

Supplier boom: How the semiconductor industry is driving industrial, manufacturing growth in Deer Valley



MCCALL ARCHITECTS

Mack Real Estate Group is planning to build a 3 million-square-foot industrial park in Deer Valley. A rendering shows what the facility will look like once built.

Not long after Taiwan Semiconductor Manufacturing Co. announced its decision to build a \$12 billion factory in Phoenix, real estate firms started buying up hundreds of acres in the nearby Deer Valley submarket, which is home to one of the largest job corridors in Phoenix and spans more than 50 square miles.

New York-based Mack Real Estate Group, for example, purchased 224 acres near the Phoenix Deer Valley Airport to develop several million square feet of industrial space at Mack Innovation Park — it's one of the largest industrial projects proposed for the area in recent years and is also a designated site for semiconductor suppliers.

Following the developer's proposal, Taiwan-based Sunlit Chemical was one of the first TSMC suppliers to announce plans for a large facility in the Mack Innovation Park and recently started construction on its \$100 million hydrofluoric acid plant only several miles east of the chipmaker.

With thousands of new homes and commercial space also poised to support the new semiconductor factory, known as a fab, and burgeoning technology corridor in north Phoenix, real estate experts say the planned chip facility has changed the landscape for the industrial market in Deer Valley, with numerous semiconductor-related tenants and small-to-large industrial buildings in the works.

"As of 14 months ago, we started seeing the uptick in suppliers calling us that are going to be part of the TSMC plant," said Chris Rogers, an executive vice president with DAUM Commercial Real Estate Services. "At first we didn't think it was going to be as

significant as it became, but that's been a big bolster to that market. Lots of companies are coming from out of state, as small as 3,000-square-foot suppliers to as large as 250,000-square-foot suppliers."

The north Phoenix area comprises about 200,000 residents, three large freeways, Sonoran Desert land and several large employers all located north of Cactus Road between Peoria and Scottsdale. Between residential and commercial development, the city of Phoenix estimates that about \$750 million in building permit activity occurred in its Deer Valley and north Phoenix villages in 2021.

Driven by the state's fast-growing semiconductor and industrial sectors, the area currently has several million square feet of industrial space across dozens of buildings that are proposed or under construction, but experts say there's limited land and warehouse space left in the submarket, which has seen an uptick in costs and pushed growth to other parts of the Valley.

Competing for suppliers in Arizona

As TSMC looks to secure its supplier network in north Phoenix, the rest of the Valley and beyond, the type of semiconductor companies that will be looking for space include direct suppliers and a complex supply chain of materials, said Kyle Squires, dean of the Ira A. Fulton Schools of Engineering at Arizona State University.

Companies that use the chips made by TSMC and Intel will also benefit from being in close proximity to the semiconductors, which can create a nexus of workforce, manufacturing and innovation to support future growth of the industry, he said.

"Manufacturing is making what's literally needed now, but if you're not also driving what will be on the horizon or in the out years in terms of innovation and research, you're losing, so those three things have to work together, and there's a supply chain element to that," Said.

How the companies choose a site depends on what the supplier does and access to transit, among other factors, he said. Some companies need to be closer to the fab, such as Linde PLC's \$600 million on-site gas plant, while others will go where they can access the sophisticated tools and facilities needed to operate, which he said are in high demand and low supply.

"It's going to depend on what that supplier actually does. Some of the suppliers, they need facilities, and they need clean rooms," Squires said. "They have to have a very clean environment. Well, so do many of the companies that are in their supplier network. Right now, that's probably one of the biggest considerations for where a supplier is going to locate."

In addition to the Deer Valley area, TSMC suppliers have signed leases or made plans to build or expand in Chandler, Glendale, Surprise, Phoenix and Pinal County. While

some need to be close to TSMC, most suppliers need to be located within a 60-mile radius from the main semiconductor campus, which means as far south as Casa Grande, Greater Phoenix Economic Council officials said.

Lighter industrial uses may flock closer to Deer Valley, but large manufacturers that need new facilities may find the needed land and workforce in Pinal County, he added. Several suppliers, including Taiwan-based KPPC Advanced Chemicals, or Kanto PPC, have chosen vacant sites in Casa Grande for their facilities due to lower overall costs for a rail-served site, which can be a quarter or a third of the cost as a site in Phoenix, and faster air quality certification and permitting processes than in metro Phoenix.

Land and labor shortages a concern

Kanto said that its facility also has to be built from the ground up due to the "highly specific process and equipment needed to supply ultra-pure chemicals for the advanced semiconductor process," but it is concerned about limited construction materials and labor in the Valley, an issue that has impacted a number of industrial projects in Arizona.

"As a newcomer and relatively small project, it is hard to get the resources we need to keep up with TSMC's pace," a Kanto spokesperson said in an email. "Once we are up and running the challenge will be acquisition and retention of talent for our industry, on which we have already started working with the government at various levels to address the demand for talent."

When selecting a site, Bob Hess, vice chairman of global strategy for Newmark Inc. and member of the Site Selectors Guild, said suppliers also look for engineering talent, technical skills, electric power, water or office space and amenities. Sometimes, they're also looking at sites with a regional reach to their customers, which could make it harder for Arizona to compete with other Western states.

"These chip plants and their suppliers, they draw down a huge amount of electricity and energy and water, and these are rare commodities in the Southwest U.S., so this is going to challenge the utility infrastructure in Arizona," Hess said. "These are big challenges for leaders and planners."

Growth drives rents up

There's a strong demand for industrial space from semiconductor suppliers and other users in north Phoenix, which is causing square footage to lease quickly and sale prices and lease rates to rise rapidly.

John Pompay, a senior director for Cushman & Wakefield, said suppliers make up a "strong portion" of the leasing activity in Deer Valley. More manufacturers and technology companies are also moving in, while longtime companies in the area are also expanding by doubling or tripling in size, he said.

Cushman & Wakefield research shows that about a dozen or more industrial companies have signed leases or acquired land since TSMC purchased the site for its fab in late 2020.

Some companies have also been moving out of more expensive and limited submarkets such as Scottsdale and relocating to north Phoenix.

"They can't find space, the size they need. If they do find it, it's significantly more expensive than it is in the Deer Valley market," Pompay said.

With a low vacancy of 3.6%, the Deer Valley area ended the second quarter with asking lease rates of \$1.27 triple net per square foot — one of the highest overall asking rates in the Valley behind Chandler and Scottsdale, according to Cushman & Wakefield data.

The asking rents have increased by about 75% in the past two years, which has also impacted sale prices of the buildings, said Trevor McKendry, an executive vice president at DAUM. Even though about 750,000 square feet was under construction, the second quarter had negative absorption of 229,226 square feet, or the space leased minus what became vacant. Pompay said the negative absorption is due to old back-office or specialized buildings being converted to industrial use.

As suppliers continue moving in and TSMC is built out, developers will still look to build new housing and retail options for the anticipated growth. In 2019, the north Phoenix area saw about \$90 million worth of land transactions. After TSMC purchased its site, the same area experienced about half a billion dollars in land sales in 2021, demonstrating the massive growth slated for north Phoenix.

Suppliers drive growth in Deer Valley

Before TSMC made plans for Arizona, the Deer Valley industrial market typically saw smaller buildings with one user ranging in size from 8,000 to 25,000 square feet or 60,000 to 150,000 square feet with multiple users, Pompay said.

"In the last cycle, there were a lot of owner-user building sales up in Deer Valley," he said. "Since the semiconductor plant has been announced, now we're starting to see deals that are 60,000 to 200,000 square feet out there, and activity has never been stronger than it is right now."

Historically, the Deer Valley market was mostly driven by geography and an abundance of industrial-zoned land around the airport, Pompay said. Cities like Peoria and Scottsdale also didn't have as much industrial development, so users migrated east or west to Deer Valley.

The recent boost in industrial demand can also be credited to the area's proximity to several key freeways such as Loop 101 and Interstate 17, remaining infill parcels and

the region's ongoing industrial boom in addition to demographics of the area, experts said.

In addition to TSMC, Honeywell International, which has operated a facility in Deer Valley for decades, has also been a big driver for companies in the market, McKendry said. Other major employers include PetSmart's corporate headquarters, APSM Systems and USAA, among others.

McKendry and Rogers said that developers once considered Deer Valley too small of a submarket to build in, but now buildings are being leased and sold quicker than ever. Several large developers, such as Mack, Prologis, Ryan Cos. and others are also building new product in the submarket.

The 914-acre Phoenix Deer Valley Airport, a reliever to Phoenix Sky Harbor International Airport and one of the busiest general aviation airports in the U.S., also has one fixed based operator, Cutter Aviation, and more than 1,000 aircraft. It was built in the 1960s and is used for private aviation. Cutter is developing a new corporate hangar at the airport before the Super Bowl in 2023.

Known semiconductor companies and suppliers that have moved into Arizona or expanded in Maricopa and Pinal counties since May 2020:

- Fujifilm
- JX Nippon Mining & Metals USA Inc.
- Accretech America Inc.
- Crest Technologies
- Edwards Vacuum
- Taiwan Puritic Corp.
- Air Liquide
- Linde PLC
- United Integrated Services
- Sunlit Fluo & Chemical Co.
- Marketech International Corp. USA
- Kokusai Semiconductor Equipment Corp.
- Rinchem
- Yield Engineering Systems
- Solvay Corp. Inc.
- KPPC Advanced Chemicals Inc.
- Chang Chun Group
- CTCI
- EMD Electronics
- Universal Instruments Corp.
- Jing He Science Co.
- LCY Electronic Materials
- Topco Scientific USA