all future owners.

"The way the trust supports home ownership is to ensure properties remain affordable permanently. The trust keeps the subsidy with the property permanently," explains Wanda Wilson, OPDC's executive director. "It's also a tool for equitable development to ensure homes are available for owners in lower income brackets. Most of the homes in the CLT target owners earning 80 percent or less of the median family income in the city. That's around \$60,000 per year."

Oakland's CLT is funded by community partners and the income-producing activities of OPDC. The trust is a community-supported non-profit entity and doesn't profit from the subsequent sales of the properties in the trust. By the same token homeowners who buy homes from the trust build equity in the property and benefit from appreciation when the home is sold.

While they don't own the land, homeowners on CLT property are responsible for keeping up the lot as if they did. That includes the utility infrastructure for the property. Homeowners are responsible for the property taxes. They also have the right to make individual decisions about landscaping, hardscape, expansion or renovations.

There are other provisions of the trust that give flexibility and enhance OPDC's mission of expanding owner-occupied home ownership. These provisions provide incentives for existing owners to sell their properties to OPDC for inclusion in the trust. They include:

- Owners of two-family homes may sell the property and continue to rent the second unit, so long as the owner occupies the other.
- Owners who have a need to raise capital, especially elderly residents attempting to age in place, may



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sell their lot to OPDC and remain in the home. The proceeds can be used by the resident and OPDC will purchase the home at the time the resident wishes to sell at a market-competitive price.

It is OPDC's plan to control an increasing number of lots in Oakland neighborhoods, thereby creating a critical mass of homes that can be afforded by occupying owners, rather than by renting multiple units within a home. OPDC is fundraising to grow the trust's capital and administers the Oakland CLT. A CLT advisory committee is responsible for the stewardship of the CLT and consists of CLT leaseholders, community stakeholders, and OPDC board members.

The Oakland CLT is in its early stages. The trust currently owns two properties and is marketing two others that have been renovated. OPDC has sales agreements on several other properties that will be renovated and sold as part of the CLT. Its goal is to have 50 properties in the CLT by 2022 and to grow the trust's portfolio to 100 properties. OPDC believes the Community Land Trust will be an important program that will help create a 50 percent balance of owneroccupied properties in Oakland, which is one of the goals of the Oakland 2025 Master Plan.

With the University of Pittsburgh adding residence halls with roughly 1,800 beds as part of its new master plan – the majority of which will be in place by 2025 - OPDC sees the potential for current rental properties to be on the market. In South Oakland and West Oakland, which have fewer student rental units, the CLT can be a competitive buyer for elderly homeowners who will be selling their homes over the next decade.

Residential properties in Oakland will always face pressure from the demand for more commercial and institutional space. Assuming the success of Pitt's master plans, that pressure will move further west and south into Central Oakland. A sustainable inventory of owner-occupied homes would benefit Oakland's economy, both as a source of employee housing and as a driver of better consumer commercial tenants to serve higher-earning residents. Research from around the world tells us that communities with a broader spectrum of incomes tend to be more vibrant and healthier. Community land trusts can provide a bulwark from which sustainable home ownership can develop. 69





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# **INDUSTRY & COMMUNITY NEWS**



(From left) Steven Massaro, Oxford's David Heaton and Gene Boyer of HB Development at NAIOP's annual awards banquet.



(From left) Steve Clark from Castle Builders Supply with PJ Dick's Eric Pascucci and Bernie Kobosky.



William Roll (left) from Trans Associates and Shannon Construction's Patrick Bruce at the MBA Young Constructors Axe Throw on April 25.



(From left) Rycon's Stephany DelSignore, Laura Sesack from McCrossin Foundations, and Rachel Rzymek from DRS Architects.

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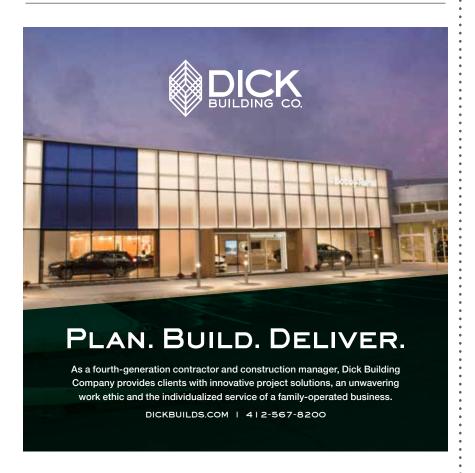
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Jamison Vernallis from Volpatt construction (left) and Eric Phillips from Strada.



Brooke Waterkotte from Easley & Rivers and Zach Huth from Huth Technologies.



(From left) Naley McKamish with PJ Dick's Brian Budny and Jeremy Meadway



PJ Dick's Cliff Rowe Jr. and Brett Pitcairn, with Houston Harbaugh's Tammy Ribar, Gail Malloy from Westmoreland Paralegal Services, and Mimi Fersch from First American at the CREW Pittsburgh golf outing on April 29.



(From left) Nick Kappas and Brad Tisdale from Steamfitters Local #449 greet Gov. Wolf at the Build On...Careers in Building and Construction Industry event that drew 1,050 people March 29.



Volunteers from Massaro Corporation served the Greater Pittsburgh Community Food Bank on May 1 by repacking 10,000 pounds of carrots for distribution at food pantries served by the Food Bank. Volunteers included Shaun Lorentz, Barb Haas, Ann Marie Kiszka, Dom Lucia, Dave Manella, Holly Andrews, Matt Belsterling, Brent Burmeister, Dick and Laurel Wimer.





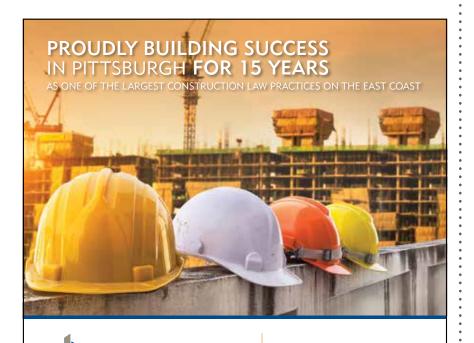
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Children's Museum of Pittsburgh recently opened Museum Lab, a \$5 million expansion that was led by Mascaro's Christi Saunders, Chris Cieslak and Jane Werner from the Children's Museum, and Julie Eizenberg from Koning Eizenberg. Photo courtesy Children's Mueum of Pittsburgh.



PA House Speaker Bryan Cutler from Lancaster addressed industry concerns at an event on May 2 in Pittsburgh. From left are Cutler, host Cliff Rowe from PJ Dick and General Contractors Association of Pennsylvania executive director Jon O'Brien from the Keystone Contractors Association.



(From left) Trumbull's George Mezey, Rich Barcaskey from the Constructors Association of Western PA, and Bobby Kramm from the Laborer's District Council.



Rycon's Karl Borgman (left) with Monty Gibson from Schlaegle Design Build Associates.



A. Martini & Co. was a sponsor for the FAME 2019 Annual Celebration of its graduating students. FAME board member Mike Larson-Edwards, project manager for A. Martini & Co. (second from right) is seated with (from left) M. Romon Robinson II, Darryl T. Wiley and Vincent O. Johnson.

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# **AWARDS & CONTRACTS**

Volpatt Construction was the successful contractor on the University of Pittsburgh's Van Der Graaf Building NPL Renovation. The architect is Wilson HGA.

The Urban Redevelopment Authority of Pittsburgh awarded a \$2 million contract to Volpatt Construction for the renovation of its new offices at 412 Boulevard of the Allies. Strada Architecture LLC is the architect for the project, which involves tenant improvements to of 35,000 square feet of the eighth and ninth floors.

Duquesne University awarded Volpatt Construction a contract for The Union sixth floor renovations. The architect is Architectural Innovations LLC

Facility Support Services completed construction on the University Commons fifth floor for Carlow University. The architect is LGA Partners.

AIMS Construction has completed the first phase of the \$4 million UPMC Mercy Hospital pharmacy renovation. Construction of the remaining two phases will be completed in October 2019. Clark Patterson Lee Architects is the architect.

Burchick Construction was the successful contractor for Facebook's \$15 million tenant improvements package at District 15 in the Strip District. Gensler is the architect for the 78,000 square foot build-out.

SoFresh selected **Burchick Construction** for the construction of its first location in Pittsburgh, at 5 PPG Place. The architect is Richard Jaynes Architect.

**Burchick Construction** is the contractor for RedZone Robotics tenant improvements to 30,000 square feet of office and warehouse at the Heights at Thorn Hill in Marshall Township. The architect for the \$1.5 million project is RSH Architects.

Shannon Construction was awarded a contract for construction a new conference room for US Steel at 600 Grant Street. Stantec was the architect on the 14,000 square foot renovation on the 16th floor.

TEDCO Construction completed construction of the new space for AXA Advisors on the sixth floor of 6 PPG Place. The Design Alliance was the project's architect.

Landau Building Company is performing the construction work involved in an MRI equipment replacement at UPMC Shadyside Hospital, located in Pittsburgh, PA. Construction began in January and is anticipated to be completed in June 2019. IKM is the architect.

Landau Building Company is the construction manager for the St. Clair Hospital Infusion Center Expansion. The 2,117 square foot project includes the addition of six new infusion bays and staff areas. A completion date of late June 2019 is anticipated. The architect is Image Associates.

**DiMarco Construction** was the successful general contractor on the \$6 million Gill Hall Elementary School addition for West Jefferson Hills School District. The 14,800 square foot addition was designed by architects JC Pierce LLC.

The Miracle League selected RB VetCo as construction manager for the new \$1 million restroom/concession building at the Miracles in Moon facility in Moon Township. The architect is Avon Graf Architects.

F. J. Busse Co. was the successful contractor on the \$1 million 20th floor renovations for Federated Investors at 1001 Liberty Avenue. NEXT Architecture is the project's architect.

A. Martini & Co. has started construction on the \$12 million tenant improvements for Buchanan Ingersoll & Rooney PC at the Union Trust Building. The architect for the 108,490 square foot renovation is Stantec.

Rycon Construction was awarded the contract for the new 11,000 square foot facility for Dentistry for Kids in Monroeville. Pieper O'Brien & Herr Architects is the architect.

PJ Dick was selected to provide CM at Risk Services for The Arrott Building Hotel. Work includes completed interior and exterior renovation of an existing historic 18-story office building into a 125-key hotel with approximately 2,000 square feet of meeting/ballroom space and 2,000 square feet of restaurant/bar space.

PJ Dick is providing CM at Risk Services for the UPMC East Emergency Department Expansion project. The Project consists of a one-story building addition with full basement to the current UPMC East Hospital Emergency Department to include ten Emergency Department Bays, 15 Observation Bays and associated support spaces for each. In addition to the Emergency Department bays, the ground level will also be built out to house an expanded/renovated sterile processing department, mechanical space for the addition, and general shell space for future use.

PJ Dick is providing CM at Risk Services contract for Carnegie Mellon University's Scaife 2.0. The \$50 million project consists of demolition of the existing 41,000 square foot original CMU Scaife Hall and construction of a new 85,000 square foot building to house CMU's Mechanical Engineering Department. This space will include new technology-rich labs; modern and flexible classroom space; combination faculty,

graduate and staff office space; formal and informal flexible innovation spaces; and a 40-car parking structure.

PJ Dick was selected to provide CM at Risk Contract for West Virginia University to construct its new five-story, 210,000 square foot Business and Economics Building. The project is valued at \$82.4 million.

Mascaro - with its design-build team of Indovina, Tim Haahs, Black Bear Innovation, Advantus Engineers and Loftus Engineering – were selected by Oxford Development for the design and construction of a multimodal transit facility at 3 Crossings.

PNC Financial Services Group awarded **Mascaro** tenant fitout work to create new 12,000 square foot office space for the Numo Technology Incubator and is now located in the upper two floors of the Stevenson Building in East Liberty.

Mascaro began tenant fit-out work on the second floor of the Murdoch Building for the University of Pittsburgh.

**Rycon's** Building Group was recently awarded two projects totaling \$5 million within Washington & Jefferson College. The replacement of Cameron Stadium's elevator is underway, and on a three-month fast-track schedule. A renovation consisting of interior and exterior upgrades to three dorms called President's Row is set to follow.

Work is in progress by **Rycon's** Building Group on Sunrise of McCandless, an assisted/senior living center. The 22,100 sq. ft. addition will include a four-story expansion, 24-units, kitchen, dining, structural steel frame, and TPO roofing.

Highmark chose **Rycon's** Building Group to renovate their Fifth Avenue executive offices. The \$7 million high-end project will consist of conference rooms, an executive board room, as well as self-performed custom casework and rough carpentry.

A \$3.5 million renovation to the Duquesne University's Rockwell Hall and skywalk is underway by **Rycon's** Special Projects Group. Work includes the reconstruction of a pedestrian bridge, demolition, and upgrades to classrooms, laboratory, conference areas, and new atrium. Rycon is self-performing the concrete.

**Rycon's** Special Projects Group continues work at Westinghouse Waltz Mill EB Warehouse for Jones Long LaSalle. The \$1.4 renovation is set for completion June 2019.

Penn State University selected **Rycon's** Special Projects Group for the four-floor dorm and residence hall restroom renovation of Hamilton Hall. Project features include new drywall partitions, ceramic tile, flooring as well as new sprinklers, plumbing, electrical and HVAC units.



Rycon's Special Projects Group is the general contractor responsible for the window replacement and restroom renovation at the Andy Warhol Museum. These fast-track projects are on a one-month schedule kicking off in May

At the Pittsburgh International Airport, Rycon's Special Projects Group is set to construct a new 2,200 sq. ft. 7-Eleven. The Dimension Group is the architect.

Rycon's Special Projects Group is responsible for the \$1.8 million upgrades to TriState Capital's offices on the 27th floor in One Oxford Centre. The project features include a new staircase between the 26th and 27th floors, new office layout, finish upgrades, and casework.

Rycon's Special Projects Group was awarded a \$2.7 million construction management contract with CBRE to build a new medical office, Dentistry for Kids in Monroeville Mall. Completion is anticipated for October 2019.

In Cincinnati, OH an office renovation is underway by Rycon's Special Projects Group for Wells Fargo. The 3,800 sq. ft. upgrade includes HVAC, lighting, and plumbing finishes, as well as a new office layout.

Rycon's Special Projects Group was recently selected for the renovation of the Winchester Thursten Library, which will start June 2019 and continue until August 2019.

Rycon was chosen by Octapharma Plasma for the renovation of their 25,400 sq. ft. medical laboratory in St. Petersburg, FL. This is second facility Rycon has upgraded for Octapharma Plasma this year.

In Douglasville, GA construction is underway by Rycon on a new Jason's Deli. The \$1 million project is scheduled for completion July 2019.

Rycon is responsible for the demolition of the 83,000 sq. ft. Greenville Commons Shopping Center located in Greenville, TN. The renovation will transition a former Kmart into a new HomeGoods, T.J. Maxx, and Five Below.

Macerich selected Rycon as the construction manager for two projects totaling over \$14 million at Deptford Mall in Deptford Township, NJ. The scope includes a 60,000 sq. ft. Dick's Sporting Goods renovation and an 82,500 sq. ft. redevelopment of a Sears.

Progressive Casualty selected Rycon again to renovate two of their regional claims offices within South Florida; Altamonte Springs and West Palm Beach. Rycon recently constructed a new \$7.2 million regional claims office in Miramar, FL.

In Davie, FL, a \$1 million renovation is underway to a 22,000 sq. ft. Ross Dress for Less at Lakeside Town Shopping Plaza. Construction is expected to wrap up mid-July 2019.

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**CAITLYNN O'HALLORAN** cohalloran@crohnscolitisfoundation.org **Rycon** was chosen by SITE Centers for the renovation of a Five Below in Naples, FL. The 8,000 sq. ft. fit-out broke ground April 2019.

In Manchester, NH, Rycon will soon begin a redevelopment to a former Sears at the Mall of New Hampshire. The 46,000 sq. ft. scope includes a new Dick's Sporting Goods and five retail tenant spaces.

PNC awarded **Rycon** a multi-million CM at-risk contract to replace the Building Automated System to their offices in Cleveland. The project's scheduled to begin July 2019. Meanwhile, Rycon continues to renovate floors 8, 9, and 11 at this location, as well as the offices, conference rooms and testing facilities at the Operations Center South Annex facility.

Massaro Corporation is renovating 35,000 square feet of existing and expanded space for the Pittsburgh Career Institute at 421 Seventh Avenue, Downtown Pittsburgh. The project was designed by NEXT Architecture.

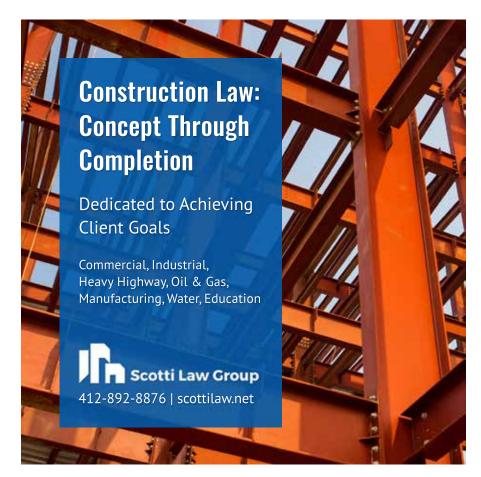
The Best of the Batch Foundation selected Massaro Corporation to build its \$5 million Educational Clubhouse, a new 21,000 square foot facility in Homestead. The architect is TKA Architects.

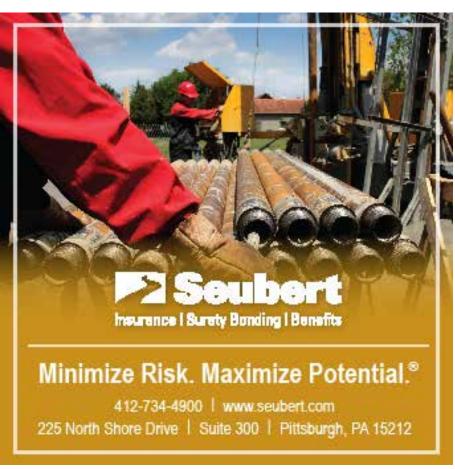
AIMS Construction was the successful contractor for the LaRoche University Palumbo Science Center. The architect for the \$4.6 million renovation is PWWG Architects.

Duquesne University awarded a \$1.2 million contract to AIMS Construction for the Mellon Hall Biology Labs. The architect is BHDP Architects.

AIMS Construction was selected as contractor for the \$1 million UPMC Passavant Cranberry pharmacy renovations in Cranberry Township. JPT Architects is the project architect.

Duquesne University selected Jendoco Construction to manage renovations to Brottier Hall. The project is a multi-million, three-year renovation that will done during the summer break. The architect is Indovina Associates Architects.





## **FACES & NEW PLACES**

PJ Dick has hired James R. Olyer as a project superintendent. He has a welders certification. James previously worked as a diesel tech welder, fork lift tech, steel worker, and carpenter.

PJ Dick has hired Hannah Grey as a project engineer. She has worked as a sign fabricator, interior designer, and journeyman carpenter. Hannah has a degree from Chatham University.

PJ Dick has hired Levi Sayward as a senior site safety manager. Levi has worked as a crew leader, environmental technician, project field engineer, and project superintendent. Levi has a BS in Environmental Science and a MS in Construction Management.

PJ Dick has hired Martin "Gerry" Dunn Jr. as an assistant project manager. Prior to joining PJ Dick, Gerry worked for Caddell Construction in Montgomery, AL for 11 years and Bean Stuyvesant, LLC in New Orleans. He has a BS in Construction Engineering Technology from the University of Southern Mississippi.

PJ Dick has hired Anthony Gentile as a project manager. Anthony has 16 years of experience as an industrial manager for COP Construction in Billings, MT. He attended Montana Tech for civil engineering.

PJ Dick has hired Jonathan Trau as a project superintendent. Jon previously worked at Wagner Development as a project manager. He attended Mount Union College.

PJ Dick has hired Robert Crynock as a senior site safety manager. Robert has worked with the Local 423 Carpenters Union and with Kiewit EH&S as a safety manager. He has an associate's degree in Construction and Specialized Technology from Triangle Tech, as well as a BS in Occupational Safety and Health from Columbia Southern University.

PJ Dick has hired Alec Reed as an assistant project manager. Alec has worked with dck worldwide and Walsh Construction as a project engineer. He has an associate's degree in Civil Engineering Technologies.

Dorin Dickerson joined Mascaro on April 2 as Mascaro's community outreach manager. He will help promote Mascaro's outreach programs and work within the local communities.

Steve Fenice became a member of the Mascaro team on March 25. Steve is a graduate of The Pennsylvania State University and is a project engineer on the Harrisburg Courthouse project.

Joe Prokopik joined the Mascaro Client Services group March 11 as a project manager. Joe graduated from The Pennsylvania State University in 2008 and brings a diverse background in construction that includes institutional and industrial projects.

Also on March 11, Taylor Covey-Riggs joined the Mascaro team as warehouse administrator. Taylor is a 2015 graduate of Shepherd University with a B.S. degree in economics.

Mascaro welcomed Paul Peterson on March 4 as the quality control manager for the UPMC Vision and Rehabilitation Hospital at UPMC Mercy. Paul has over 20 years of laboratory, field, and supervisory experience.

Assistant project manager Emily Eichner was hired in Rycon's Special Projects Group. She has over three years' of experience, including two years at the Oregon Department of Transportation.

Fabio Liriano was hired as a project engineer in Rycon's Ft. Lauderdale office.

Senior project manager Matt Pentz joined Rycon's Philadelphia office. Matt is a graduate of Purdue University with a degree in Construction Management.

Rycon has added two new members to its accounting department. Elizabeth Sheeley, payroll staff accountant and Michelle Susa, junior staff accountant.

Rycon welcomed Tara Wilcher, an experienced administrative assistant, to the Building Group.

Rycon's Building Group has promoted the following employees to new roles: Tim Kwan, MEP director, and Daniel Dick, project executive. 69



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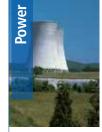
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# **CLOSING** OUT

#### **BUILDING A STRONGER PITT AND A STRONGER PITTSBURGH**

BY GREGORY A. SCOTT

The University of Pittsburgh's main campus, located just three miles from downtown Pittsburgh, is uniquely positioned to strengthen the region's status as an emerging global innovation hub.

Our roadmap for this work is an ambitious campus master plan, which has taken shape following 18 months of listening to and learning from thousands of neighbors, faculty members, students, staff and local leaders. The details of this plan—from its five big-picture priorities to the fine-print predictions for pedestrian mobility—are available online at www.campusplan.pitt.edu, and chart a tentative course for Pitt's evolution over the next three decades.

Once in motion, this plan is poised to create new and better opportunities for collaborating and convening that will enhance Pitt's academic environment and the city we call home.

#### **An Opportunity Seized**

Pitt is a proven economic engine that feeds \$4.2 billion into the commonwealth's economy annually and employs nearly 38,000 people. Our contributions to the city of Pittsburgh, which headquarters much of our \$1.7 billion research impact and our \$73.1 million charitable impact—are well documented.

Pitt is also a natural convener—a force that is uniquely positioned to tackle some of society's most intractable challenges. Our community members are natural explorers, collaborators and answer-seekers. And our partners occupy the full spectrum of philanthropic, public and private players—operating next door, in the next state, and across the world.

Our campus master plan acknowledges this role—and builds on it. It proposes stronger cross-campus connections, which will knit together teaching, research and clinical endeavors in new ways. In addition, it aims to keep our property boundaries porous and our educational assets accessible via clearer wayfinding and a smarter transportation grid that accommodates walkers, drivers and riders of all kinds. At the student level, the plan articulates a broader network of opportunities, tightly interweaving recreational activities and wellness programming with residential facilities.

The emphasis on connectivity is reflected in the four building use "clusters": Academic (includes health sciences, natural sciences, biological sciences, social sciences and humanities); Residential (for North, Central and South campus student living); Athletics and Recreation (i.e., hilltop, Petersen Events Center and other fitness facilities); and Student Dining (within housing and beyond).

These areas will be supported by an expansion of open, green space and streetscape improvements. The master plan advances the Pitt Sustainability Plan goals to significantly reduce energy and water usage and continue to apply sustainable design standards.

Our proposed campus master plan also includes strengthening the Innovation District—a cluster of multitenant buildings in Central Oakland that will place our scholars and researchers alongside corporate sponsors and key industry partners. This arrangement envisions a mix of research, lab, office, residential, hospitality and retail spaces that will bring new and unexpected collaboration opportunities. For Pitt, we believe that the district will improve our capacity to move bright ideas to market and ultimately help keep successful innovations—and innovators—in Pittsburgh.

#### A Role Expanded

Our campus master plan, as drafted, will certainly transform and upgrade physical spaces. But, even more, it will generate new entry points for residents and community members to explore. It will create room for unlikely partners to collaboration and connect. And, by design, the plan will nurture meaningful intersections designed to deepen the University of Pittsburgh's impact, buttress the city's rise as global innovation hub, and brighten our collective future.

To review Pitt's Campus Master Plan, visit: www.campusplan.pitt.edu

Greg Scott is senior vice chancellor for business and operations at the University of Pittsburgh.



Photo by Mike Drazdzinski/ University of Pittsburgh

# Bridging Pittsburgh Communities

