Ohio Life Sciences

LIFE SCIENCES INDUSTRY GUIDE FOR MUNICIPAL LEADERS

www.ohiolifesciences.org

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WELCOME FROM OHIO LIFE SCIENCES

OHIO is home to a growing network of leading hospitals, research institutions, global and emerging biotech companies, advanced manufacturers, and innovative health systems. From **Cleveland** to **Columbus** to **Cincinnati**, our state is building a powerful and collaborative life sciences ecosystem.

Ohio's life sciences sector is experiencing remarkable momentum, now contributing over **$66 billion annually** to the state economy and supporting more than **206,000 jobs**. With leading academic centers, a robust healthcare infrastructure, a skilled workforce, and strategic proximity to 60% of the U.S. population within a day's drive, Ohio is well-positioned to become a national leader in biotech and biomanufacturing growth.

This expansion is happening statewide. New development, increased lab space, and growth-oriented zoning policies are helping Ohio communities attract life sciences investment and talent. We are witnessing the rise of new biotech clusters across the state Ohio's Discovery Corridor.

To support this momentum, Ohio Life Sciences partnered with the proven economic development experts at the Montrose Group to publish this guide and to launch our Life Science Ready Communities program. Modeled after MassBio's BioReady® Communities, this initiative will enable communities across Ohio to apply for a Life Science Ready Designation from OLS. OLS will then work to promote communities that are "ready" for, or already proactively welcoming, biotech development with zoning, permitting, infrastructure, and talent strategies that are attractive to life science companies.

We believe the **benefits of biotech development are immense,** from high-wage job creation to increased local investment and innovation-driven community growth.

As the **statewide association** for the life sciences industry, Ohio Life Sciences is here to support you. We look forward to partnering with local officials, economic development leaders, and real estate developers to help Ohio communities prepare for and attract biotech opportunities.

Let's work together to build a stronger life sciences future, one Life Sciency Ready community at a time.

Sincerely,

Eddie Pauline
President & CEO

ABOUT THE OHIO LIFE SCIENCES ASSOCIATION

The Ohio Life Sciences Association represents almost **4,900 individual business** establishments throughout the State of Ohio. OLS tracks and monitors life science-related industry sectors in order to understand the industry's growth and advancement across the state of Ohio. OLS encompasses a diverse range of sectors, including biotechnology, pharmaceuticals, medical devices, digital health, gene and cell therapy, agricultural biotechnology, life science-related distribution, academic research institutions, and more.

OLS is challenged with the task of **advocating for the state's life sciences industry** by engaging with local, state, and federal lawmakers to champion the growth and innovation of Ohio's life sciences industry to drive economic advancement and patient well-being. OLS works to align the life sciences ecosystem across the state of Ohio by building collaborative partnerships, advocating for supportive policies, and driving economic growth. By streamlining workforce programs, advocacy goals, and collaboration, OLS is committed to ensuring that Ohio's life sciences industry thrives by creating a strong business environment and supporting workforce development initiatives.

Vision

Ohio will be recognized as one of the most dynamic and innovative life sciences ecosystems in the country, delivering sustained economic strength and vitality for our communities.

Mission

To grow the Life Sciences Market. We do this by fostering innovation, supporting businesses, and connecting key stakeholders across the industry.[1]

[1] https://ohiolifesciences.org/about/

Ohio Life Sciences

Source: The Ohio State University

DEFINING LIFE SCIENCE INDUSTRY SECTORS

The life sciences are a diverse group of industries and activities with a common link—they apply knowledge to develop biological solutions that sustain, restore, and improve the quality of life for humans, plants, and animals worldwide. From **life-saving therapies** and procedures to healthier foods and edge research, society benefits from a better quality of life because of the life sciences.

Life sciences companies are found within these six core subsectors: Agricultural Biotechnology, Medical & Testing Laboratories, Medical Devices & Equipment, Medical Product Distribution, Pharmaceuticals & Therapeutics, and Research & Development.

Agricultural Biotechnology applies life science knowledge, biochemistry, and biotechnologies to processing agricultural goods, organic chemicals, biofuels, and bio-based materials. Examples of products include: ethanol, biodiesel, bio-based polymers & chemicals, fertilizers, pesticides, herbicides, fungicides, biodegradable materials synthesized from plant-based feedstock, sustainable industrial oils and lubricants, biocatalysts, and feed additives & ingredients.

DEFINING THE LIFE SCIENCE INDUSTRY SECTORS CONT'D

Medical & Testing Laboratories provide critical analytical and medical imaging services for healthcare providers and drug development and analysis work for pharmaceutical companies and research organizations. Laboratories operate throughout Ohio, as independent facilities and as part of regional or national health networks.

Medical Device & Equipment manufacturers deliver a wide range of products, including surgical supplies and instruments, orthopedic implants, hospital equipment, advanced diagnostic imaging systems, electromedical devices, mobility aids, laboratory equipment, and much more. From simple hand tools to highly complex, computerized devices, this sector utilizes materials and techniques spanning the entire manufacturing sector.

Medical Product Distribution companies deliver finished products to healthcare providers and patients in clinical, long-term care, and residential settings. Durable medical equipment, mobility aids, respiratory equipment, medications, personal care supplies, home safety equipment, and other goods that enhance and maintain patients' quality of life all enter the market through this sector.

Pharmaceuticals & Therapeutics companies develop and manufacture medicinal, botanical, and biological products for therapeutic and diagnostic applications. Pharmaceuticals can be found in various forms, some being well-established medicines available at local pharmacies and others at the experimental stage, entering clinical trials on their way toward regulatory approval. This field includes cutting-edge work on genomics, personalized medicine, and regenerative therapies.

Research & Development organizations in Ohio work to advance new discoveries and translate research into products, treatments, and services. This sector includes a wide range of organizations and private companies that include contract research organizations, clinical trial facilities, and many entrepreneurial startups. Life sciences research is thriving within academic institutions and health systems, with many groundbreaking concepts being developed by teachers, physicians, and caregivers.

DEFINING LIFE SCIENCE INDUSTRY SECTORS CONT'D

Life Sciences Education Institutions throughout Ohio provide instruction at K-12 schools, colleges, and universities. Through intensive STEM education, specialized programs, industry partnerships, and especially the involvement of dedicated teachers, student interest in the life sciences continues to grow.

Digital Health companies develop software and technology to expand the capabilities of the life sciences industry, reduce health care costs, increase access to care, and improve patient outcomes. OLS has identified four categories within the digital health field as focus areas: Technology & Research, Medical Records, Patient Wellness, and Practice Management & Revenue.

Healthcare Providers are a key component of the state's biomedical infrastructure. While offering both routine and lifesaving care, hospitals and providers around Ohio also participate in cutting-edge research through clinical trials and laboratory investigations that enable new discoveries to benefit patients around the world.

Health and Medical Insurance Carriers are critical to the patient-provider relationship by offering plans that cover or supplement patients' dental, health, and medical expenses. Many insurers also offer wellness programs that encourage healthy lifestyles and reduce the need for medical procedures or readmissions.

Suppliers and Service Providers range from firms that provide key materials or ingredients to those that manufacture, assemble, package, and distribute products, including many ISO 13485-certified firms that manufacture medical devices and equipment. Service-oriented companies include firms providing first-class resources in regulatory and reimbursement consulting, pre-clinical and clinical assessment, product design, quality assurance, engineering, sales and marketing, legal counsel, IT services, training, and more.

HOW CAN LIFE SCIENCES IMPACT YOUR COMMUNITY?

As of 2023, Ohio's life sciences industry consists of approximately **63,765 jobs** that span across 4,860 business establishments. These business establishments can be organized into five separate industry sectors: agricultural feedstock & industrial biosciences, life science-related distribution, medical devices & equipment, pharmaceuticals and research, testing & medical laboratories. [1]

The companies and people currently involved in the life science industry sectors are thought leaders at the forefront of human innovation. **This industry attracts highly educated people** who are tackling primary issues like new cancer treatments, bioengineering, translational research, and more. Alternatively, there is a strong demand for investment in the foundation that allows these advanced fields to exist. Industry sectors like agricultural feedstock and life science-related distribution provide the infrastructure that allows for the remainder of the life science field to grow and develop.

The life sciences industry has become a significant **economic driver** for the states and communities that have invested in this field. The value of the life science industry cannot be understated as it creates high-wage jobs, creates strategic partnerships with like communities, and bolsters local healthcare systems. The State of Ohio and the Ohio Life Sciences group are dedicated to assisting Ohio's communities with the tools they need to attract these elite businesses.

[1] https://ohiolifesciences.org/reports/#industry-reports

DEFINING TRAITS OF LIFE SCIENCE FACILITIES

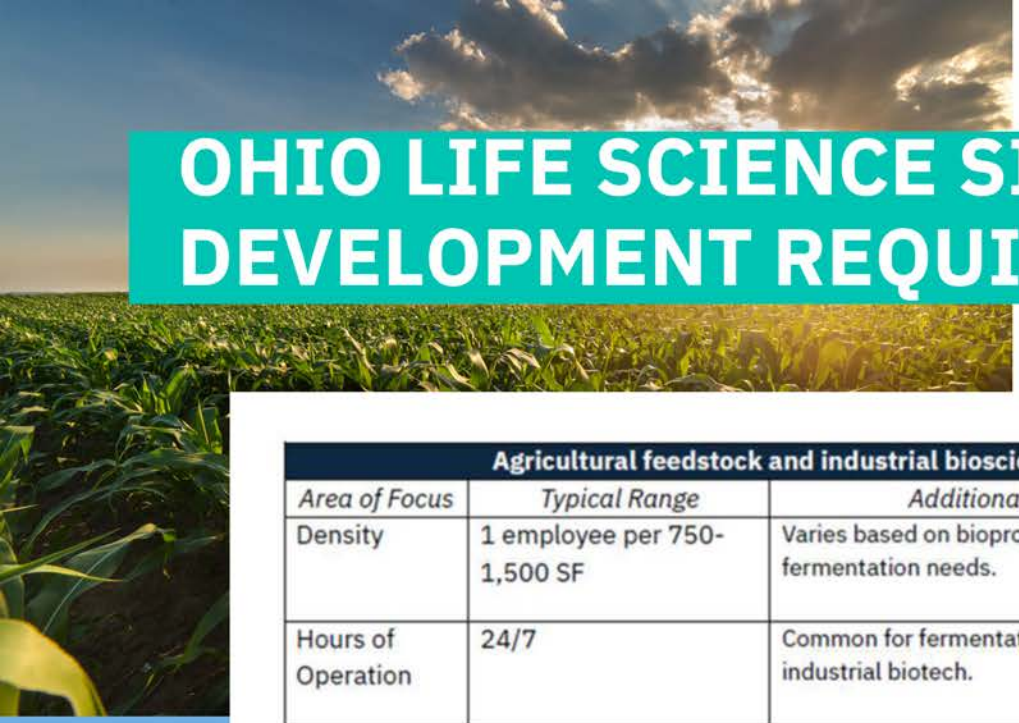
Life science facilities are unlike the standard logistics or manufacturing facilities that have been a focal attraction point for economic development organizations around the State of Ohio. Companies in this field often require highly specialized facilities to support the advanced work they perform. These specializations can include cold storage warehouses, upgraded fire suppression systems, higher-than-average floor-to-ceiling heights, and more. For these reasons, life sciences facilities are not as readily available in the majority of our currently established office, manufacturing, and industrial spaces.

Life Science facilities can vary in shape and size. Research, testing, and medical laboratories typically require smaller floor plans, typically ranging from 10,000 to 60,000 square feet. Meanwhile, Agricultural feedstock, industrial biosciences, life science-related distribution, and biopharma manufacturing facilities can range from 50,000 to 1,000,0000 SF as they require significant space for materials and transportation infrastructure. Life science facilities often require precise control of environmental conditions to operate effectively. Facilities within the research, testing, & medical laboratories industry sector typically feature advanced heating, ventilation, and air conditioning (HVAC) systems for consistent temperature, humidity, and compressed gases, waste handling, electrical equipment loads, process water systems, chemical treatment, and storage requirements. High-efficiency particulate air (HEPA) filtration and air systems are necessary to maintain a high level of air purity and prevent contamination.

DEFINING TRAITS OF LIFE SCIENCE FACILITIES CONT'D

Special zoning is often required. Many zoning codes, especially in Ohio, where life science industries are not yet emerging, lack specific text or codes that allow the uses required by life sciences. Local zoning policies that allow a multitude of life science-type developments, do not require special-use restrictions, and offer flexibility on issues such as building height have experienced substantial success in attracting these industries.

Wet lab space is more complicated to develop compared to standard commercial office space. Wet lab space construction costs can be 3-5 times higher than those for office development and take about twice the amount of time to complete. While larger companies may be able to cover the costs to retrofit or build wet lab space, early-stage companies with limited cash typically seek to rent space in existing facilities with build-out specifications capable of meeting their needs. Wet lab space is a riskier investment compared to other real estate developments because of the unique nature of life sciences tenants, particularly for shared multi-tenant facilities that house early-stage companies. The reason for this is that early-stage life sciences companies typically have limited financial resources and tend to invest most of their resources into risky R&D that may take many years to result in a viable product, platform or service that would yield a consistent source of revenue. Given the potential for default risk on rent, it is difficult for private sector investors, such as real estate developers, to justify investing in a development project for early-stage companies in the absence of risk mitigation tactics, such as pre-construction lease commitments (e.g. from an anchor tenant) and/or strong financial covenants.

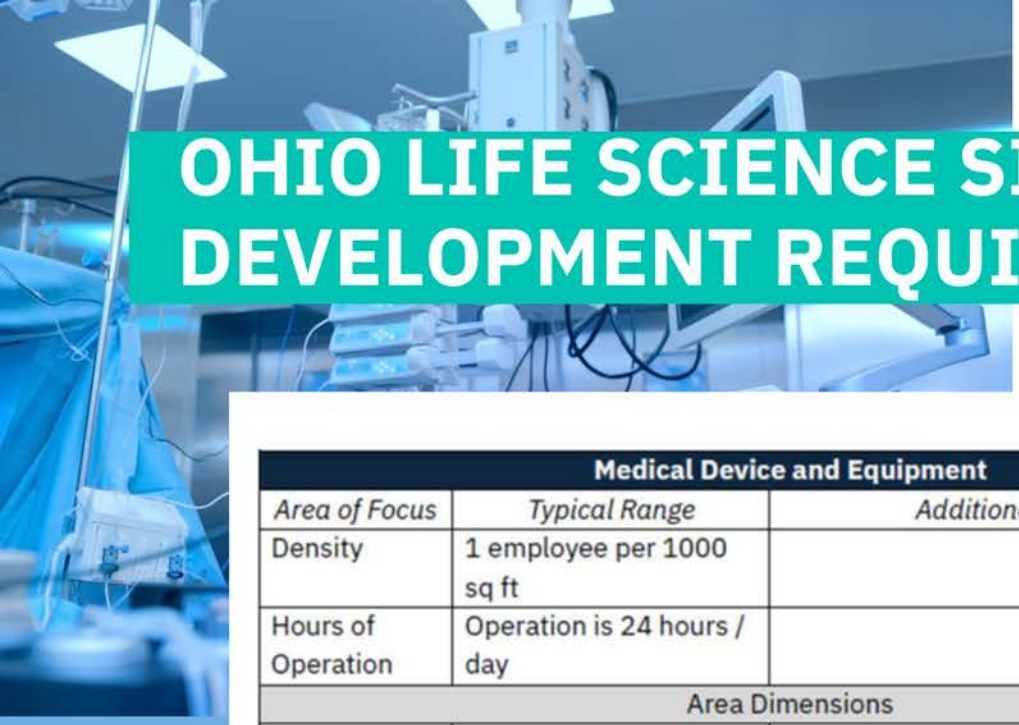


OHIO LIFE SCIENCE SITE DEVELOPMENT REQUIREMENTS

Agricultural feedstock and industrial biosciences		
Area of Focus	*Typical Range*	*Additional Comments*
Density	1 employee per 750-1,500 SF	Varies based on bioprocessing and fermentation needs.
Hours of Operation	24/7	Common for fermentation, refining, and industrial biotech.
Area Dimensions		
Area	50,000 0t 500,000 SF	Accommodates large-scale bioprocessing and storage.
Height	20-50 ft	Required for silos, fermentation tanks, and processing infrastructure.
Structural Description		
Structural Loading	250 PSF in processing areas	Supports heavy industrial equipment and storage loads.
Vibration Sensitivity	Low to moderate	Necessary for precision instrumentation.
Building Utilities		
Generator		
Electrical		
Steam		
Site Utilities		
Water	Water: 50,000–500,000 GPD	High demand for cooling and processing.
Sewer	Pre-treatment required	
Gas	Required (high volume)	For industrial heating and drying.
Other		
Expansion		
Access	Truck & rail access	Proximity to agricultural supply chains.

OHIO LIFE SCIENCE SITE DEVELOPMENT REQUIREMENTS

Life Science-related distribution		
Area of Focus	*Typical Range*	*Additional Comments*
Density	1 employee per 1000 sq ft	
Hours of Operation	Operation is 24 hours / day	
Area Dimensions		
Area	100,000 to 1,000,000 SF	
Height	20-40+ ft	Clear height production requirements 17-22ft
Structural Description		
Structural Loading	250 to 1,000 PSF	Structural loading areas that include heavy-duty facilities (like cold storage or heavy equipment warehouses) might go higher, especially if supporting very dense product loads.
Vibration Sensitivity	Varies	May high highly sensitive equipment.
Building Utilities		
Generator	Not Required	
Electrical	12 KV – 60 KV	Facility may have dual underground feeders from separate substation. Small to medium facilities (100,000 to 250,000 SF) range from 12 - 15KV.
Steam	Varies	
Cold Storage	Varies	Users may contain cold storage and -20 degree cold rooms on site.
Site Utilities		
Water	Varies with process	Small to medium facilities (100,000 to 250,000 SF) range from 2,000 – 20,000 GPD. 1,000,000SF+ facilities can utilize 75,000+ GDP. Cooling within cold storage facilities can increase usage by 5 - 15%.
Sewer	Varies with process	Public sewer with adequate capacity is required. Most distribution based facilities generate minimal wastewater, so wastewater primarily from employees drives design and scope.
Gas	Required	Typically high volume
Other		
Expansion	Not required for larger facilities.	Smaller facilities >250,000SF may require space for future growth and expansion.
Access	Truck access and close proximity to major highway infrastructure is required.	Heavy commercial or industrial access for loading docks. Heavy truck activity for laboratory deliveries.



OHIO LIFE SCIENCE SITE DEVELOPMENT REQUIREMENTS

Medical Device and Equipment		
Area of Focus	*Typical Range*	*Additional Comments*
Density	1 employee per 1000 sq ft	
Hours of Operation	Operation is 24 hours / day	
Area Dimensions		
Area	50,000 to 150,000 SF	
Height	20-40+ ft	Clear height production requirements 17-22ft
Structural Description		
Structural Loading	100 to 250 PSF	100 PSF to 150 PSF in laboratory areas. Up to 250 PSF in manufacturing areas.
Vibration Sensitivity	Varies	May high highly sensitive equipment.
Building Utilities		
Generator	Required	
Electrical	25KV Primary	Facility may have dual underground feeders from separate substation.
Steam	Varies	
Site Utilities		
Water	Varies with process	
Sewer	Varies with process	Calculation should be based on the supply minus the volume of water that goes into the product. Public sewer with adequate capacity is required.
Gas	Required	Typically high volume
Other		
Expansion	Recommended	Desired for future growth and expansion.
Access	Truck and tanker access is required. Highway and airport access within close proximity.	Typical commercial or light industrial access for loading docks. Moderate truck activity for laboratory deliveries. Facility may require bulk gas and tank storage.

OHIO LIFE SCIENCE SITE DEVELOPMENT REQUIREMENTS

Pharmaceuticals		
Area of Focus	*Typical Range*	*Additional Comments*
Density	2 employees per 1000 sq ft	
Hours of Operation	Operation is 24 hours / day	
Area Dimensions		
Area	10,000 to 35,000 SF	
Height	18-35+ ft	Clear height production requirements 17-22ft
Structural Description		
Structural Loading	100 to 250 PSF	100 PSF to 150 PSF in laboratory areas. Up to 250 PSF in MEP and mechanical penthouse areas.
Vibration Sensitivity	Varies	May high highly sensitive equipment.
Building Utilities		
Generator	Required	
Electrical	15KV Primary	
Steam	16,000 lbs/hr	Typical range is 0.25lbs/hr/SF. Dependent on the type of manufacturing.
Cold Storage	Varies	Users may contain cold storage and -20 degree cold rooms on site.
Site Utilities		
Water	Varies with process	Typical range is 0.35 GPH/SF Peak
Sewer	Varies with process	Calculation should be based on the supply minus the volume of water that goes into the product. Public sewer with adequate capacity is required.
Gas	Required	Typically higher volume of water that in basic research and development facilities.
Other		
Expansion	Recommended	Desired for future growth and expansion.
Access	Truck and tanker access is required. Highway and airport access within close proximity.	Typical commercial or light industrial access for loading docks. Moderate truck activity for laboratory deliveries. Truck and cranes access for large equipment deliveries. Facility may require bulk gas and tank storage.

OHIO LIFE SCIENCE SITE DEVELOPMENT REQUIREMENTS

Research, testing, and medical laboratories		
Area of Focus	*Typical Range*	*Additional Comments*
Density	350-500RSF per lab employee	
Hours of Operation	Operations are 9AM to 5PM	Facilities must have 24-hour access
Area Dimensions		
Area	30,000 to 60,000 SF	
Height	14-15+ ft for new construction.	
Structural Description		
Structural Loading	100 to 250 PSF	100PSF to 250PSF in laboratory areas. Up to 250 PSF in MEP and mechanical penthouse areas.
Vibration Sensitivity	500 to 2,000 micro inch per second	500 micro inch per second for higher power users. 2,000 micro inch per second for medium power users.
Building Utilities		
Generator	Required for life safety only.	
Electrical	12-16 Watts/ USF lab 6-12 Watts/ USF office	
Steam	N/A	
Site Utilities		
Water	8,000 to 20,000 GDP	Dependent on type of facility
Sewer	8,000 to 20,000 GPD	Pre-treatment equipment is typically required.
Gas	Required	For lab use: Low pressure required. For building heating: moderate pressure and higher volumes.
Other		
Expansion	Preferable	Desired for future growth and expansion.
Access	Standard roadway access	Typical commercial or light industrial access for loading docks. Moderate truck activity for laboratory deliveries.

LIFE SCIENCE READY COMMUNITY PROGRAM

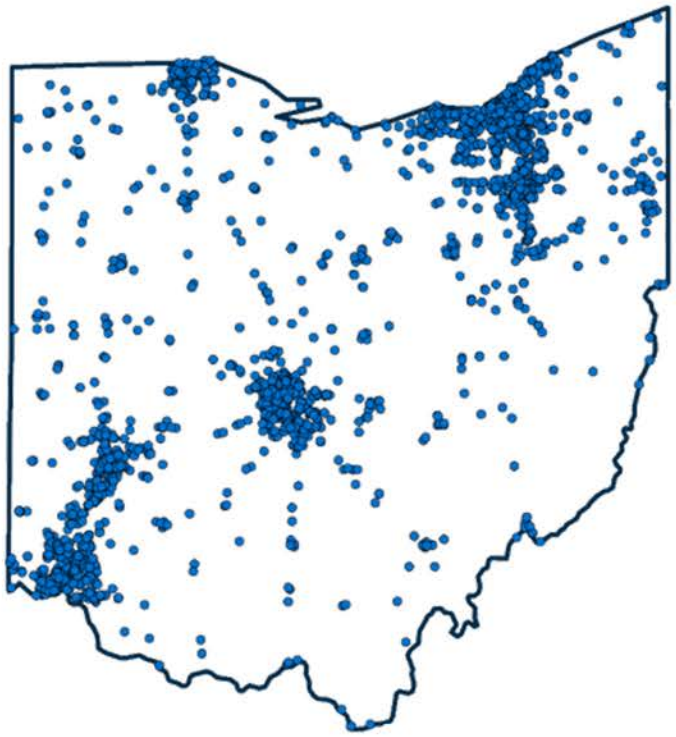
Modeled after MassBio's BioRready Communities, Ohio Life Science's Life Science Ready Community Program evaluates communities based on a structured scoring methodology that assesses their readiness for life sciences and biotech development. OLS will then assign a specific designation (emerging, advanced, or premier) to that community, indicating how "ready" that community is.

The scoring system incorporates three key factors: zoning and permitting, site readiness, and workforce. Each factor contributes to a total maximum score of 40 points, allowing for an objective comparison of sites across Ohio.

Ohio Life Sciences will maintain a list of Life Science Ready Communities, along with their designated level, and promote the list through its website and other channels to draw attention to communities in Ohio that are "ready" to grow the life sciences market.

For more information about the Life Science Ready Community Program or to apply, please contact lifesciencready@ohiolifesciences.org

Map of Life Science Establishments Across Ohio



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