

Greater Phoenix Biosciences Ecosystem

JULY 2024

Build a Healthier Business in Greater Phoenix

Cutting-Edge Companies and a Legacy of High-Quality Care

Greater Phoenix has long been a destination for healthcare services because of its excellent quality of life and well-established healthcare providers. Today, a new innovative biosciences and life sciences industry has emerged from the region's legacy of care. Supported by outstanding educational partners and a talented growing workforce, this advanced ecosystem is booming in Greater Phoenix.

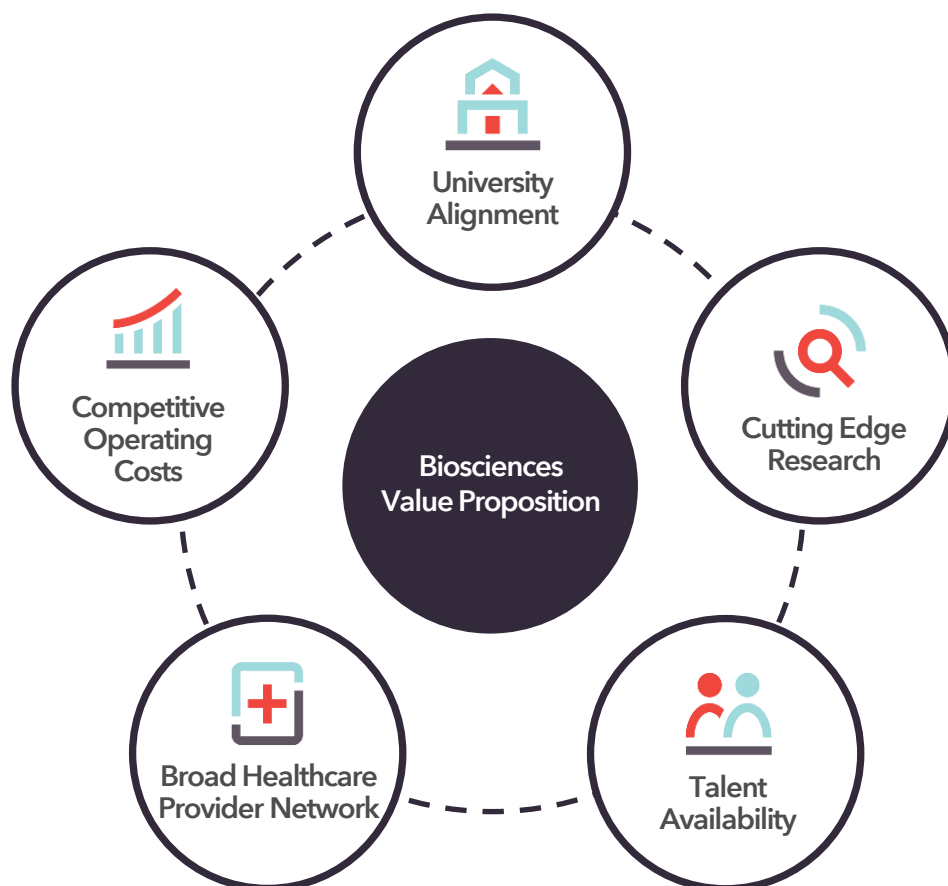
With an innovative and collaborative business environment in Greater Phoenix, it is no surprise that so many top companies choose the region.

Here are just a few reasons why so many top companies choose Greater Phoenix:

- A vibrant research and development ecosystem with thousands of ongoing clinical trials anchored by nationally recognized healthcare institutions
- The perfect blend of workforce quality and talent availability for staffing requirements that fit company priorities
- University and industry alignment to cultivate R&D and entrepreneurial innovation
- Significantly lower operating costs than traditional competitor regions, allowing companies to grow and scale



Value Proposition



University Alignment	Cutting-Edge Research	Talent Availability	Nationally Recognized Bioscience Institutes	Competitive Operating Costs
<ul style="list-style-type: none"> • Biotechnology and life science programs at schools throughout the region • Innovative programs at Arizona State University and Maricopa County Colleges driving medtech, diagnostics and translational research 	<ul style="list-style-type: none"> • Thousands of clinical trials take place in Greater Phoenix annually • Four primary bioscience clusters driving innovation: <ol style="list-style-type: none"> Mayo Clinic's Discovery Oasis Phoenix Bioscience Core Phoenix Medical Quarter Scottsdale Cure Corridor West Valley Health Quarter 	<ul style="list-style-type: none"> • More than 11,000 graduates from related degree programs in 2022 • Large workforce with more employees than competitor markets such as Nashville, Raleigh-Durham and San Diego 	<ul style="list-style-type: none"> • Nationally recognized hospitals and institutes call Greater Phoenix home • Banner Health, headquartered in Phoenix, is the region's largest private employer 	<ul style="list-style-type: none"> • Operating costs are significantly lower than traditional competitor regions • Workforce costs are thousands less than peer markets • Housing costs are 2.5x less than San Francisco

Emerging Biosciences Hub

The rapid growth in the Greater Phoenix bioscience ecosystem has positioned the region as an emerging industry hub. Cutting-edge research in precision medicine, neurosciences, biomarker identification and immunotherapies are advanced through strong core capabilities in translational genomics, medical device manufacturing, diagnostic development and clinical trials activity. These innovations are supported by a renowned institutional network, strong university system and workforce pipeline, while the funding opportunities and business-friendly ecosystem make the region an increasingly competitive market for bioscience innovation.

Bioscience Leaders



Biopharmaceutical
Manufacturing



R&D, Bioinformatics,
Blood Profiling Lab,
Specimen Processing



Diagnostic and
Prognostic Clinical
Operations



Neurodegenerative
Disease Diagnosis



Cancer Diagnostic
Development



Automated Diagnostic
Testing



Biospecimen Supplier



Microarray Development
and Manufacturing for
Diagnostics and Life
Science Research



Laboratory Services
(Subsidiary of Quest
Diagnostics)



Oncology Contract
Research



Blood and Specimen
Processing

Greater Phoenix

\$397M

Capital investments
2018-23

\$2.9B+

Gross regional product
2023

3K+ Jobs

New bioscience jobs
2018-23

Arizona

\$364M

NIH funding across
Arizona 2023

Research & Funding Landscape

Greater Phoenix's diverse population makes it an ideal location for clinical trials, as Arizona has over 1,000 active trials and 1,500 more in the recruitment phase.

In October 2023, a consortium of 28 public, private and academic partners led by GPEC was awarded a Strategy Development Grant as part of the EDA's Tech Hubs program. The group, called the Medical Device Manufacturing Multiplier Strategy Development Consortium (MDM2), was one of 29 recipients across the U.S. to receive the award. Funding will go toward strategic planning to increase medical device manufacturing in the region driven by emerging technologies such as artificial intelligence and machine learning, bolstering the sector's domestic competitiveness and creating opportunities to grow the field's skilled workforce.



The MDM2 consortium is made of:

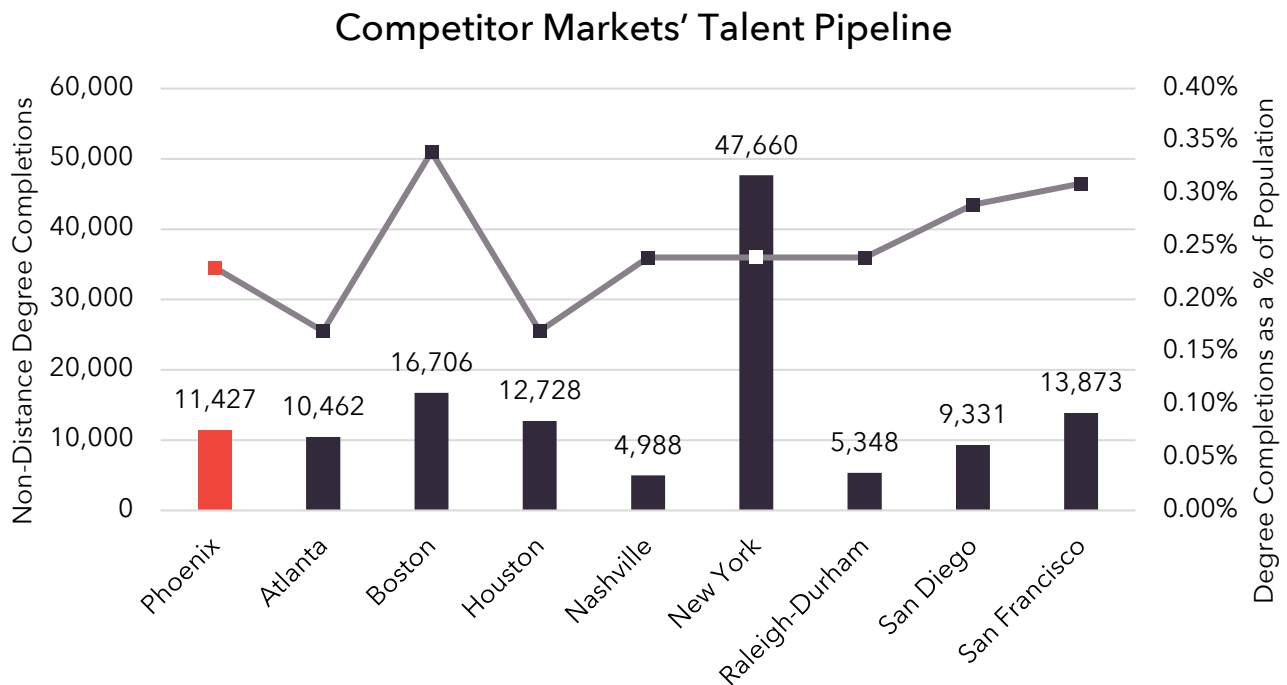
- Arizona State University
- Grand Canyon University
- Northern Arizona University
- Phoenix Bioscience Core
- University of Arizona - Phoenix
- City of Chandler
- City of Phoenix
- Maricopa County
- Barrow Neurological Institute (BNI)
- Dignity Health
- HonorHealth
- Medtronic
- GT Medical Technologies
- W.L. Gore & Associates (Gore)
- IdeaLabX
- BD Peripheral Intervention (BD)
- Intel
- Mayo Clinic
- Remedy Medical Manufacturing
- Greater Phoenix Economic Council (GPEC)
- Partnership for Economic Innovation (PEI)
- Maricopa Community Colleges
- Flinn Foundation
- Arizona Bioindustry Association (AZ Bio)
- Yoo & Co Accelerators
- Vitalyst Health Foundation
- Local Initiatives Support Corporation (LISC) - Phoenix, Healthy Communities
- Virginia G. Piper Charitable Trust

For more information about MDM2, please visit: <https://www.mdm2.org/>

Overview

Below are the total number of non-distance program completions at colleges and universities in Greater Phoenix for healthcare and bioscience fields. With over 11,000 graduates in 2022, the region's talent pipeline is comparable to peer markets like Atlanta, Houston and San Diego. Its STEM completion growth rate is twice the national average, putting its average ratio of graduates to total population in line with markets like New York, Raleigh-Durham and Nashville.

Certificates	Associate	Bachelor	Master	Doctor	Total
5,013	1,973	3,132	532	777	11,427



STEM Program Completion Growth 2012-2022*

67%

Greater Phoenix

33%

United States

*CIP codes included: 14 - Engineering, 26 - Biological and Biomedical Sciences, 27 - Mathematics and Statistics, 40 - Physical Sciences

Innovation at Arizona State University (ASU)



ASU stands out for its significant engagement in the biosciences sector, underlining a commitment to collaborative research, education and innovation that spans across disciplines and industries. Through strategic initiatives like the pioneering Biodesign Institute, a robust partnership with the Mayo Clinic and the comprehensive offerings of the College of Health Solutions, ASU fosters an environment where interdisciplinary teams work together to push the boundaries of medical science and healthcare delivery.

ASU's Biodesign Institute encompasses 350,000 square feet of building space to suit the needs of researchers in biomedicine, health outcomes, sustainability and security. One-third of ASU research facilities are devoted to biological and biomedical sciences, which include biosafety level-3 laboratories, and more than a quarter of the STEM degrees the school awards annually are in the biological sciences. There are more than 15 research centers at the Biodesign Institute, including:

- Bioelectronics and Biosensors
- Bioenergetics
- Biomaterials Innovation and Translation
- Fundamental and Applied Microbiomics
- Health Through Microbiomes
- Innovations in Medicine
- Molecular Design and Biomimetics
- ASU-Banner Neurodegenerative Disease

For more information about ASU's Biodesign Institute, please visit: <https://biodesign.asu.edu/>

Arizona State University Highlights

#1 most innovative school in the U.S.

(U.S. News & World Report, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024)

#1 in the nation for global impact in research, outreach, and stewardship

(U.S. News & World Report, 2022)

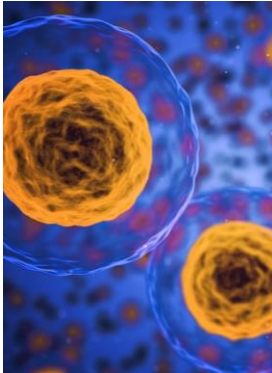
\$800M spent on R&D expenditures in 2022 (NSF)

Student population of almost 80,000 across four regional campuses



Bioscience Programs

Greater Phoenix institutions offer hundreds of undergraduate and graduate degrees to thousands of students in its bioscience and health programs. Highlighted below are 3 key programs:



Arizona State University, School of Life Sciences

Biology and Microbiology

ASU's School of Life Sciences is rapidly becoming a global leader in life science education and discovery. With nine undergraduate programs and 20 graduate programs, students pursue several types of biology, microbiology, molecular and cellular biology, and neuroscience, along with computational, environmental and other life sciences.



Arizona State University, College of Integrative Sciences and Arts

Applied Biological Sciences

ASU's College of Integrative Sciences and Arts recognizes that the complexities and interconnectedness of our world, diving into a broad variety of areas including indoor farming, multiculturalism research, and studies on the effects of climate change. Among its dozens of degrees is applied biosciences, which provides rigorous field and lab work to prepare students for biology and related sciences.



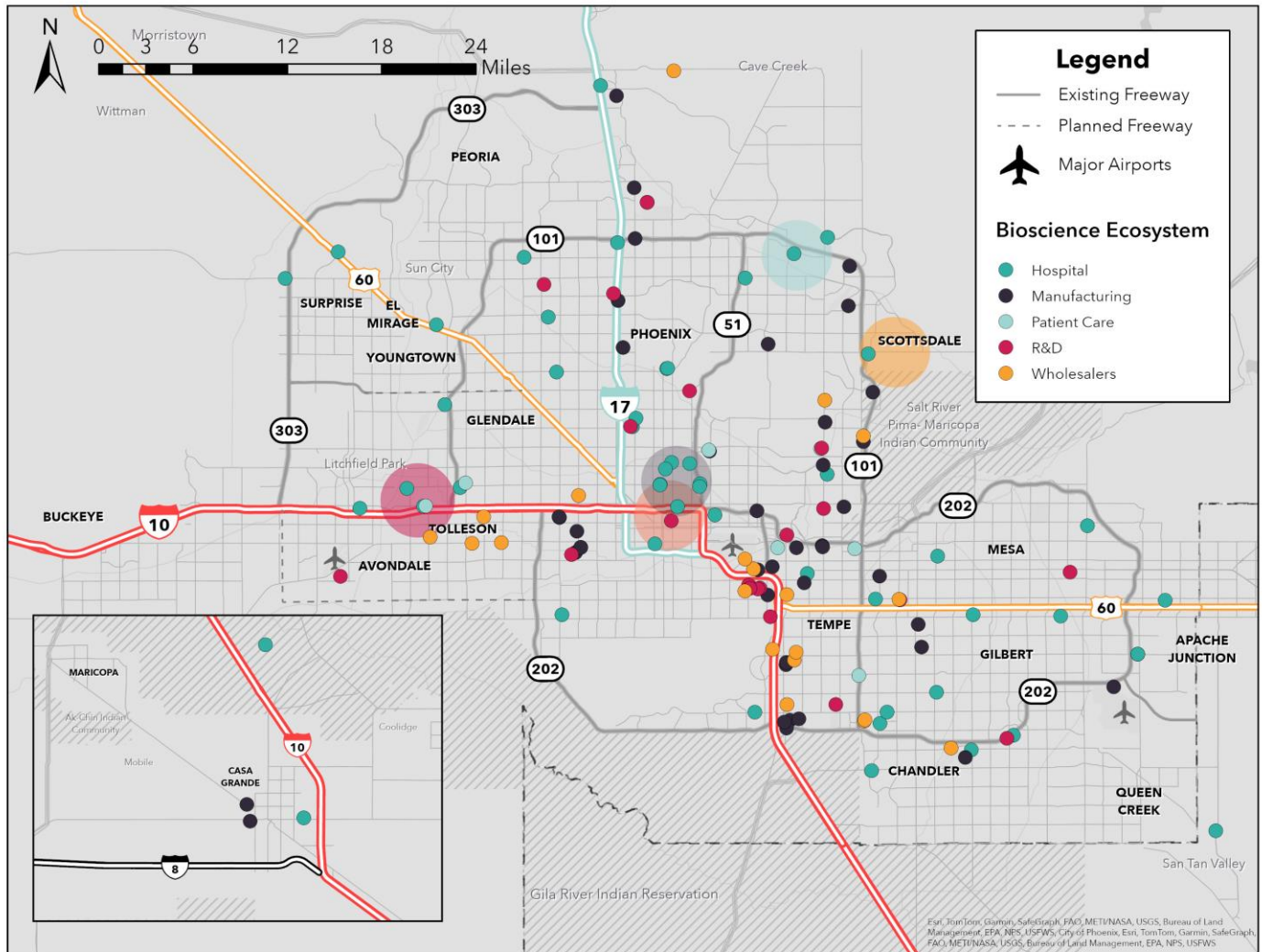
Glendale Community College

Biotechnology and Molecular Biosciences

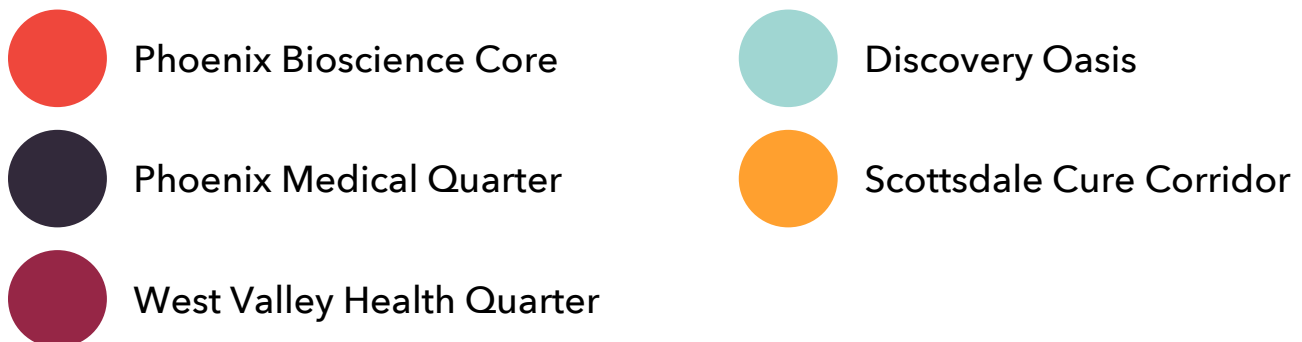
GCC offers an Associate in Applied Science degree in Biotechnology and Molecular Biosciences. This program provides students with hands-on experience in laboratory techniques, ensuring they are prepared for various careers paths. The program's diverse curriculum equips students with the skills needed in multiple sectors, including research, clinical laboratory and industrial biotechnology.

Industry Clusters

Explore major companies and bioscience hubs on the Greater Phoenix map



Bioscience Hubs



Phoenix Bioscience Core

Industry Cluster in the Heart of Greater Phoenix

Located in downtown Phoenix, the Phoenix Bioscience Core (PBC) is a 30-acre urban medical and bioscience campus that serves as a premier and dynamic environment for research activities. The PBC hosts the highest concentration of research scientists and complementary research professionals in the region and provides firms with unprecedented opportunities for growth and collaborative efforts with industry leaders.

It is a collection of Arizona's three major universities, three of the five major hospital systems that operate in the region, and a mixture of public and private research clustered in the same neighborhood in the heart of the capital.

Representing the full spectrum of the healthcare industry, PBC is home to educational institutions, government agencies, hospitals, and bioscience companies. Here is a sample of the industry's presence inside the core:

Academia/Public Research



Private



Government/Non-Profit



Clinical Partners



As of 2023, the PBC has 2 million square feet of biomedical-related research, academic, and clinical facilities, with plans to develop more than 6 million at full buildout. Part of the current campus includes 850 PBC, a 227,000-square-foot fully lab-enabled center that was opened by Wexford Science + Technology in the spring of 2021.

850 PBC was designed as an incubator and coworking laboratory space for bioscience companies to collaborate and innovate as part of the Phoenix bio-ecosystem. It is currently home to emerging companies such as Calviri and Theriome, ASU's Translational Research Center, the Center for Entrepreneurial Innovation along with their Market Validation Lab and LabForce programs that offer training courses. In September of 2023, Wexford announced that the NIH will be expanding into the space to accommodate the Phoenix Epidemiology and Clinical Research Branch of the NIH's NIDDK.

Future Development

In 2022, the University of Arizona announced its plans to develop a new anchor institution for the PBC in its Center for Advanced Molecular and Immunological Therapies (CAMI). It will be a national biomedical research hub in Phoenix to unravel the complexities of the immunology of cancers, infectious diseases and autoimmune conditions. The goal is to develop novel strategies for the diagnosis, prevention and treatment of diseases.

For more information about PBC, please visit: <https://phoenixbiosciencecore.com/>



Discovery Oasis

Industry Cluster in Northern Phoenix

The Discovery Oasis is a 120-acre medical and research campus with 3.3 million square feet of facilities, created for the entire ecosystem of biomedical innovators and home to the Mayo Clinic and ASU Health Futures Center. Designed as a unique scientific community, the flowing site plan incorporates research facilities, offices and site amenities in hubs that intersect to encourage collaboration and convergence.

The Discovery Oasis is also home to the MedTech Accelerator, a flagship program of the Mayo Clinic and Arizona State University Alliance for Health Care, providing early-stage medical device and health care technology companies with an entrepreneurial curriculum and personalized business development plans to accelerate go-to-market and investment possibilities.

The site at a glance:

- Build-to-suit Class A facilities
- Wet and dry labs, biomanufacturing facilities, and flexible office space
- Multi-modal transit system connecting the campus
- Adjacent to Mayo Clinic Hospital Phoenix campus
- 150,000-square-foot ASU Health Futures Center
- South of Loop 101 freeway in North Phoenix between 56th and 64th Streets
- Easy highway and airport access
- Ideal co-location opportunities for companies with biomedicine, health sciences, medical technologies, big data and computational focus

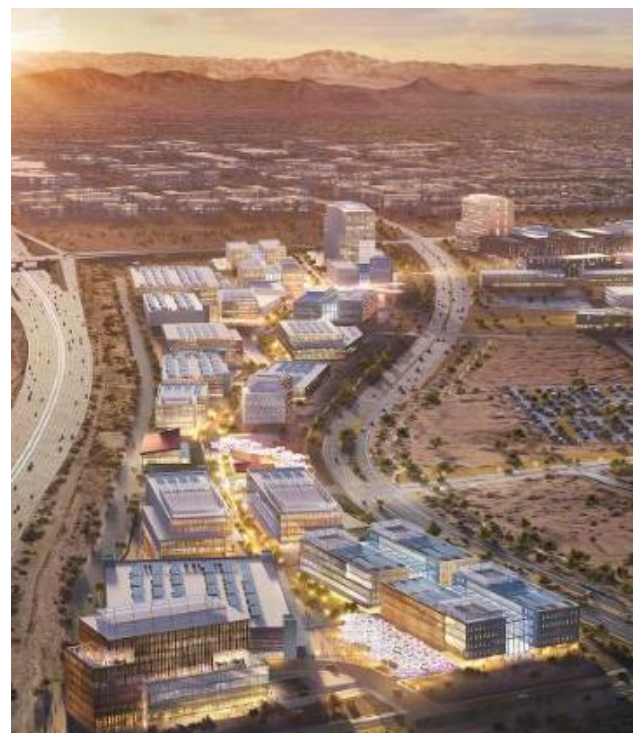


Photo credit: Discovery Oasis

For more information about the Discovery Oasis, please visit: <https://discoveryoasis.com/>

Phoenix Medical Quarter

Industry Cluster in Central Phoenix

Announced in April 2023, the Phoenix Medical Quarter is a bio-innovation district anchored by Creighton University, Barrow Neurological Institute and Phoenix Children's Hospital in and around Park Central. The designation recognizes the influx of healthcare, bioscience and biomedical education into the midtown region, including the WearTech Applied Research Center, RadNet imaging center, Alliant International University's nursing school, WCUI Smith Chason College, DMG Children's Rehabilitative Services and more.

The Barrow Neurological Institute is also undergoing significant expansion. In 2022, it officially opened the state-of-the-art Barrow Neuroplex, strengthening its position as a premier destination in the world for neurology and neurosurgery. In 2024, the new Ivy Tumor Brain Center global headquarters will open, making it the world's largest translational research center dedicated solely to brain tumor drug development and treatment.



Scottsdale Cure Corridor

Industry Cluster in the Northeast Valley

The Scottsdale Cure Corridor (SCC) is a concept designed to promote innovative activities around the concentration of the bio-life sciences sector in Scottsdale. SCC is a locale for education, research, clinical trials and patient care delivery.

Select Businesses in SCC

- Arizona Breastnet
- Arizona Oncology
- ASU Department of Biomedical Informatics
- Cereset
- CVS Caremark
- GlobalMed
- HonorHealth Research Institute
- LabCorp
- Mayo Clinic
- Southwest Medical Imaging
- St. Jude Medical
- Translational Drug Development (TD2)
- US Oncology
- West Pharmaceutical Services



West Valley Health Quarter

Industry Cluster in the West Valley

The West Valley Health Quarter is a growing center in Avondale. It runs along the I-10 from 99th Avenue west to Dysart Road between Thomas Road and Van Buren Street. Inside these eight square miles reside over 65 healthcare-related companies.

Some representative healthcare-related providers include the Copper Springs Hospital, the Phoenix Children's Southwest Specialty and Urgent Care Center and the Arizona Center for Cancer Care.

Recent Locates & Expansions

- AKOS Medical Campus
- Arizona Center for Cancer Care
- Bio Life
- Bridgewater Assisted Living
- Copper Springs Hospital
- IORA Health by Humana
- Legacy House of Arizona



For more information about AHTC, please visit: <https://avondaleedge.com/west-valley-health-quarter/>

Nationally Recognized Institutes in Greater Phoenix

Top Greater Phoenix Private Employers Across All Industries

#1

Banner Health

29,745 employees

#8

HonorHealth

9,461 employees

#9

Dignity Health

9,149 employees

#10

Mayo Clinic

8,786 employees

Banner Innovation Group

Banner Health focuses on diagnostic, treatment and prevention for diseases such as Alzheimer's, Parkinson's, cardiovascular disease, respiratory disease, infectious disease, COVID-19 and cancer. To further serve the community, the Banner Innovation Group drives new growth capabilities and technologies for the future of health, focusing on issues including healthy aging, chronic disease, mental health, wellness and healthcare accessibility.

Barrow Neurological Institute

Barrow Neurological Institute is an internationally renowned medical institution that offers care for people with brain and spinal diseases, conditions, and injuries. Routinely ranked as a best hospital for neurological surgery and neurosurgical, the institute performs more neurosurgical procedures annually than any other provider in the United States.

Dignity Health

Dignity Health employs over 9,000 people in the region and offers more than 1,000 active clinical trials to patients across Arizona, California and Nevada. In addition to supporting and providing clinical trial opportunities across its hospital and clinic enterprise, Dignity Health is home to award-winning research centers including the Dignity Health Research Institute, Barrow Neurological Institute, Norton Thoracic Institute and Dignity Health Nursing Research and Analytics.

HonorHealth Research Institute

HonorHealth has attracted some of the most distinguished physicians and researchers in the nation, while its research institute serves as a patient destination for treatments largely unavailable elsewhere. It has evolved into a multi-pronged early-phase clinical research and care facility, deploying new drug and medical device innovations.

Mayo Clinic Ventures

Mayo Clinic is a world-leading healthcare provider that has had a presence in Arizona since 1987 and expanded to include four facilities throughout Greater Phoenix. The Mayo Clinic Ventures arm is a global leader in research and technology commercialization, having brought thousands of inventions to the market since its inception.

Nonprofits Push for Biosciences in Greater Phoenix

Flinn Foundation

The Flinn Foundation is a privately endowed, philanthropic grantmaking organization established in 1965 with a mission to improve the quality of life in Arizona to benefit future generations. The Flinn Foundation offers funding to companies within the biosciences sector in Arizona. It also provides a full scholarship to high-achieving high school students bound for Arizona public universities, boosts the fiscal and creative capacity of the state's arts and culture organizations, and develops future state-level civic leaders.

Arizona Bioscience Roadmap

The Arizona Bioscience Roadmap is a long-term strategic plan originally commissioned by the Flinn Foundation in 2002 and updated in 2014 with the goal of increasing Arizona's global competitiveness in select areas of biosciences through entrepreneurship, research, talent pipeline, and regional reputation. The latest report, released in spring 2024, showcases the rapid expansion of the bioscience and medtech sectors, highlighting key updates including:

- NIH funding in 2023 hit an all-time high
- Renovation of Illume Innovation Center to become a fully lab-enabled life science facility
- Expansion of companies including Exact Sciences, Schott AG and a \$45M funding round by GT Medical Technologies
- Federal funding grants including \$10M to BNI, \$4.5M to City of Hope and TGen, and \$70M partnership between UArizona, the U.S. Dept. of Agriculture and Bridgestone Americas

Arizona Bioindustry Association (AZBio)

AZBio is a not-for-profit trade association promoting the growth of the Arizona life science sector. The association is comprised of member organizations in business, research and education, health care delivery, economic development, government, and other professions involved in the biosciences. As the unified voice of our industry in Arizona, AZBio strives to make Arizona a place where bioscience organizations can grow and succeed.



Why a Leading National Genetics Research Firm Thrives in Phoenix



Translational Genomics Research Institute

On Feb. 7, 2002, an assembly of more than 50 leaders and visionaries in science, medicine, government and business gathered at the Arizona state capitol to discuss establish a one-of-a-kind genomics research institute to situate Arizona as a key player in the new economy of the biotechnology industry. With an unprecedented cooperative spirit, the group rallied to the task of securing \$90 million in support for TGen, a fundraising mark they achieved in a five-month window. Less than a year after that initial gathering in the Governor's office, TGen began operations.

TGen is an affiliate of City of Hope. It is a Phoenix-based nonprofit medical research institute dedicated to conducting groundbreaking research with life-changing results. It works to unravel the genetic components of common and complex diseases including cancer, neurological disorders, infectious disease and rare childhood disorders. By identifying treatment options in this manner, they believe medicine becomes more rational, more precise, and more personal.

Today, TGen has grown into an institute with over 350 employees, multiple locations, hundreds of partnerships around the world, numerous groundbreaking studies and nearly 20 spinout companies. Its capacity to detect early signs of cancer continues to grow, with sequencing accuracy improving 100-fold and cost per-patient dropping 100-fold over the last decade. The new methods for early detection and increased clinical trials has improved screening, post-treatment monitoring and biopsies with low percentage of tumor present.

TGen is also creating better reference genomes, especially in underserved populations. Having better references means a better understanding of which changes in the genome are significant and to which population.

"TGen is proud to have played a key role in the establishment of the Phoenix Biomedical Campus. We are delighted to see the progress that has grown up around us, and the City of Phoenix's continuing vision for future biomedical development."

-Tess Burleson, TGen COO

For more information on TGen, please visit: <https://www.tgen.org/>

Phoenix-Based Health Tech Startups

Listed below are three examples of the type of innovative companies growing in the Greater Phoenix region.



CND Life Sciences

Headquartered in Scottsdale, CND Life Sciences develops an evidence-based tool to help confirm diagnoses of synucleinopathy. It has launched the Syn-One Test, a commercially available test to detect, visualize, and quantify the presence of abnormal, phosphorylated alpha-synuclein in cutaneous nerve fibers. In 2023, the company was named as one of the three Fast Lane Honorees by the Arizona Bioindustry Association for its innovation in the neurodiagnostics field.



Nectero Medical

Headquartered in Tempe, Nectero Medical develops a novel treatment to stabilize growth and prevent rupture of mid-sized abdominal aortic aneurysms. In April 2024, it announced the completion of a \$96M Series D funding round.



Tesis Biosciences

Headquartered in Phoenix, Tesis Biosciences' integrated medical platform is revolutionizing targeted genetic sequencing. It seeks to improve medicine by offering clinicians, hospitals and researcher tools, including advanced genetic testing, to assist patients in overcoming and preventing major chronic conditions.

Select Biosciences- and Healthcare-Focused Venture Community



AZ Innovation Challenge Winners

The Arizona Commerce Authority's annual Arizona Innovation Challenge awards \$1.5 million in total, one of the largest amounts for any challenge of its kind in the country. Below is a list of winners from the healthcare and bioscience industries in Greater Phoenix from 2022 and 2023.

Company	Winning Year	Description
DX4Liver	2023	DX4Liver offers MMP7, a patent-pending transformative, highly accurate diagnostic biomarker kit of Biliary Atresia. The test can save users up to 95% of the cost with same-day time-to-results.
Macula Vision Systems	2023	Macula Vision Systems is developing an automated computational microscopy solution that will increase efficiency and precision in microscopy testing.
CenSyn	2022	CenSyn, a pre-FDA stage medical device company, develops handheld EEG monitoring devices for accelerated screenings of Alzheimer's, traumatic brain injury and epilepsy.
Padma AgRobotics	2022	Padma AgRobotics builds AI-powered agricultural robots that help farmers increase yield and decrease costs.
Paxauris	2022	Paxauris is developing new earplug technology with the goal of providing better hearing protection for people who suffer from loud noise.
Sense Neuro Diagnostics	2022	Sense is developing non-invasive technology enabling rapid, comprehensive detection of stroke subtype + TBI and continuous brain injury monitoring.

Largest Healthcare and Bioscience Firms in Greater Phoenix

There are hundreds of healthcare and bioscience firms in Greater Phoenix. Listed below are some of the largest firms by employment.

Company	Employees
Banner Health	29,745
HonorHealth	9,461
Dignity Health	9,149
Mayo Clinic	8,786
UnitedHealth Group	4,860
Phoenix Children's Hospital	4,363
Valleywise Health	4,086
Abrazo Healthcare	3,904
McKesson Corporation	2,012
Cigna Healthcare	2,006
Laboratory Sciences of Arizona	1,965
Dexcom	1,750
Steward Health Care	1,625
W. L. Gore & Associates	1,198
Fresenius Medical Care	1,162
Hospice of the Valley	1,074
Sun Health Foundation	938
Mountain Park Health Center	934
Terros Health	921
Vitalant	881

Annual Employment

For relevant occupations in the selected regions

Occupation	Phoenix	Atlanta	Boston	Houston	Nashville
General and Operations Managers	69,359	68,317	84,434	108,159	28,954
Software Developers	29,332	40,404	50,436	20,385	8,154
Project Management Specialists	18,519	20,852	20,534	30,660	6,884
Inspectors, Testers, Sorters, Samplers, and Weighers	7,129	9,543	7,863	14,621	4,886
Clinical Laboratory Technologists and Technicians	6,908	6,459	9,929	8,190	3,220
Packaging and Filling Machine Operators and Tenders	4,487	6,217	4,255	4,366	1,187
Software Quality Assurance Analysts and Testers	2,887	4,859	5,318	3,550	1,355
Chemical Equipment Operators and Tenders	1,120	1,896	1,305	6,231	726
Medical Scientists, Except Epidemiologists	1,056	982	14,947	5,466	1,684
Biological Technicians	830	561	6,089	2,002	773
Chemists	561	710	3,604	1,756	149
Natural Sciences Managers	543	1,240	8,531	2,893	230
Chemical Technicians	336	495	1,556	3,122	228
Bioengineers and Biomedical Engineers	310	171	2,360	252	41
Biological Scientists, All Other	276	1,147	2,562	578	239
Biochemists and Biophysicists	145	86	9,787	73	38
Total (2023)	143,799	163,940	233,508	212,306	58,746
% Change (2018-2023)	54.6%	33.8%	26.5%	59.6%	53.6%

Occupation	Phoenix	New York	Raleigh-Durham	San Diego	San Francisco
General and Operations Managers	69,359	199,754	18,182	25,063	44,298
Software Developers	29,332	116,128	23,331	19,859	82,059
Project Management Specialists	18,519	63,667	9,387	11,165	22,666
Inspectors, Testers, Sorters, Samplers, and Weighers	7,129	17,334	2,618	5,426	6,018
Clinical Laboratory Technologists and Technicians	6,908	19,734	3,909	2,966	4,724
Packaging and Filling Machine Operators and Tenders	4,487	14,299	1,684	2,658	3,502
Software Quality Assurance Analysts and Testers	2,887	13,241	2,771	2,219	8,045
Chemical Equipment Operators and Tenders	1,120	8,127	948	561	726
Medical Scientists, Except Epidemiologists	1,056	8,914	2,351	4,168	5,860
Biological Technicians	830	3,387	1,952	2,741	4,071
Chemists	561	7,661	2,374	1,593	2,530
Natural Sciences Managers	543	8,407	3,997	2,901	5,173
Chemical Technicians	336	3,330	480	914	1,205
Bioengineers and Biomedical Engineers	310	832	429	492	679
Biological Scientists, All Other	276	1,774	2,594	3,571	6,060
Biochemists and Biophysicists	145	1,941	398	1,462	2,705
Total (2023)	143,799	488,530	77,405	87,760	200,321
% Change (2018-2023)	54.6%	30.1%	34.0%	21.2%	29.9%

Median Wage

For relevant occupations in the selected regions

Occupation	Phoenix	Atlanta	Boston	Houston	Nashville
General and Operations Managers	\$94,280	\$104,355	\$121,781	\$101,319	\$102,005
Software Developers	\$126,022	\$130,434	\$140,751	\$126,118	\$118,489
Project Management Specialists	\$96,940	\$102,263	\$103,462	\$97,320	\$83,505
Inspectors, Testers, Sorters, Samplers, and Weighers	\$48,700	\$42,223	\$52,797	\$45,105	\$40,862
Clinical Laboratory Technologists and Technicians	\$60,013	\$64,380	\$68,291	\$52,154	\$61,389
Packaging and Filling Machine Operators and Tenders	\$35,309	\$38,872	\$38,955	\$36,543	\$39,574
Software Quality Assurance Analysts and Testers	\$98,699	\$101,607	\$123,838	\$101,414	\$89,700
Chemical Equipment Operators and Tenders	\$39,326	\$46,993	\$55,862	\$83,462	\$40,013
Medical Scientists, Except Epidemiologists	\$99,300	\$93,366	\$130,751	\$69,100	\$85,076
Biological Technicians	\$50,715	\$49,970	\$63,152	\$50,969	\$58,948
Chemists	\$61,198	\$96,522	\$111,256	\$104,212	\$83,665
Natural Sciences Managers	\$129,404	\$118,136	\$220,528	\$107,717	\$107,175
Chemical Technicians	\$62,029	\$49,911	\$64,973	\$89,698	\$49,505
Bioengineers and Biomedical Engineers	\$115,500	\$103,043	\$104,705	\$94,843	\$73,531
Biological Scientists, All Other	\$93,640	\$86,672	\$98,302	\$81,922	\$61,549
Biochemists and Biophysicists	\$67,752	\$87,183	\$131,743	\$98,073	\$72,943

Occupation	Phoenix	New York	Raleigh-Durham*	San Diego	San Francisco
General and Operations Managers	\$94,280	\$142,354	\$119,862	\$160,335	\$143,195
Software Developers	\$126,022	\$150,852	\$134,113	\$152,589	\$176,471
Project Management Specialists	\$96,940	\$116,204	\$103,936	\$107,141	\$127,950
Inspectors, Testers, Sorters, Samplers, and Weighers	\$48,700	\$46,789	\$45,043	\$52,146	\$56,490
Clinical Laboratory Technologists and Technicians	\$60,013	\$78,618	\$59,504	\$64,022	\$79,424
Packaging and Filling Machine Operators and Tenders	\$35,309	\$37,116	\$44,336	\$37,856	\$45,655
Software Quality Assurance Analysts and Testers	\$98,699	\$120,606	\$106,147	\$110,822	\$134,219
Chemical Equipment Operators and Tenders	\$39,326	\$47,075	\$58,567	\$48,152	\$56,777
Medical Scientists, Except Epidemiologists	\$99,300	\$107,482	\$102,552	\$122,866	\$141,632
Biological Technicians	\$50,715	\$57,814	\$46,460	\$59,176	\$76,160
Chemists	\$61,198	\$87,081	\$80,588	\$105,165	\$133,429
Natural Sciences Managers	\$129,404	\$182,414	\$169,524	\$198,349	\$222,659
Chemical Technicians	\$62,029	\$60,181	\$53,485	\$61,110	\$74,100
Bioengineers and Biomedical Engineers	\$115,500	\$112,432	\$99,413	\$109,096	\$128,029
Biological Scientists, All Other	\$93,640	\$107,728	\$99,498	\$106,808	\$131,065
Biochemists and Biophysicists	\$67,752	\$106,625	\$95,900	\$119,974	\$136,641

*Average between the two MSAs

Bioscience Back Office Operation

The Annual Business Operating Cost Analysis for healthcare and bioscience back office operations has been prepared using the following parameters as an estimate for healthcare and bioscience operations in competitor markets. Component and custom analyses to match your company's operations can be provided upon request.

Assumptions

- \$1,500,000 personal property investment
- 10,000 square foot Suburban Class A, Lease
- Utilities (per month): Included in Lease
- 50 jobs (Bureau of Labor Statistics equivalent occupations)

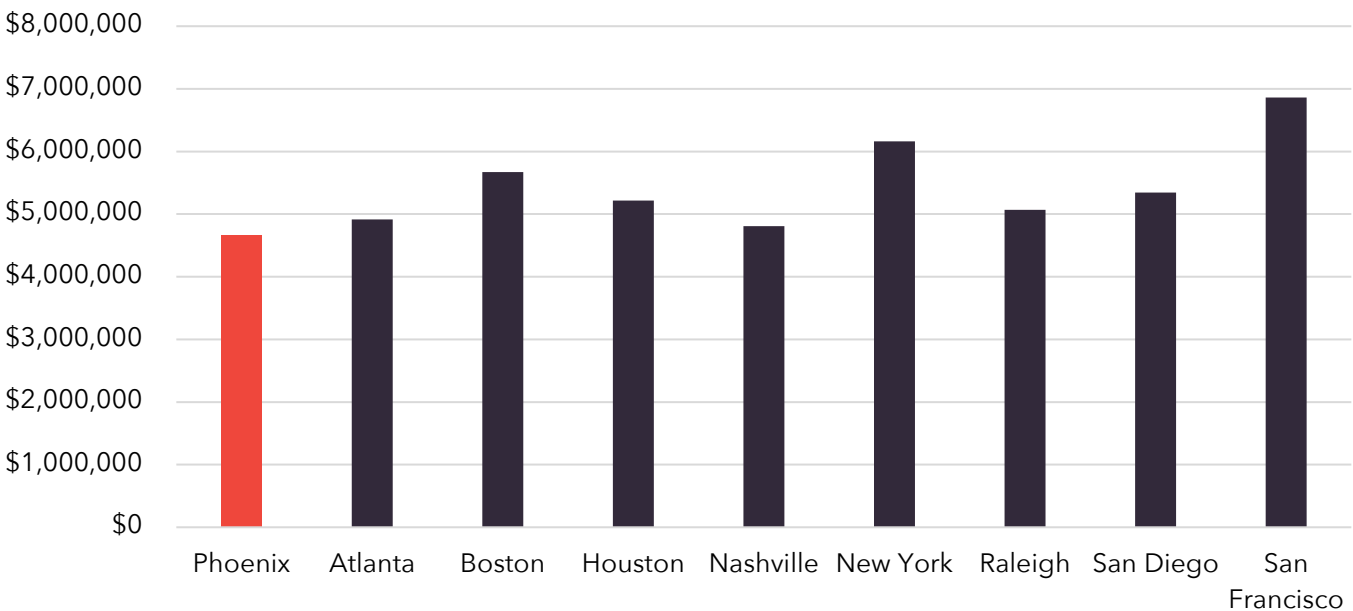
Occupations	Employment
Customer Service Representative	25
Sales Rep, Technical and Scientific Products	10
Software Developers and Software Quality Assurance Analysts and Testers	5
Computer User Support Specialists	4
First-Line Supervisors of Non-Retail Sales Workers	2
First-Line Supervisors of Office and Admin Workers	2
Human Resources Specialists	1
Sales Managers	1

Annual Operating Cost

Bioscience Back Office

Metro	Employee Payroll	Fringe and Mandated Benefits	Real Estate Payments	Property Tax	Total Operating Cost	Index
Phoenix	\$3,564,559	\$774,380	\$322,500	\$690	\$4,662,129	100.0%
Atlanta	\$3,788,202	\$828,425	\$273,000	\$23,982	\$4,913,609	105.4%
Boston	\$4,367,886	\$948,660	\$315,300	\$37,020	\$5,668,866	121.6%
Houston	\$3,979,505	\$866,948	\$334,700	\$33,973	\$5,215,126	111.9%
Nashville	\$3,611,222	\$786,585	\$393,800	\$14,643	\$4,806,250	103.1%
New York	\$4,542,820	\$1,000,342	\$617,500	\$0	\$6,160,662	132.1%
Raleigh	\$3,890,501	\$852,036	\$311,200	\$15,188	\$5,068,924	108.7%
San Diego	\$4,000,659	\$878,843	\$446,400	\$17,610	\$5,343,512	114.6%
San Francisco	\$4,945,919	\$1,083,681	\$805,200	\$27,900	\$6,862,700	147.2%

Annual Operating Cost by Region



Source: Applied Economics Metrocomp Tool, January 2024

Notes: 1. There is no personal property tax in New York. 2. The leasing term includes real property tax.

Bioscience Research Operations

The Annual Business Operating Cost Analysis for healthcare and bioscience research operations has been prepared using the following parameters as an estimate for healthcare and bioscience operations in competitor markets. Component and custom analyses to match your company's operations can be provided upon request.

Assumptions

- \$5,000,000 personal property investment
- 15,000 square foot Suburban Class A, Lease
- Utilities (per month): Included in Lease
- 40 jobs (Bureau of Labor Statistics equivalent occupations)

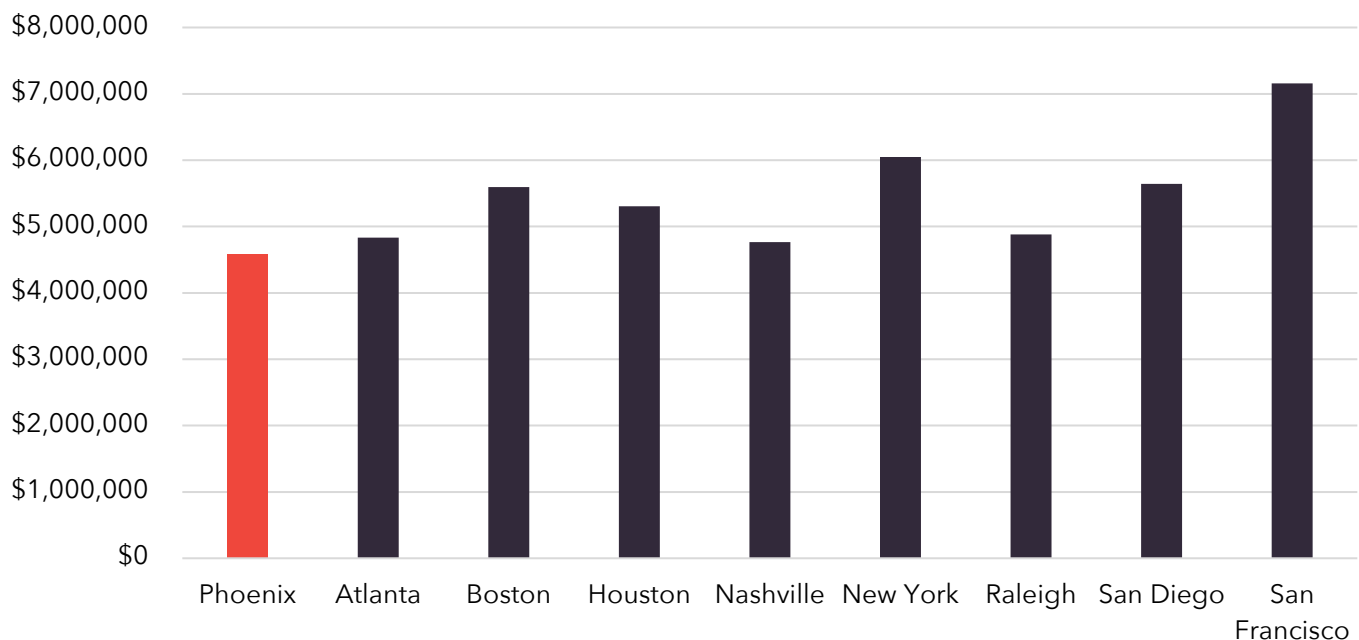
Occupations	Employment
Medical and Clinical Laboratory Technicians	15
Biomedical Engineers	10
Research Technicians	5
Sales Representative, Technical and Scientific Products	5
Chemists	2
Database Administrators	2
General and Operations Managers	1

Annual Operating Cost

Research Facilities

Metro	Employee Payroll	Fringe and Mandated Benefits	Real Estate Payments	Property Tax	Total Operating Cost	Index
Phoenix	\$3,358,174	\$741,046	\$483,750	\$2,299	\$4,585,269	100.0%
Atlanta	\$3,547,090	\$795,433	\$409,500	\$79,940	\$4,831,963	105.4%
Boston	\$4,081,744	\$915,965	\$472,950	\$123,400	\$5,594,059	122.0%
Houston	\$3,842,427	\$846,925	\$502,050	\$113,243	\$5,304,645	115.7%
Nashville	\$3,374,202	\$750,261	\$590,700	\$48,810	\$4,763,973	103.9%
New York	\$4,166,107	\$956,989	\$926,250	\$0	\$6,049,346	131.9%
Raleigh	\$3,561,963	\$800,115	\$466,800	\$50,625	\$4,879,503	106.4%
San Diego	\$3,853,436	\$1,060,992	\$669,600	\$58,700	\$5,642,728	123.1%
San Francisco	\$4,597,853	\$1,260,219	\$1,207,800	\$93,000	\$7,158,872	156.1%

Annual Operating Cost by Region



Source: Applied Economics Metrocomp Tool, January 2024

Notes: 1. There is no personal property tax in New York. 2. The leasing term includes real property tax.

Bioscience Manufacturing Operations

The Annual Business Operating Cost Analysis for healthcare and bioscience manufacturing operations has been prepared using the following parameters as an estimate for healthcare and bioscience operations in competitor markets. Component and custom analyses to match your company's operations can be provided upon request.

Assumptions

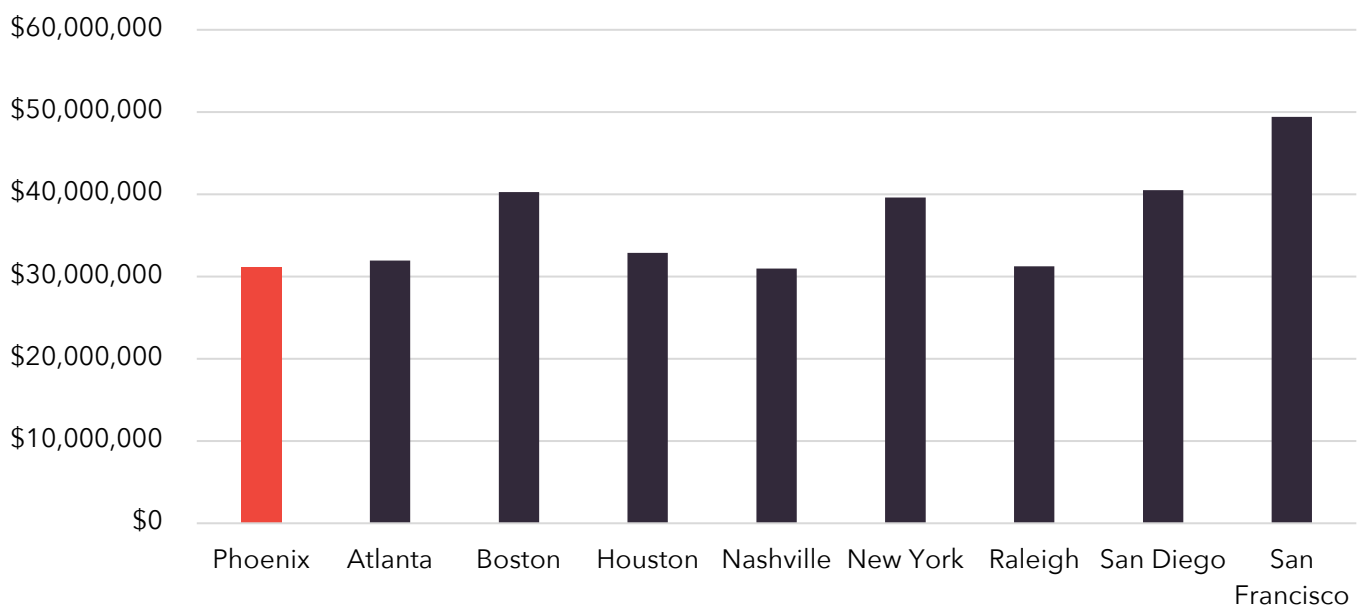
- \$25,000,000 personal property investment
- 250,000 square foot Industrial Manufacturing, Lease
- Utilities (per month):
 - Electric: 1,000KW/400,000KWh
 - Water: 50,000cf, 2 meter
 - Wastewater: 50,000cf, 2 meter
- 392 jobs (Bureau of Labor Statistics equivalent occupations)

Occupations	Employment
Medical and Clinical Laboratory Technicians	212
Inspectors, Testers, Samplers, and Weighers	55
Laborers and Material Movers, Hand	51
Packers and Packagers, Hand	51
Shipping, Receiving, and Traffic Clerks	6
Biochemists and Biophysicists	5
General and Operations Managers	5
Biomedical Engineers	3
Logisticians	2
Industrial Production Managers	1
Human Resources Specialists	1

Annual Operating Cost - Manufacturing Facilities

Metro	Employee Payroll	Fringe and Mandated Benefits	Utilities	Real Estate Payments	Property Tax	Total Operating Cost	Index
Phoenix	\$22,705,800	\$5,181,732	\$506,759	\$2,700,000	\$11,496	\$31,105,787	100.0%
Atlanta	\$23,352,714	\$5,508,269	\$549,110	\$2,152,500	\$399,700	\$31,962,293	102.8%
Boston	\$27,468,811	\$6,417,355	\$2,415,733	\$3,362,500	\$617,000	\$40,281,399	129.5%
Houston	\$24,251,386	\$5,559,841	\$683,379	\$1,800,000	\$566,215	\$32,860,821	105.6%
Nashville	\$22,863,721	\$5,243,514	\$715,932	\$1,910,000	\$244,050	\$30,977,217	99.6%
New York	\$27,422,393	\$6,758,897	\$1,064,192	\$4,370,000	\$0	\$39,615,482	127.4%
Raleigh	\$22,760,108	\$5,339,925	\$481,197	\$2,400,000	\$253,125	\$31,234,355	100.4%
San Diego	\$26,544,121	\$7,608,153	\$1,903,601	\$4,170,000	\$293,500	\$40,519,375	130.3%
San Francisco	\$31,578,620	\$9,041,354	\$1,328,897	\$6,990,000	\$465,000	\$49,403,871	158.8%

Annual Operating Cost by Region



Source: Applied Economics Metrocomp Tool, January 2024

Notes: 1. There is no personal property tax in New York. 2. The leasing term includes real property tax.

Arizona Tax Environment vs. Competitor Markets

Arizona has a very competitive tax and fringe/mandated benefits environment compared to other major healthcare and bioscience markets.

Metro	Sales Tax Rate	Corporate Income		Inventory Tax	Unemployment Insurance			Workers Comp. (Rate Per \$100 Payroll)
		State Tax Rate	Basis		Rate (As % Of Payroll)	Wage Base	Max. Weekly Benefit	
Phoenix	8.60%	4.90%	Net Income	No	2.00%	\$8,000	\$320	\$0.87
Atlanta	8.90%	5.75%	Net Income	No	2.70%	\$9,500	\$365	\$1.15
Boston	6.25%	8.00%	Net Income	Yes	1.45%	\$1,015-\$1,522	\$974	\$1.05
Houston	8.25%	0.75%	Net Income	Yes	2.70%	\$9,000	\$563	\$0.88
Nashville	9.25%	6.50%	Net Income	Yes	2.50%	\$14,000	\$370	\$1.03
New York	8.88%	7.25%	Net Income	No	4.03%	\$12,000	\$504	\$2.15
Raleigh-Durham	7.25% & 7.50%	2.50%	Net Income	No	1.00%	\$29,600	\$350	\$1.16
San Diego	7.75%	8.84%	Net Income	No	3.40%	\$7,000	\$450	\$2.26
San Francisco	8.63%	8.84%	Net Income	No	3.40%	\$7,000	\$450	\$2.26



Statutory Incentives

Statutory Incentives

Even with the highly competitive tax environment in Greater Phoenix and Arizona, there are several tax incentives that can be utilized to mitigate operating costs. Some of the most relevant to the healthcare and biosciences industries are listed below. Please note that this is not a comprehensive list of all incentives available within the state of Arizona. Additionally, it should be noted that this document is only a guide for potential incentives. Actual incentives will depend on actual project parameters and varying program qualifications and requirements as determined by the Arizona Commerce Authority.

Quality Jobs Tax Credit

This program provides tax credits to employers creating a minimum number of net new quality jobs and making a minimum capital investment in Arizona. The Quality Jobs Tax Credit offers up to \$9,000 of Arizona income or premium tax credits over a three-year period for each net new quality job. The tax credit is equal to \$3,000 per qualified employment position, employed for each full taxable year of continuous employment for three years. If the allowable tax credit exceeds the income or premium tax liability, any unused amount may be carried forward for up to five consecutive taxable years. Employers must cover 65% of employee health insurance premium costs. Additional program qualifications are listed below.

\$9K

\$9,000 corporate income
tax credits per job
(\$3,000/employee/year)

10K

Capped at 10,000
jobs per year

65%

Employer must offer to pay at
least 65% of employee health
insurance premium

Urban

Min. New Jobs	County Median Wage	Maricopa	Min. Capex
25	100%	\$46,331	\$5,000,000
25	125%	\$57,914	\$2,000,000
25	150%	\$69,497	\$1,000,000
25	200%	\$92,662	\$500,000

Rural

Min. New Jobs	County Median Wage	Pinal	Min. Capex
5	100%	\$43,680	\$1,000,000
5	125%	\$54,600	\$500,000
5	150%	\$65,520	\$100,000

Statutory Incentives

Qualified Facility Tax Credit

- Targets headquarters or manufacturing facilities, including manufacturing-related research and development
- Offers refundable income tax credit equal to the lesser of:
 - 10% of the qualifying capital investment, or
 - \$20,000 per net new full-time employment position at the facility, or
 - \$30,000,000 per taxpayer
- Requires annual wages of greater than 125% of the state median wage for production occupations in urban areas (\$49,274); 100% in rural areas (\$39,419)
- At least 65% of benefits package covered by employer
- Minimum capital investment of \$250,000

Foreign Trade Zones (FTZ)

- Designated areas where imports can be stored without full customs formalities
- In Arizona, property is reclassified from Class 1 to Class 6, lowering assessment ratio from 17.5% to 5%
- Property tax savings of up to 71.4%

HB2822

This legislation sets the full cash value of business and agricultural personal property initially classified during or after Tax Year 2022 to 2.5% of the property's acquisition cost. Properties that can benefit from the new legislation include shopping centers, golf courses, manufacturers, and other personal property devoted to commercial or industrial use that is not classified elsewhere, agricultural property, and personal property in a FTZ or MRZ.



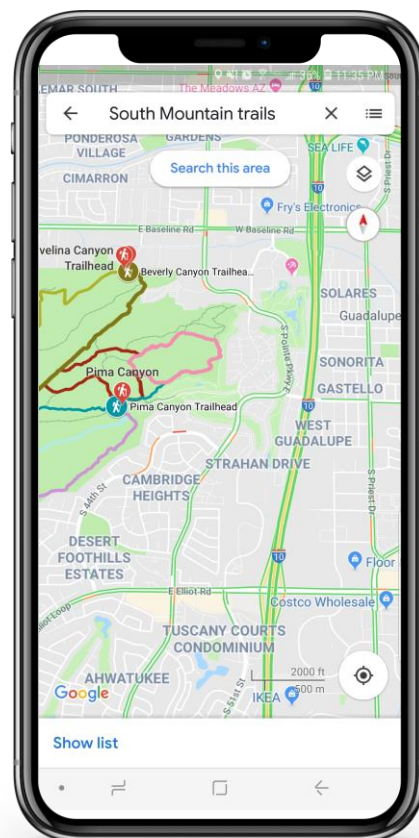


LIFESTYLE & LIVABILITY

Quality of Life

Parks & Recreation

Greater Phoenix is home to hundreds of parks and hundreds of miles of hiking, biking and walking trails. The region is home to the largest municipal park in the United States, South Mountain Park/Preserve (SMP). SMP covers more than 16,000 acres. Other large parks in the region include the White Tank Mountain Regional Park, Camelback Mountain, Piestewa Peak and the Superstition Mountains. Notable walking trails in the region include the canal system, Tempe Town Lake, the Greenbelt and Papago Park.



Cost of Living

Greater Phoenix is more affordable for companies and the people that make them successful. Across all major buckets of expenses, Greater Phoenix is less expensive than many peer markets.

Metro	Groceries	Utilities	Transportation	Health Care	Misc. Goods and Services	Composite Index	Local Index
Phoenix	104.6	98.1	103.9	93.9	93.2	101.7	100.0%
Atlanta	101.1	83.4	101.6	106.9	100.3	98.0	96.4%
Boston	105.9	138.5	117.6	115.3	116.7	148.0	145.5%
Houston	99.5	100.0	94.3	95.5	103.6	95.3	93.7%
Nashville	99.3	108.3	90.1	91.9	96.4	99.6	97.9%
New York (Manhattan)	112.7	104.9	115.4	130.1	126.0	227.8	224.0%
Raleigh-Durham*	100.5	89.8	91.0	108.1	98.3	99.9	98.2%
San Diego	117.3	104.3	126.0	103.0	112.4	141.7	139.3%
San Francisco	122.4	141.3	133.4	126.1	119.7	169.5	166.7%

*Average between Raleigh, Durham and Chapel Hill

Source: C2ER 2023 Q3 COLI

Housing

Greater Phoenix's housing market remains affordable relative to competing markets.

Metro	Median Home Value	Index	Median Rent	Index
Phoenix	\$448,225	100.0%	\$1,876	100.0%
Atlanta	\$371,766	82.9%	\$1,903	101.4%
Boston	\$652,944	145.7%	\$2,919	155.6%
Houston	\$300,667	67.1%	\$1,659	88.4%
Nashville	\$429,071	95.7%	\$1,865	99.4%
New York	\$624,788	139.4%	\$3,200	170.6%
Raleigh-Durham*	\$415,151	92.6%	\$1,750	93.3%
San Diego	\$894,751	199.6%	\$3,035	161.8%
San Francisco	\$1,108,117	247.2%	\$3,033	161.7%

*Average between Raleigh and Durham

Source: Zillow Home Value Index, November 2023; Zillow Rental Index, November 2023

Personal Income Tax

Greater Phoenix has the lowest personal income tax of states that have a personal income tax across all income levels. With its affordable cost of living and low taxes rates, income goes further in Greater Phoenix.

State	\$50,000	\$150,000	\$270,000	\$500,000	\$1 Million or More
Arizona	2.50%				
California					
Georgia*	5.75%				
Massachusetts	5.00%				9.00%
New York	5.50%	6.00%	6.85%	6.85%	9.65%
North Carolina	4.75%				
Tennessee	N/A				
Texas	N/A				

*Above \$7,000 of income

Source: Tax Foundation 2023

Notes: Tax rates are for single filers

Tax Rankings

Greater Phoenix's tax environment remains favorable relative to competing markets.

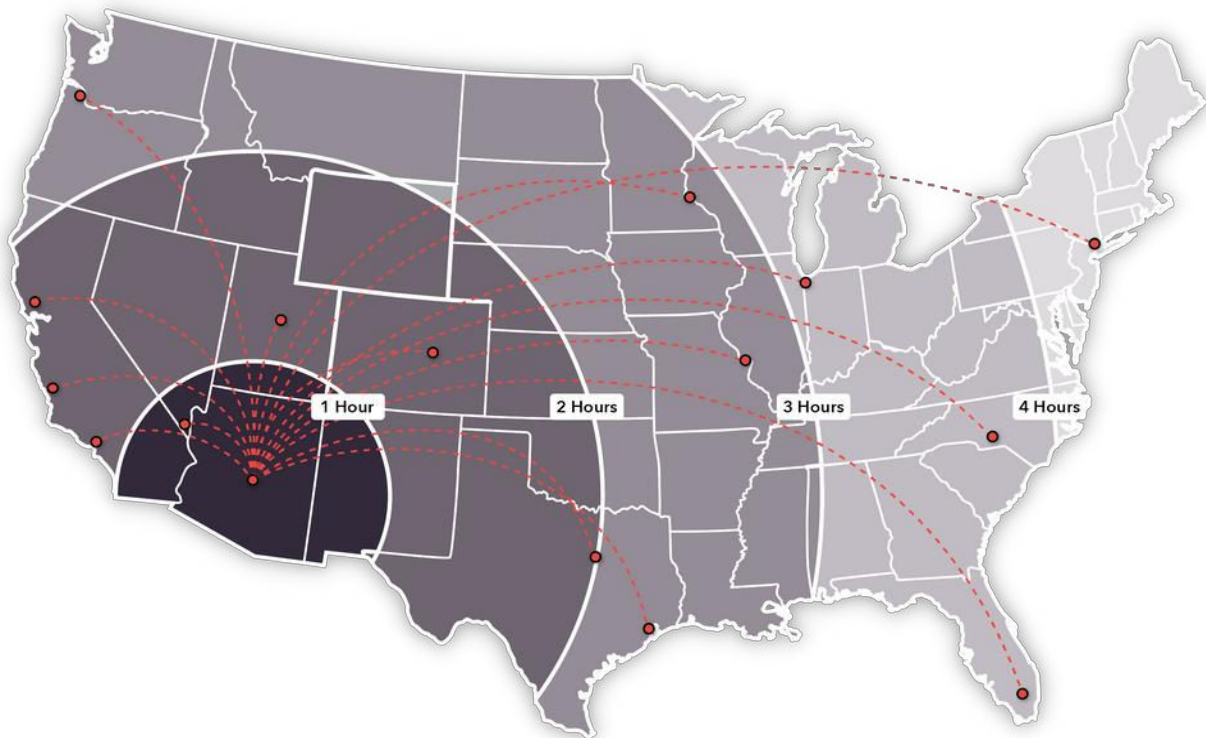
State	Corporate	Individual Income	Sales	Property	Unemployment Insurance	Overall
Arizona	22	9	41	11	10	14
California	45	49	47	22	30	48
Georgia	9	35	28	28	34	32
Massachusetts	36	44	14	47	50	46
New York	24	50	42	49	39	49
North Carolina	5	15	20	12	6	9
Tennessee	42	6	46	33	20	15
Texas	46	7	37	39	8	13

Source: Tax Foundation 2024

Greater Phoenix Airport Access

Skybridge at Mesa Gateway Airport:

- The air logistics hub to ship high-value goods directly to consumers through a bonded facility incorporating Mexican and U.S. customs will be the first of its kind in the interior U.S. for air freight activities.
- Ideally situated within the Southwestern U.S. to not only meet growing manufacturing and airport logistics demands in the Phoenix metropolitan area but also to serve as a direct carrier to and from consumers in Mexico and across the nation.
- The proximity to Arizona State University's Polytechnic Campus creates opportunities for partnerships to attract and retain workforce talent within the airport.



Phoenix Sky Harbor International Airport (PHX):

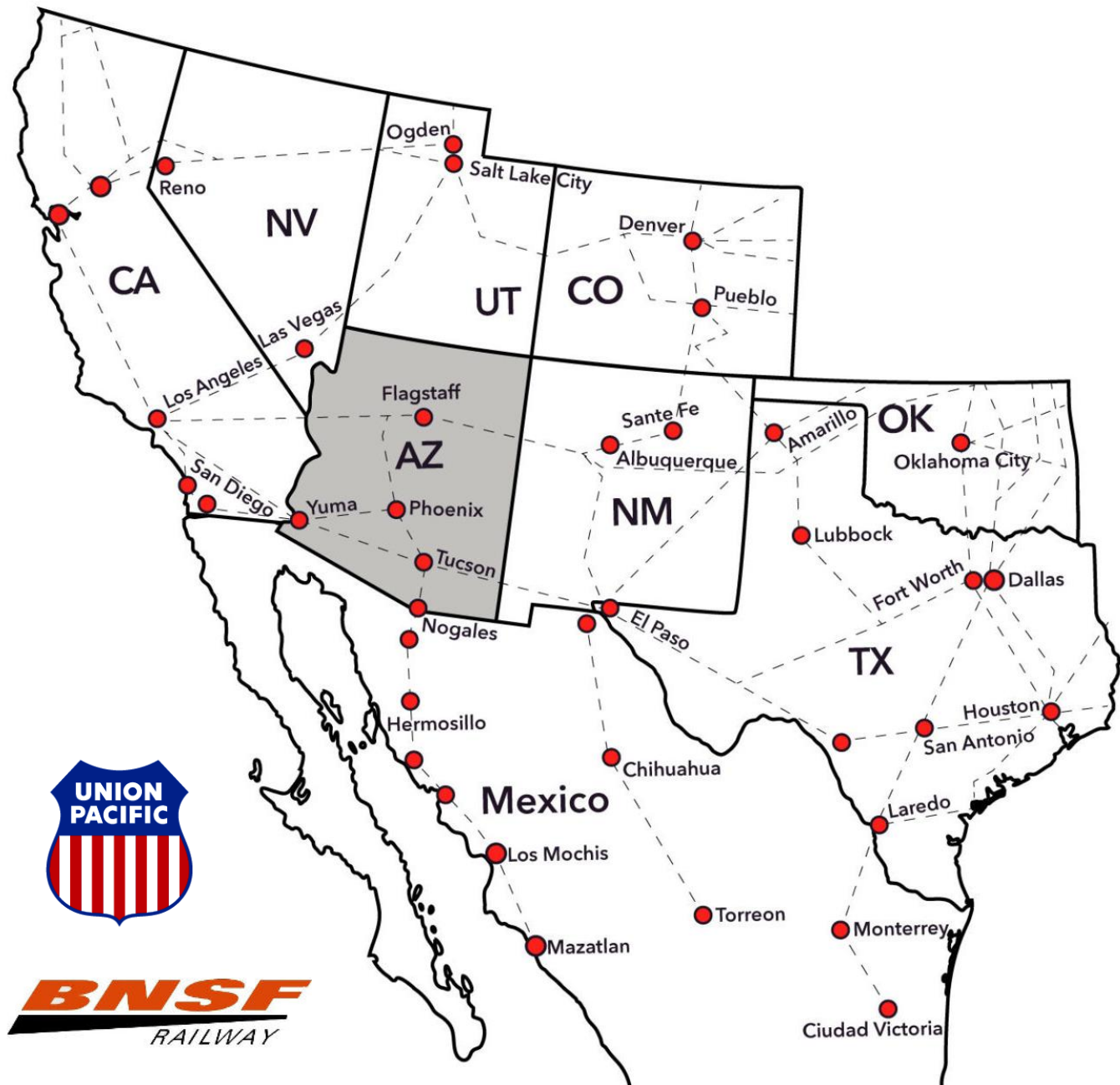
- 44 million passengers in 2022
- 418,856 landings and takeoffs in 2022
- Over 1,000 tons of cargo handled daily

Cargo Community at PHX:

- | | |
|---------------------|-----------------------------------|
| • ABX | • Southwest Airlines |
| • American Airlines | • Swissport Cargo |
| • DHL | • UPS |
| • FedEx | • West Air Cargo |
| • South Air Cargo | • Worldwide Flight Services (WFS) |

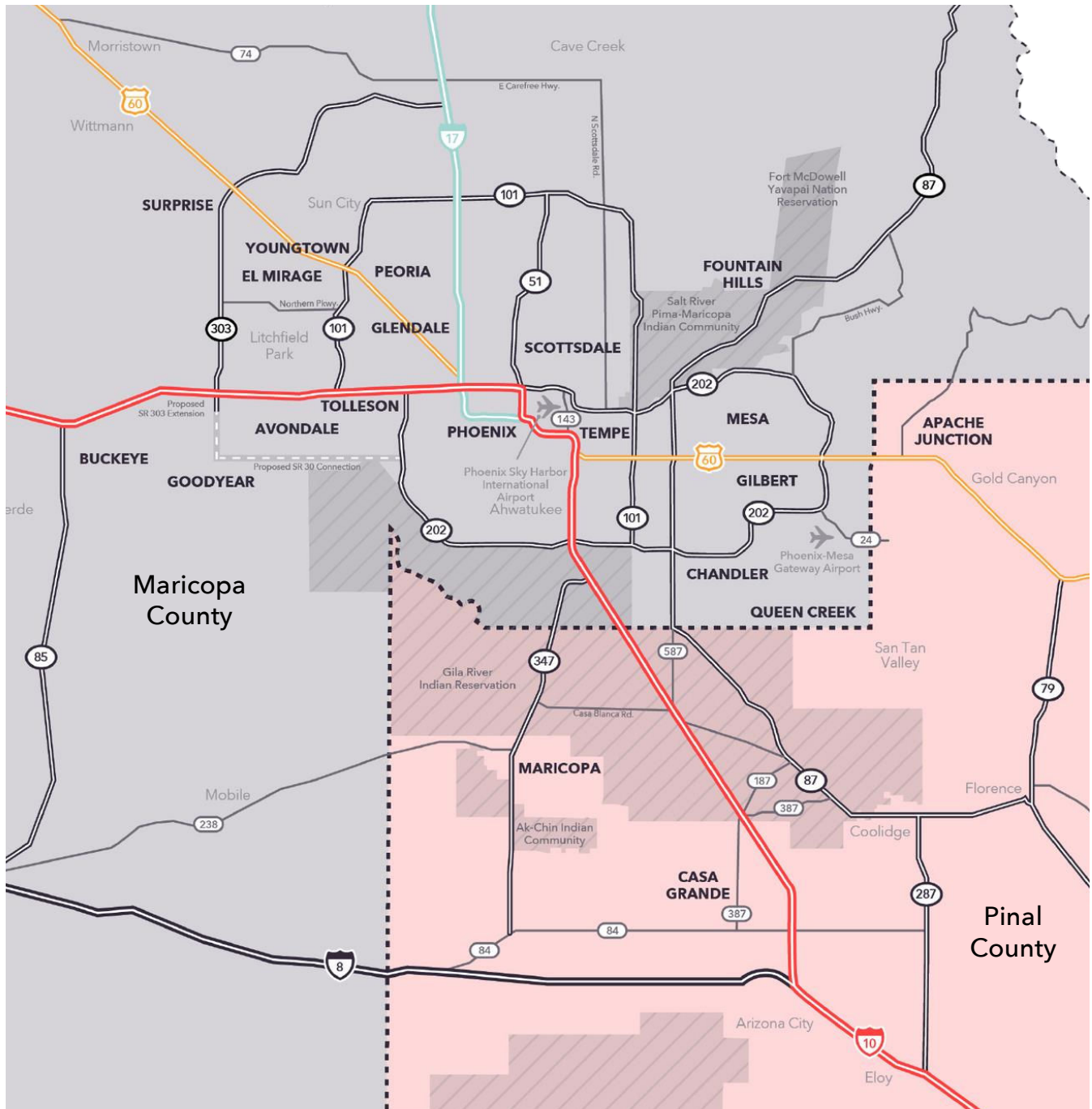
Regional Rail Access

Greater Phoenix is served by two major railroads, Union Pacific and BNSF. The map below displays all major rail lines throughout the Southwest.



Greater Phoenix Regional Highway Map

The map below displays existing and planned highway infrastructure in Greater Phoenix. The region's highways are well-planned and provide easy access to all the major submarkets in the region, including close proximity to Interstates 8 and 40 that provide seamless access to California markets.



Rankings & Recognition

#1

Maricopa County's population size grew the most amount among all U.S. counties, according to the 2022 Census

#1

Arizona State University has been named America's Most Innovative School nine years in a row by U.S. News & World Report

#1

Sky Harbor International Airport ranked 1st in the Wall Street Journal's "Best Large U.S. Airports 2023"

#2

In 2022, Arizona ranked as the second-best state for wellness by Life Extension

#4

Greater Phoenix was ranked the fourth-strongest economy in 2022 by the Milken Institute

#5

In 2024, Arizona and Greater Phoenix ranked fifth for sustainability by Site Selection Magazine

Top 20

In 2024, Chandler, Gilbert and Scottsdale were listed in the top 20 for best cities to raise a family

Top Tier

APS and SRP rank as top business service providers by J.D. Power and Associates for satisfaction

Greater Phoenix Greater Together