Greater Phoenix
Data Center
Ecosystem

Greater Phoenix Economic Council

Value Proposition
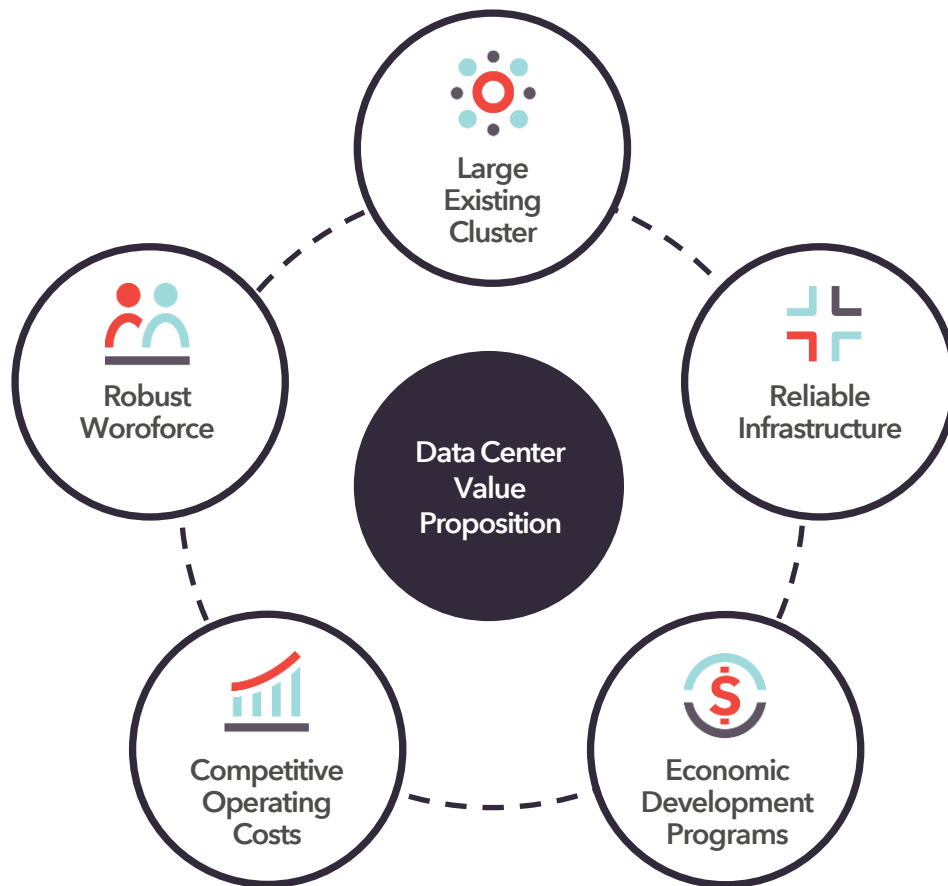
Large Existing Cluster	Robust Workforce	Competitive Operating Costs	Economic Development Programs	Reliable Infrastructure
• Fifth-largest market in the US by inventory in megawatts • Colocations in market from industry leaders such as Digital Realty Trust, CyrusOne and Iron Mountain • Enterprise users include Apple, GoDaddy and Microsoft	• Over 185,000 jobs in relevant occupations • Labor costs are thousands of dollars less per employee per year compared to peer markets • Completions in relevant degree programs increased 24% from 2016-2021	• Operating costs up to 35% lower than peer markets • Competitive pricing on electricity • Right-to-work state • Substantially lower corporate income tax rates in Arizona	• Sales tax and use tax exemptions for up to 20 years • $9,000 of corporate income tax credits per job • Additional depreciation greatly reduces property tax liability	• One of the most dependable electric grids in the nation • Low risk of natural disasters leading to fewer days with significant weather interruptions • Large network of fiber

Develop Your Business in Greater Phoenix

One of the top data center hubs in the nation

Greater Phoenix is the fifth-largest data center market in the U.S., with almost 600 megawatts of existing inventory made up of colocations such as Digital Realty Trust, CyrusOne and Iron Mountain. The region's industry is also made up of key enterprise users such as Apple, GoDaddy, and Microsoft. With over 250 megawatts of additional inventory planned for the near future and incoming enterprises including Google announced, the market growth shows no signs of slowing down.

Here are just a few reasons why data centers operations thrive in Greater Phoenix:

- Large and talented workforce with a significant education pipeline to keep up with workforce needs

- Competitive operating cost and tax environment with several available incentives

- One of the most reliable electrical grids in the nation coupled with lower electricity costs than major markets

Industry Cluster

Colocations in Greater Phoenix

Many major players in the colocation space have brought operations to Greater Phoenix. Below are some of the companies with data centers in the region.

Industry Cluster

Enterprise Data Centers in Greater Phoenix

In addition to numerous colocations, Greater Phoenix is home to a number of enterprise data centers. Below are some of the companies operating in Greater Phoenix.

Operating Cost Analysis

Data Center - Enterprise

In addition to be being one of the largest data center markets in the nation, Greater Phoenix also offers competitive operating costs compared to key markets. The following assumptions are based on a typical enterprise data center project.

Assumptions

- $150,000,000 personal property investment
- 300,000 square foot High Tech, Construction
- 150 acres
- Utilities (per month):
    - Electricity: 20,000KW, 6,000,000KWh
    - Water/Wastewater: 500,000cf, 4 meter
- 50 jobs (Bureau of Labor Statistics equivalent occupations)

Occupations	Employment
Computer Programmers	15
Software Developers, Systems Software	10
Information Security Analysts	8
Computer Systems Analysts	8
Database Administrators	3
Network and Computer Systems Administrators	2
Computer Network Architects	2
General and Operations Managers	1
Computer and Information Systems Managers	1
Total	**50**

Operating Cost Analysis

Annual Operating Cost

Metro	Employee Payroll	Benefits	Utilities	Real Estate	Property Tax	Total Operating Cost	Index
Phoenix	$5,297,450	$1,146,952	$6,995,319	$9,839,728	$1,696,035	$24,975,483	**100.0%**
Atlanta	$5,747,738	$1,250,313	$7,300,680	$8,025,974	$3,586,703	$25,911,409	**103.7%**
Dallas-Fort Worth	$5,948,117	$1,289,806	$7,067,053	$9,751,652	$5,442,252	$29,498,880	**118.1%**
San Jose	$7,957,416	$1,736,272	$9,276,109	$12,777,451	$3,268,451	$35,015,700	**140.2%**
Washington, D.C.	$6,468,603	$1,402,253	$11,112,819	$10,218,751	$6,660,173	$35,862,599	**143.6%**

Annual Operating Cost by Region
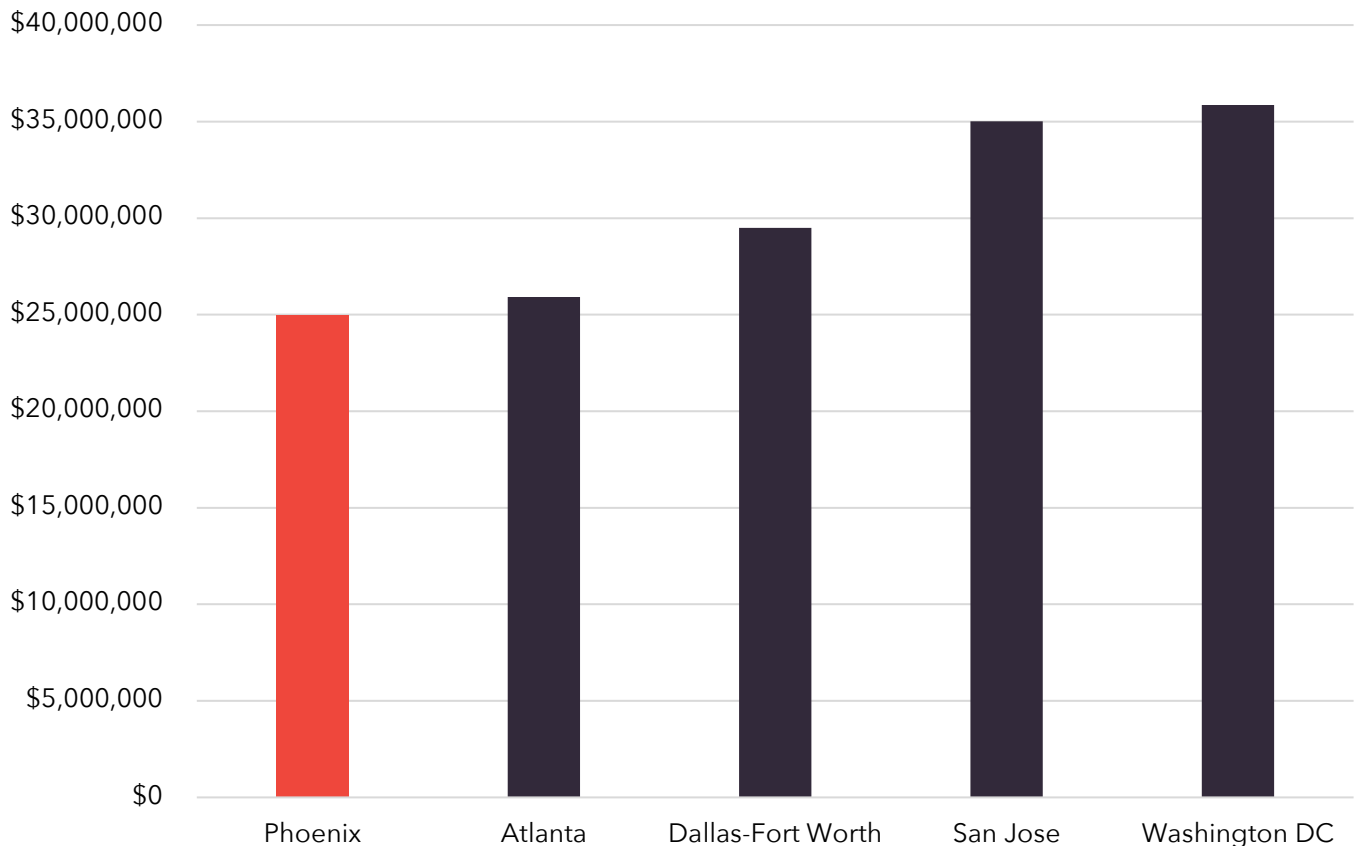
Operating Cost Analysis

Data Center - Colocation

In addition to be being one of the largest data center markets in the nation, Greater Phoenix also offers competitive operating costs compared to key markets. The following assumptions are based on a typical colocation data center project.

Assumptions

- $50,000,000 personal property investment
- 100,000 square foot High Tech, Purchase
- Utilities (per month):
  - Electricity: 5,000KW, 2,500,000KWh
  - Water/Wastewater: 50,000cf, 2 meter
- 20 jobs (Bureau of Labor Statistics equivalent occupations)

Occupations	Employment
Software Developers, Systems Software	7
Information Security Analysts	6
Computer Systems Analysts	4
Network and Computer Systems Administrators	2
Computer and Information Systems Managers	1
Total	**20**

Operating Cost Analysis

Annual Operating Cost

Metro	Employee Payroll	Benefits	Utilities	Real Estate	Property Tax	Total Operating Cost	Index
Phoenix	$2,111,406	$457,152	$2,798,078	$2,040,578	$360,414	$7,767,629	**100.0%**
Atlanta	$2,292,881	$498,787	$2,886,502	$1,781,457	$1,063,202	$8,522,830	**109.7%**
Dallas-Fort Worth	$2,371,411	$514,239	$3,012,821	$1,921,815	$1,535,385	$9,355,671	**120.4%**
San Jose	$3,176,692	$693,149	$3,613,363	$4,685,773	$1,137,612	$13,306,589	**171.3%**
Washington, D.C.	$2,577,491	$558,763	$4,497,915	$2,288,903	$2,049,300	$11,972,371	**154.1%**

Annual Operating Cost by Region
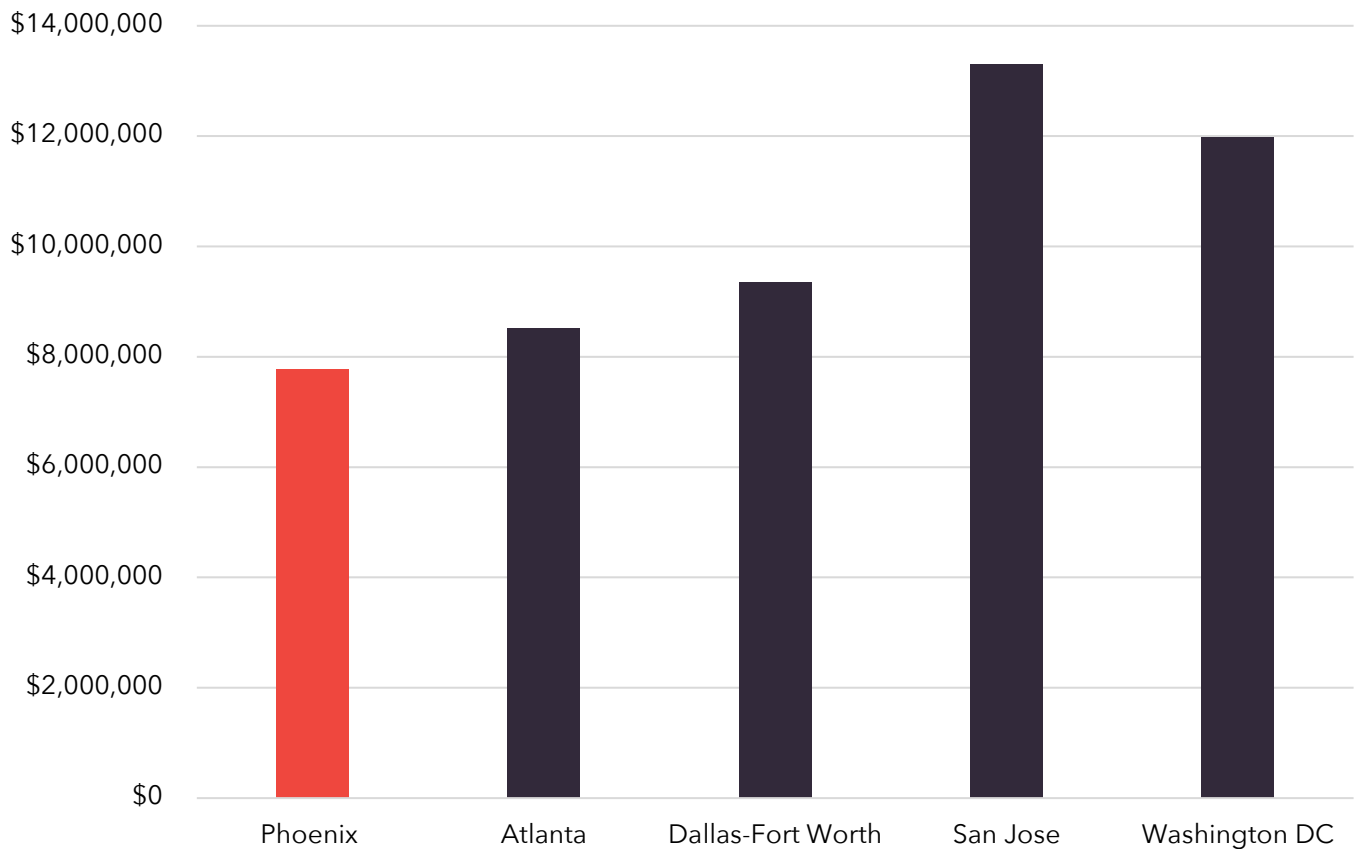
Operating Cost Analysis

Utilities

Greater Phoenix is competitive when it comes to cost of utilities compared to competitor markets.

Metro	Electricity (per kWh)*	Water (per 1000cf)	Wastewater (per 1000cf)
Phoenix	$0.0787	$21.08	$26.07
Atlanta	$0.0672	$54.96	$139.46
Dallas-Fort Worth	$0.0638	$27.36	$45.30
San Jose	$0.1855	$100.49	$57.18
Washington DC	$0.1033	$32.73	$61.85

*By state

Source: Applied Economics Metrocomp Tool, 2023; Energy Information Administration, November 2023

Arizona Tax Environment vs. Competitor Markets

Arizona has a very competitive tax and mandated benefits environment compared to peer markets.

Metro	Sales Tax Rate	Property Tax Rate	Corporate Income		Unemployment Insurance			Workers Comp. (Rate per $100 Payroll)
			Tax Rate	Bases	Rate (as % of Payroll)	Wage Base	Max. Payment	
Phoenix	8.60%	1.79%	4.90%	Net Income	2.00%	$8,000	$320	$0.87
Atlanta	8.90%	1.60%	5.75%	Net Income	2.70%	$9,500	$365	$1.15
Dallas-Fort Worth	8.25%	2.26%	0.75%	Taxable Margin	2.70%	$9,000	$563	$0.88
San Jose	8.84%	1.22%	9.38%	Net Income	3.40%	$7,000	$450	$2.26
Washington DC	6.00%	1.65%	8.25%	Net Income	2.70%	$9,000	$444.00	$0.95

Source: Applied Economics Metrocomp Tool, 2023; Tax Foundation, 2023; Various state revenue departments, 2023; Oregon Dept. of Consumer and Business Services, "Workers' Comp. Premium Rate Ranking", 2022; U.S. DOL, "Significant Provisions of State Unemployment Insurance Laws", January 2023.

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. Please note that this is not a comprehensive list of all incentives available. Actual incentives will depend on project parameters and program qualifications and requirements as determined by the Arizona Commerce Authority.

Computer Data Center Program

An owner, operator or qualified co-location tenant of a data center receives sales tax and use tax exemptions for up to 10 calendar years following the year certification of the data center was issued or up to 20 full calendar years for qualified Sustainable Redevelopment Project. To qualify, a minimum capital investment must be made within five years of the of the date of certification.

- Maricopa County - $50 million minimum capital investment
- Pinal County - $25 million minimum capital investment
- Greenfield, regardless of location - $200 million minimum capital investment

Quality Jobs Tax Credit

The Quality Jobs Tax Credit program awards $9,000 of tax credits over three years for qualifying companies. The chart below highlights minimum qualifying capital expenditure and wage rate, while the texts describe additional program parameters.

- $9,000 corporate income tax credit per job ($3,000/employee/year)
- Capped at 10,000 jobs per year
- 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%	$45,927	$5,000,000
25	125%	$57,409	$2,000,000
25	150%	$68,891	$1,000,000
25	200%	$91,854	$500,000

Rural

Min. New Jobs	County Median Wage	Pinal	Min. Capex
5	100%	$38,712	$1,000,000
5	125%	$48,390	$500,000
5	150%	$58,068	$100,000

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.

Source: Arizona Commerce Authority

Key Infrastructure

Power Reliability

Arizona is known for its reliable access to power with few major disturbances or outages, one of the many reason companies choose to locate in Greater Phoenix.

State	Power Grid Reliability Rank (out of 50)	Major Disturbances and Unusual Occurrences, 2022
Arizona	9	0
Georgia	29	10
Texas	38	23
California	35	16
Virginia	42	3

Source: U.S. News and World 2023; U.S. Energy Information Administration

Natural Disasters

The table below shows the weather and climate disasters from 1980-2023 that exceeded $1B in damages.

| State	Total Events	National Rank	Total Costs (Millions)	National Rank
Arizona	33	12	$9,985.1	14
Georgia	121	49	$45.104.4	37
Texas	170	50	$401,768.6	50
California	46	22	$150,760.1	47
Virginia	106	42	$24,155.9	25

Source: NOAA, 2023

Key Infrastructure

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 data center 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.
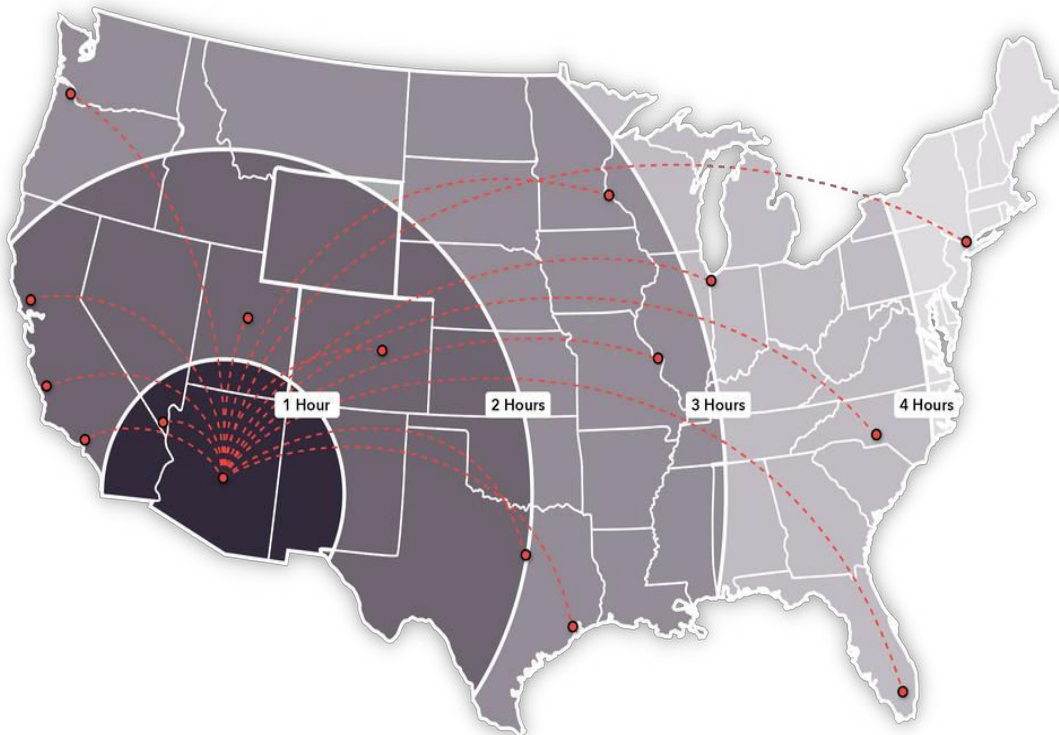
Phoenix Sky Harbor International Airport:

- 44 million passengers in 2022
- Over 1,200 daily domestic and international flights
- Over 1,000 tons of cargo handled daily

Major Cargo Carriers from Sky Harbor:

- Alaska Airlines
- Amazon Prime Air
- American Airlines
- British Airways
- Delta Airlines
- DHL
- FedEx
- Southwest Airlines
- United
- UPS

Water Innovation

While the state has maintained a well-managed water supply over the last century, Arizona continues to aggressively invest in its multi-faceted portfolio of water supplies and advanced programs for managing groundwater.

$4B

Approved through the Inflation Reduction Bill to compensate farmers who voluntarily reduce their water deliveries under short-term or multi-year agreements.

$1.2B

Approved by the legislature as part of former Ariz. Gov. Doug Ducey's water package to boost long-term water supply and conservation efforts.
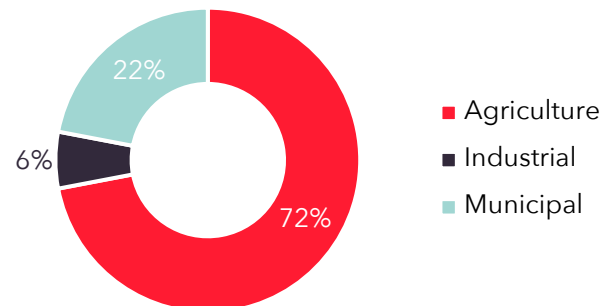

Water Sources:

Arizona has four primary water sources and relies less on the Colorado River than neighboring states.

- 5%
- 18%
- 41%
- 36%

■ Groundwater
■ Colorado River
■ In-State Rivers
■ Reclaimed
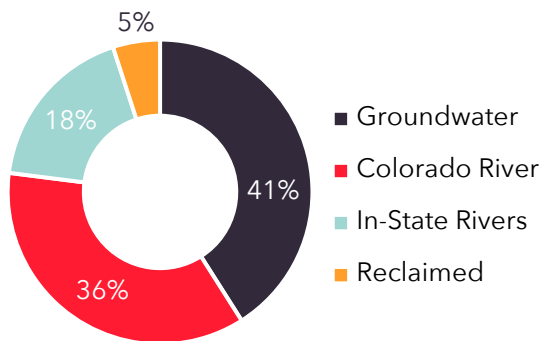
Water Consumption:

Only 6% of water goes to industrial and manufacturing ecosystems.

- 22%
- 6%
- 72%

■ Agriculture
■ Industrial
■ Municipal

Notable Investment:

The Arizona Water Innovation Initiative $40 million grant supports the development of immediate, actionable and evidence-based solutions to secure the state's future water supply.

Areas of research and development include:

- Coastal water desalination
- Water-efficient agricultural operations
- Water treatment and reuse technology that supports energy production and microchip manufacturing
- New designs for urban water conservation

University Alignment

Greater Phoenix Talent Pipeline

Presented below are Greater Phoenix universities' non-distance program completions for the 2021-2022 school year for computer science and IT-related degrees. As highlighted in the chart, Greater Phoenix's education pipeline is competitive with other key markets. Many companies in these industries enjoyed easy hiring thanks to a quality workforce pipeline and the region's excellent quality of life driving additional talent to choose to relocate to the region.

Certificate	Associate	Bachelor	Master	Doctor
369	259	1,212	504	85

Degree Completions by Metro Area

Source: Lightcast 2023 Q4 Dataset
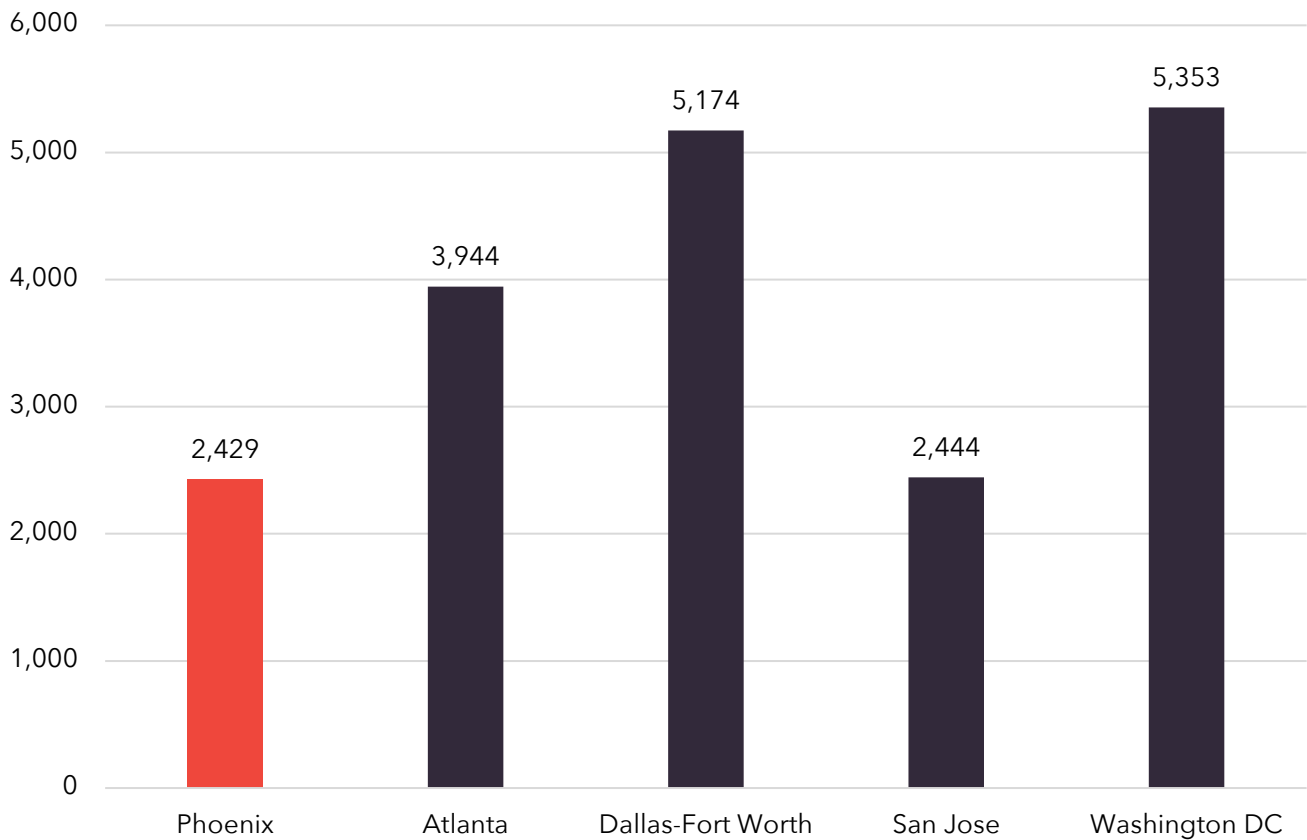
Talent Pipeline

Notable Programs in Software and IT-related Fields

Arizona State University

Arizona State University (ASU) is committed to partnering with corporate, education and government organizations to produce a skilled software and IT workforce. ASU has the largest engineering school in the nation, with over 31,000 students enrolled.

- Information technology
- Computer systems engineering
- Computer science

University of Arizona

The University of Arizona is committed to partnering with government and corporations to train job-ready students.

- Computer science
- Management information systems with emphasis in information assurance
- Cyber operations
- Enterprise security certificate

Grand Canyon University

Grand Canyon University is a private Christian university committed to training the next generation of working professionals.

- Computer programming
- Computer science with an emphasis in big data analytics
- Information technology
- Arizona Cyber Warfare Range facility

Labor Analysis

Labor Pool

The table below shows employment for the following occupations in the selected metros.

Occupation	Phoenix	Atlanta	Dallas-Fort Worth	San Jose	Washington D.C.
General and Operations Managers	68,601	69,096	127,293	18,467	101,216
Software Developers	29,725	42,223	51,348	83,577	69,940
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	19,571	27,336	33,513	13,050	30,729
Computer User Support Specialists	18,191	18,756	25,057	7,685	18,768
Computer Systems Analysts	11,948	11,728	18,071	8,970	19,904
Computer and Information Systems Managers	9,637	11,653	21,691	20,070	19,062
Network and Computer Systems Administrators	4,688	6,665	11,145	4,073	13,853
Computer Occupations, All Other	3,780	11,463	18,999	14,840	38,903
Computer Network Architects	3,510	5,523	6,028	3,646	9,851
Information Security Analysts	2,967	4,221	6,486	3,901	16,894
Software Quality Assurance Analysts and Testers	2,911	3,900	8,291	9,235	8,596
Computer Programmers	2,125	1,694	3,738	3,181	3,863
Computer Network Support Specialists	1,985	4,111	4,067	1,406	7,322
Database Administrators	1,675	2,318	2,803	1,012	4,540
Web Developers	1,328	1,073	1,850	985	4,481
Web and Digital Interface Designers	1,131	2,390	2,500	3,748	3,437
Database Architects	969	2,403	2,675	861	5,552
Computer Hardware Engineers	449	1,299	1,366	10,123	3,065
Total	**185,191**	**227,851**	**346,921**	**208,829**	**379,977**

Source: Lightcast 2023 Q4 Dataset

Labor Analysis

Median Wage

Greater Phoenix has a robust supply of human capital at an affordable cost. Below is a table of median wages across peer markets for relevant occupations.

Occupation	Phoenix	Atlanta	Dallas-Fort Worth	San Jose	Washington D.C.
General and Operations Managers	$86,732	$97,184	$93,309	$154,974	$141,557
Software Developers	$111,874	$122,543	$122,111	$193,208	$137,249
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	$59,928	$58,472	$62,088	$100,410	$75,843
Computer User Support Specialists	$59,395	$59,944	$55,665	$77,190	$68,226
Computer Systems Analysts	$105,141	$103,949	$106,187	$151,028	$116,016
Computer and Information Systems Managers	$158,974	$167,295	$161,946	$222,465	$180,455
Network and Computer Systems Administrators	$88,608	$102,798	$87,718	$140,599	$114,582
Computer Occupations, All Other	$85,036	$93,127	$86,352	$162,372	$132,166
Computer Network Architects	$124,318	$133,439	$135,090	$185,450	$141,015
Information Security Analysts	$109,893	$121,502	$125,287	$158,766	$136,413
Software Quality Assurance Analysts and Testers	$86,244	$101,876	$96,826	$154,989	$109,680
Computer Programmers	$73,767	$94,294	$96,770	$141,763	$113,743
Computer Network Support Specialists	$66,219	$75,837	$75,526	$91,118	$86,491
Database Administrators	$106,767	$101,594	$108,928	$133,211	$106,736
Web Developers	$58,646	$83,251	$83,327	$130,306	$104,342
Web and Digital Interface Designers	$76,722	$91,823	$84,589	$223,351	$87,772
Database Architects	$126,042	$151,034	$146,281	$175,765	$156,518
Computer Hardware Engineers	$126,920	$104,334	$118,497	$167,942	$139,328

Source: Lightcast 2023 Q4 Dataset
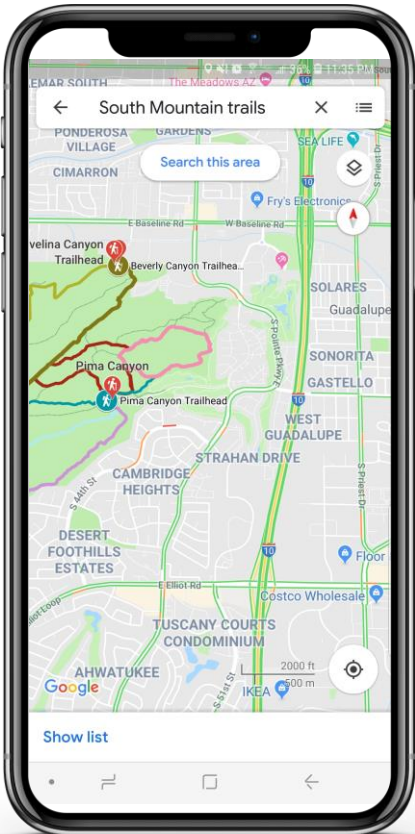
Quality of Life

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, which 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.

Quality of Life

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	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%
Dallas-Fort Worth	98.5	110.1	87.0	108.4	108.0	102.2	100.5%
San Jose*	122.4	141.3	133.4	126.1	119.7	169.5	166.7%
Washington, D.C.	107.7	110.1	108.2	116.5	115.0	145.3	142.9%

*San Francisco cost of living data was used for San Jose.
Source: C2ER 2023 Q3 COLI Index

Housing

Housing in Greater Phoenix remains affordable compared to other major markets.

Metro	Median Home Value	Index	Median Rent	Index
Phoenix	$452,156	100.0%	$1,846	100.0%
Atlanta	$376,063	83.2%	$1,909	103.4%
Dallas-Fort Worth	$371,777	82.2%	$1,747	94.7%
San Jose	$1,554,128	343.7%	$3,223	174.6%
Washington, D.C.	$549,547	121.5%	$2,273	123.1%

Source: Zillow Home Value Index (ZHVI), February 2024; Zillow Rental Index (ZORI), February 2024

Rankings & Recognition

#1

Phoenix was ranked #1 by population growth from 2010 to 2020 among all US cities

#1

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

#2

Arizona is ranked #2 by U.S. News and World Report in power grid reliability

#3

Sky Harbor International Airport ranked 3rd in the Wall Street Journal's "The Best of the Biggest Airports"

#4

Arizona was ranked the No. 4 place to do business in 2022 by *Chief Executive*

#7

In 2023, Arizona was ranked as the seventh-best state to start a business by WalletHub

Top 20

In 2022, Scottsdale was listed in the top 20 happiest cities in the nation

Top Tier

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

Greater Phoenix
Greater Together