An Analysis of Construction Spending in the Pharmaceutical & Biotech Industry, 2015-2020

Presented by:

PILMA
Pharmaceutical Industry Labor-Management Association

&

ICERES
Institute for Construction Economic Research

Russell Ormiston, Ph.D.
Associate Professor of Economics, Allegheny College
President, Institute for Construction Economic Research

June 2021

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Supporting Organizations

PHARMACEUTICAL INDUSTRY LABOR-MANAGEMENT ASSOCIATION (PILMA) http://www.pilma.org/

For nearly 20 years, the Pharmaceutical Industry Labor-Management Association has united the biopharmaceutical industry and union workers with the dual goals of fostering innovation of life-saving cures and securing high-quality union construction jobs. As the partnership has grown over the years, so has its impact. Labor and industry recognize the strength in their partnership: strong industry naturally leads to good jobs and a vibrant economy.

The pharmaceutical industry members of PILMA recognize that the most highly skilled workers are needed to construct and maintain the highest quality research and manufacturing facilities. Following each new drug trial, research facilities must be wiped clean – entire systems must be changed, surfaces must be sterilized and other equipment replaced. This requires highly skilled reliable labor that the industry can depend on to do the job right. North America's Building Trades Unions spend $1.6 billion training their members each year. With state-of-the-art training facilities all over the country the building trades are ready to meet the needs of today and the challenges of tomorrow.

INSTITUTE FOR CONSTRUCTION ECONOMIC RESEARCH (ICERES) http://iceres.org/

The Institute for Construction Economic Research (ICERES) is a non-profit network of academic faculty and other scholars interested in conducting, collaborating on, and facilitating academic-quality research on construction labor issues. ICERES is committed to being an independent, non-partisan voice on labor market and public policy issues affecting the construction industry with the goal of finding and disseminating pragmatic solutions to problems affecting construction owners, developers, contractors and workers.

Executive Summary

The development and manufacture of safe and effective COVID-19 vaccines—all within 12 months from the onset of the pandemic—represented a historic achievement in public health. Pharmaceutical and biotech companies in the United States were at the forefront of global efforts to develop vaccines, but they were hardly starting from scratch: the rapid development of COVID-19 vaccines was directly built upon years of innovation and research by this country's medical and scientific community. The success of COVID-19 vaccines only further cements what has long been known: the United States is a world leader in developing life-saving and life-enhancing medical breakthroughs. But global leadership by the United States has required more than the knowledge and skills of scientists: it is also the result of world-class research facilities, laboratories and manufacturing plants.

Developing state-of-the-art pharmaceutical and biotech facilities in the United States requires a number of critical elements. While state and federal governments provide support, the private sector independently invests billions of dollars annually in pharmaceutical and biotech infrastructure. But none of this money would be sufficient without skilled construction tradespeople who are capable of building and maintaining high-tech facilities that meet exacting standards. This has led to a unique partnership between the pharmaceutical and biotech industry and the skilled, experienced, and dedicated workers of America's construction labor unions.

The partnership between the pharmaceutical and biotech sector and construction unions was instrumental in retrofitting existing facilities to develop and manufacture COVID-19 vaccines. But this partnership has benefitted American communities for decades, from advancements in public health to the economic benefits for local workers, families, and communities. In addition to the economic impact of newly-constructed, high-tech medical and science facilities, the employment of union construction workers provides good jobs for thousands of local residents, including family-supporting wages, health insurance, and pension benefits. To demonstrate the economic impact of this partnership, this report analyzes the amount of privately-funded construction of research, manufacturing and distribution facilities in the pharmaceutical and biotech industry between 2015 and 2020 for 14 states (CA, CO, CT, DE, IL, MD, MA, MI, NJ, NY, OH, OR, PA and WA). These states were identified by the Pharmaceutical Industry Labor-Management Association (PILMA), a coalition of labor organizations and companies in the pharmaceutical industry with dual goals of fostering medical innovation and promoting high-quality construction jobs.

Relying almost exclusively on data from Industrial Information Resources (IIR), a well-respected global consulting firm, this report concludes the following:

Table ES. Summary of Pharmaceutical and Biotech Industry Construction, 14 States, 2015-2020

	PROJECTS		SPENDING	UNION CONSTRUCTION LABOR		
State	No. of Projects ($5M+)	Total Valuation ($ million)	Total Spending ($ million)	Total Labor Hours	Union Labor Hours (est.)	Union Wages (est.)
California	107	$5,680.0	$7,383.5	14,928,082	5,655,387	$198,843,393
Colorado	9	$360.0	$527.7	1,067,607	199,655	$5,434,598
Connecticut	11	$228.0	$435.7	890,947	292,113	$9,718,594
Delaware	4	$338.0	$377.3	761,238	221,672	$6,472,823
Illinois	11	$1,490.0	$1,549.4	3,127,123	1,929,249	$71,787,348
Maryland	30	$1,561.0	$1,698.6	3,427,680	598,832	$19,024,904
Massachusetts	95	$5,877.2	$4,902.8	9,872,787	2,803,186	$102,456,455
Michigan	15	$449.6	$1,117.2	2,276,288	906,850	$25,409,944
New Jersey	35	$1,169.5	$2,575.0	5,243,687	2,563,414	$94,308,010
New York	41	$2,076.3	$2,932.5	5,932,976	3,090,661	$112,469,159
Ohio	19	$710.5	$1,056.6	2,144,427	702,648	$20,271,385
Oregon	5	$360.7	$407.6	819,316	262,175	$9,304,598
Pennsylvania	48	$3,000.4	$3,587.0	7,266,056	2,749,716	$85,488,658
Washington	17	$345.0	$445.1	899,817	362,665	$13,237,288
TOTAL	**447**	**$23,646.2**	**$28,995.9**	**58,658,033**	**22,338,223**	**$774,227,156**

Source: Industrial Information Resources, Current Population Survey, Quarterly Census of Employment and Wages

- There were 447 major ($5+ million) pharmaceutical and biotech projects that were privately funded and under construction at any point between 2015 and 2020 as identified by IIR for the 14 states studied. These projects represent a combined $23.6 billion in infrastructure investment by the industry. Major pharmaceutical and biotech projects were most prevalent in Massachusetts (95 projects, $5.9 billion) and California (107 projects, $5.7 billion), however projects totaling over $1 billion were identified in half of the 14 states (MA, CA, PA, NY, MD, IL, NJ). Further, there was at least $228 million in private-sector projects active at any point between 2015 and 2020 in all 14 states analyzed.

- Major pharmaceutical and biotech R&D and manufacturing projects active between 2015 and 2020 were heavily concentrated in major metropolitan cities and along the two coasts, including the Northeast Corridor (especially in Greater Boston) and in California. However, IIR data highlights that some of the largest construction projects planned for the next five years will be built in Michigan, Colorado and Washington.

- In terms of total investment, IIR estimates that the private sector of the pharmaceutical and biotech industry spent $29.0 billion on infrastructure spending across the 14-state sample exclusively between 2015 and 2020. This number also includes projects less than $5 million and an adjustment for projects not identified by IIR, while only considering expenditures on major

projects that occurred within this six-year time period (since some projects started before, or ended after, the years in question).

- Private-sector construction spending by the pharmaceutical and biotech industry increased every year across the 14-state area, starting at $3.9 billion in 2015 and increasing to $6.1 billion in 2020. A significant spike in private-sector investment occurred in 2019, effectively predating the COVID-19 pandemic. IIR estimates that industry construction spending will increase to $6.5 billion in 2021 and will remain above $5 billion annually through 2025.

- In terms of state construction environments, this report highlights that all 14 states featured at least $377 million in private-sector pharmaceutical and biotech infrastructure spending between 2015 and 2020. This was led by California, which IIR projected to feature $7.4 billion; meanwhile, four other states (MA, PA, NY, NJ) also had construction spending of at least $2.5 billion over that time.

- Annual data provided by IIR reveals that nearly every state featured sharp year-over-year increases in construction spending between 2015 and 2020. Among states already featuring a substantial pharmaceutical and biotech presence, investment growth appears especially strong in Pennsylvania, New York, Massachusetts and Illinois: each state had well over $200 million more in construction spending in 2020 than it did in 2015. On a percentage basis, the Pacific Northwest appears to be a rapidly-expanding market for R&D and manufacturing with Oregon (566% increase in spending from 2015 to 2020) and Washington (249% increase) exhibiting the highest rates of growth among the 14 states identified in this study. Over the next five years, Washington and numerous other states (CO, MI, OH, CT, NJ) are projected by IIR to exhibit substantial increases in construction spending from their 2020 levels.

- Between 2015 and 2020, the pharmaceutical and biotech industry required 58.7 million labor hours from construction workers on research and manufacturing facilities across these 14 states among the 14 trades examined by IIR. Electricians, instrumentation techs, and plumbers and pipefitters accounted for over 60% of this total, however the industry also required more than 2.5 million labor hours of carpenters, millwrights, operating engineers, laborers, and ironworkers.

- Trends in construction employment mirror those of spending, as the number of construction labor hours required by the pharmaceutical and biotech industry increased annually from 2015 (8.0 million) through 2020 (12.3 million). A sharp increase in employment by the pharmaceutical and biotech sector in 2020 is especially notable given that many other industries in the United States experienced substantial declines in employment opportunities during the pandemic. Assuming a standard 2,000-hour work week, IIR data suggests that the pharmaceutical and biotech projects employed 6,157 full-time construction workers in 2020 across the 14 states featured in this study.

- A conservative, lower-bound estimate of union construction work indicates that the pharmaceutical and biotech industry required *at least* 22.3 million labor hours by union workers in these 14 states during this six-year period. The conservative nature of these estimates is due to statistical limitations; as outlined in this report, the full impact of the industry on union construction employment is likely to be substantially higher than the above projections.

- Multiplying this conservative estimate of union labor hours by the average union construction wage in each state between 2015 and 2020 leads to the conclusion that the pharmaceutical and biotech industry paid at least $774 million in wages to union construction workers across these 14 states during this six-year time period. This number likely underrepresents the economic impact of the employment of union workers: it does not include additional tens of millions of dollars in health insurance and pension contributions, nor does it factor in the indirect economic benefits to a region resulting from increased spending in the community (i.e., the "multiplier effect.")

- The pharmaceutical and biotech industry has helped create a financially self-sufficient pipeline of skilled labor in the construction industry. Union apprenticeship programs are largely funded by per-hour contributions by active tradespeople. Assuming conservative estimates of 22.3 million union labor hours and a contribution of $0.30 per hour, the pharmaceutical and biotech industry was responsible for a *minimum* of $6.7 million in funding for union apprenticeship programs in these 14 states between 2015 and 2020. These funds promote a pathway to the middle-class for blue-collar workers while strengthening a region's workforce development, all without a nickel of student debt or a dime of taxpayer money.

The development of safe and effective COVID-19 vaccines was a breakthrough in public health and once again revealed the United States as a global leader when it comes to science and medicine. While much of the credit goes to scientists and researchers responsible for life-saving and life-enhancing innovations, such breakthroughs are also made possible by the country's world-class research, development and manufacturing facilities. While the government supports many projects, a considerable amount of America's state-of-the-art science and medical infrastructure is the result of billions of dollars of private-sector investment and the unique partnership between the pharmaceutical and biotech industry and the highly-skilled tradespeople of America's construction unions.