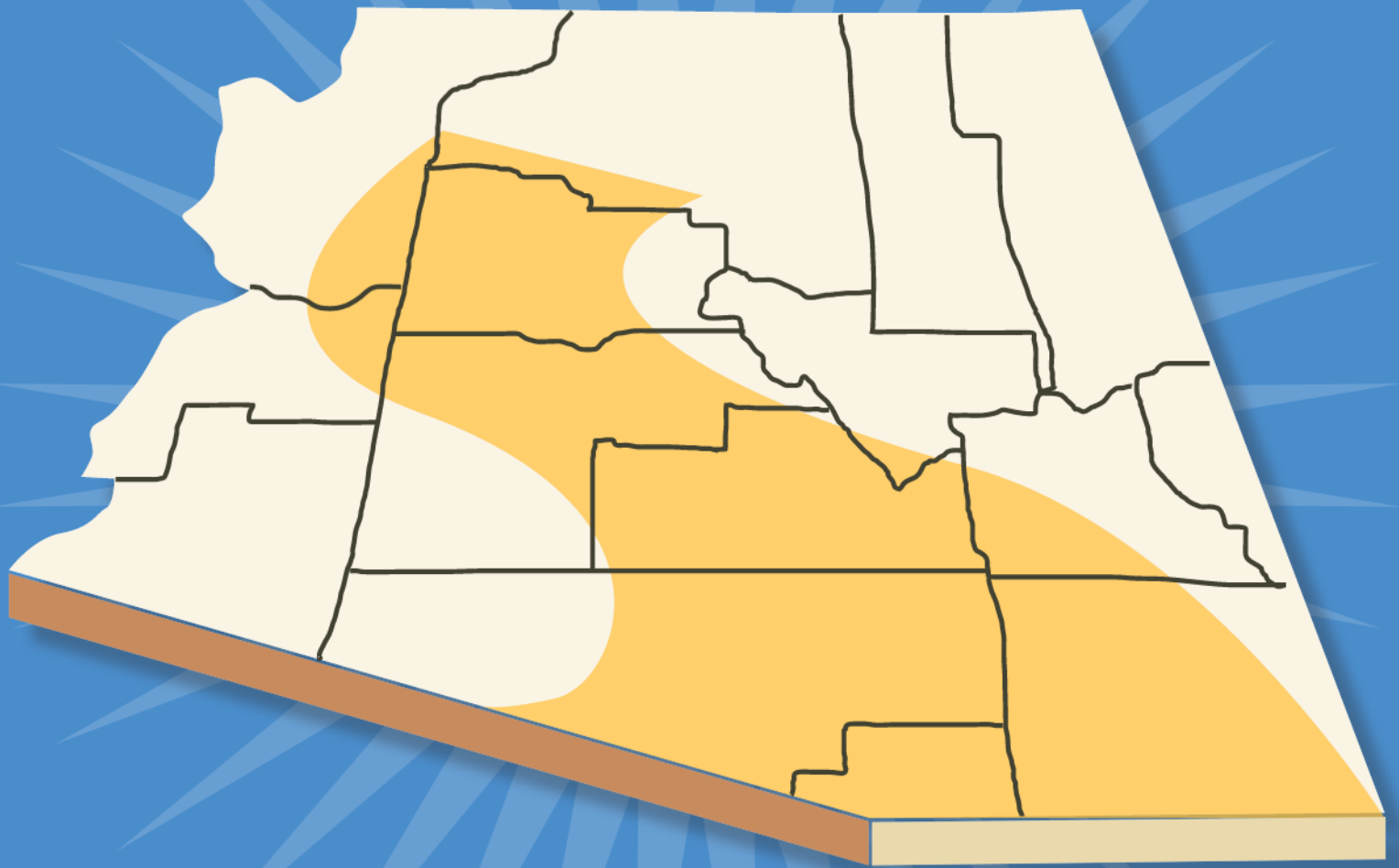


June 2014

sun corridor:

A Competitive Mindset



In order to participate in a regional, national, and global economy, we need to acknowledge that the business of our lives transcends lines on a map. We need to look beyond the neat compartments that have been artificially created for the sake of political convenience.

The competition is fierce, fast and aggressive. Mexico isn't waiting. Texas and Nevada and Southern California aren't waiting.

sun corridor: a competitive mindset

June 2014

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DEAR FELLOW ARIZONANS



Thom Reilly
Director
Morrison Institute for Public Policy

We are pleased to present *Sun Corridor: A Competitive Mindset*, a report that builds upon Morrison Institute for Public Policy's 2008 Megapolitan report with the goal of operationalizing the now widely accepted notion of economically interconnected megapolitan regions.

Megapolitan helped establish and promote the concept of the Sun Corridor, the economic heart of Arizona stretching from Phoenix down through Tucson to the Mexican border. It was released on the cusp of the recession that dashed its nascent opportunity and promise. Today, given the fragility of Arizona's economic turnaround and the pressure of extraordinary competitive threats, the Sun Corridor must capitalize on the power of regional thinking, branding and action and unlock the potential of Mexico's burgeoning economy.

It is time for policymakers to renew focus on the Sun Corridor as a conduit for regional and global economic opportunity. The Sun Corridor transcends lines on a map to build upon the strength of its existing interconnectivity and mutual interests. While Phoenix and Tucson will never physically merge, nor lose their distinctive cultural and political identities, their economic fates are unquestionably linked—as is their joint reliance on natural resources like water, clean air, and other factors essential to continued prosperity. It is time for the Sun Corridor to flex its regional muscles and leverage the advantages of size and geography to win economic battles on a larger playing field—while protecting and enhancing the resources and values that make this region so special. Why now? Because the game has changed: the Sun Corridor has the potential to be THE channel, not just between Phoenix and Tucson, but to the greater Southwest as well as stretching northward.

Sun Corridor: A Competitive Mindset illuminates some of the Sun Corridor's less obvious points of social and economic interconnection in an effort to demonstrate the natural foundation that already exists; it also provides a data-driven examination of the Sun Corridor's demographic trajectory and economic standing relative to its megapolitan peers. It highlights our natural advantages of geography, demographics, and growth and recommends policy actions that utilize cooperative regional thinking to the advantage of the entire state.

Some key points:

- The Sun Corridor has surprisingly high population density. 85 percent of its residents live in areas that are denser than Seattle or Denver. The Sun Corridor is more than twice as dense as Atlanta or St. Louis.
- Every day of the year, over 2,700 people travel from Tucson to catch a flight out of Sky Harbor International Airport.
- At least 4,000 firms operate across the Sun Corridor with locations in both Metro Phoenix and Metro Tucson.

Now is the time to move from theory to vision. The Sun Corridor is complex. It is more than the sum of its geographic and municipal parts. We must embrace this complexity and start asserting our economic strengths while recognizing the need to improve collaboration across the region to resolve challenges and threats to our continued prosperity. To be competitive across the global landscape we must first become a team—a partnership that recognizes the value of each component and learns to share, leverage, and prosper as a cohesive Sun Corridor megapolitan unit.

Sincerely,

Thom Reilly

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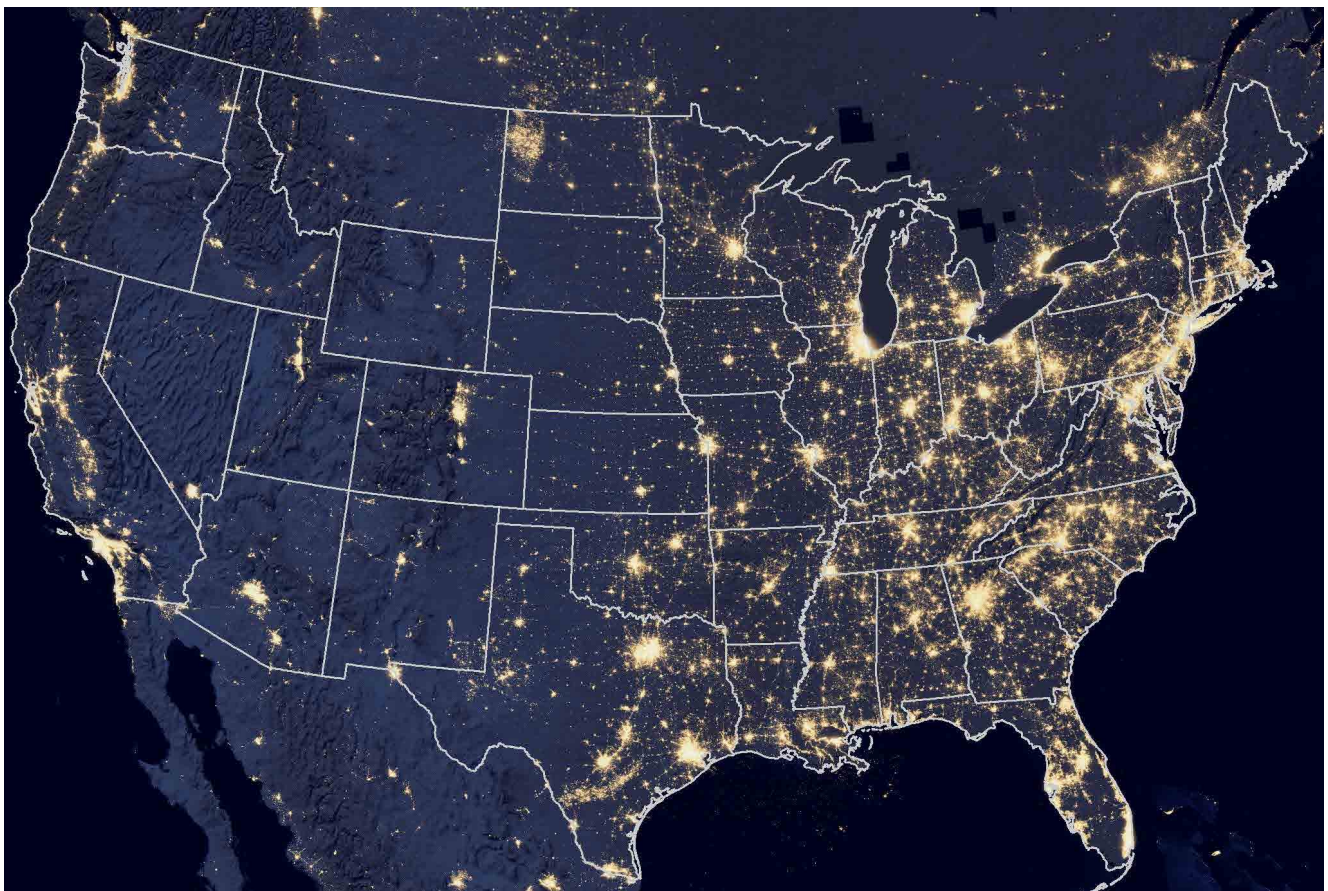
SUN CORRIDOR A COMPETITIVE MINDSET

The geography of our country is not always defined by lines on a map. A map's straight lines and neat political boundaries are insufficient to tell the story of what connects one area to another. This becomes clear on a nighttime flight across the country as the lights of downtown areas blend seamlessly into suburbs and gradually taper off into small rural hamlets. Where does one city end and another begin? It's hard to tell from 35,000 feet.

From an even higher perch, NASA turned its cameras away from the stars and captured a stunning image of our urban constellations at night. As seen from space, the cities of the United States blend into one another, with faint tendrils connecting the bright centers of population and commerce. The megapolitan areas stand out as chains of bright lights, densely packed in the East and farther apart in the West (Figure 1).

Arizona is marked by the twin beacons of metropolitan Phoenix and Tucson reaching out toward each other and surrounded by the desert night. This is the Sun Corridor, Arizona's megapolitan hub, the center of economic, political, and social activity not only of Arizona, but of the entire Intermountain West.

FIGURE 1: THE UNITED STATES AT NIGHT



Credit: NASA Earth Observatory/NOAA NGDC



WHAT IS THE SUN CORRIDOR?

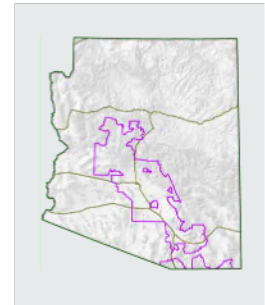
Arizona's political structure is organized in a system of large and small jurisdictions: not just cities and towns but also school districts, legislative districts, special taxing districts, and more. Each of these can be drawn on a map with clearly agreed upon boundaries: Congressional District Five, Mesa City Council District 2, Shady Acres Homeowners Association. However, our economic and social reality resists such a simple arrangement. To truly understand life in Arizona and to prepare for the future of the state, we need to acknowledge that the business or our lives transcends lines on a map. We need to look beyond the neat compartments that have been artificially created for the sake of political convenience.

A SELF-ORGANIZED, ORGANIC ENTITY

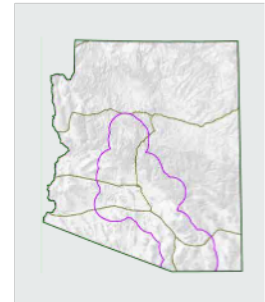
The Sun Corridor is the economically and socially connected heart of Arizona. It wasn't created through any sort of political process; it sprung up naturally as a result of the unique economic, cultural, and environmental forces in the area. Despite the best efforts of generations of policy makers to neatly divide the state into counties, cities, and towns, both human nature and economic activity defy such compartmentalization. Our daily lives are not so easily confined. It is common for us to live in one city, work in another, and send our children to school in a third. Businesses are eager to see their activities jump from one city to the next in search of new markets. The rise of telecommuting makes it possible for a Phoenix resident to work for a firm located in Tucson, making the drive down Interstate 10 to the main office every week or two, but usually working remotely from home.

MANY BOUNDARIES

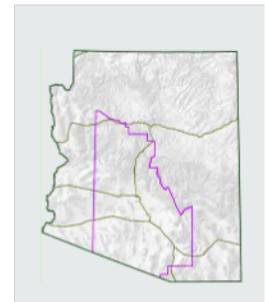
Because of its organic nature, the Sun Corridor doesn't have fixed boundaries. As NASA's view from space illustrates, there are no lines on the map. Efforts to draw hard boundaries for the Sun Corridor inevitably lead to long, unproductive discussions about where those lines should fall. It is more useful to imagine the Sun Corridor as having many boundaries (Figure 2). For instance, when contemplating the demographics and future growth possibilities of the area it may be most useful to look at census tracts with a population density over 500 people per square mile and adjacent tracts where new development is likely (Figure 2a). Those concerned about commuting patterns and future transportation needs might look at areas within a 25 mile radius of existing city limits (Figure 2b). When gathering data on the Sun Corridor, it may be easiest to look at the counties the Census Bureau has included in the metro Phoenix and Tucson areas (Figure 2c). Or, when considering the critical issue of water in the Sun Corridor, it may be best to consider the watersheds that we rely on (Figure 2d). Each of these is a valid description of the boundaries of the Sun Corridor for a particular application and many more boundaries can be imagined, but they all have certain features in common. Any description of the Sun Corridor includes the metropolitan area of Tucson and Phoenix. The region extends from Northwest to Southeast across the state and includes areas outside the immediate metro areas that have some commonality with the metros.



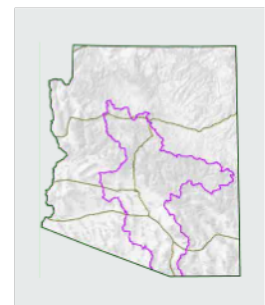
2a



2b



2c



2d



There are wider connections at play in the Sun Corridor as well. Although maps show the region stopping neatly at the Mexican border, it is clear that the economies of Tucson and Nogales are closely tied to Northern Mexico. Although much of our data on demographics and economics stops at the border, the Sun Corridor economy certainly does not. Additionally, there are longer distance ties between the Sun Corridor and Southern California that are significant.

Drawing lines on a map to show the limits of the Sun Corridor is an interesting but trivial exercise. Recognizing that the Sun Corridor exists in some form today and is the largest force shaping our future is critical. The Sun Corridor concept is a tool that captures the most significant forces at work in shaping our state. Acknowledging the reality of the Sun Corridor does not mean abandonment of the current political structures in the state. Each city, town, and county has full autonomy in the Sun Corridor. However, the Sun Corridor megapolitan model shows that these entities influence each other in profound ways. The Sun Corridor is not about creating some new layer of administration; it's about recognizing and making the most of connections that already exist.

THE CENTER OF POPULATION AND ECONOMIC ACTIVITY

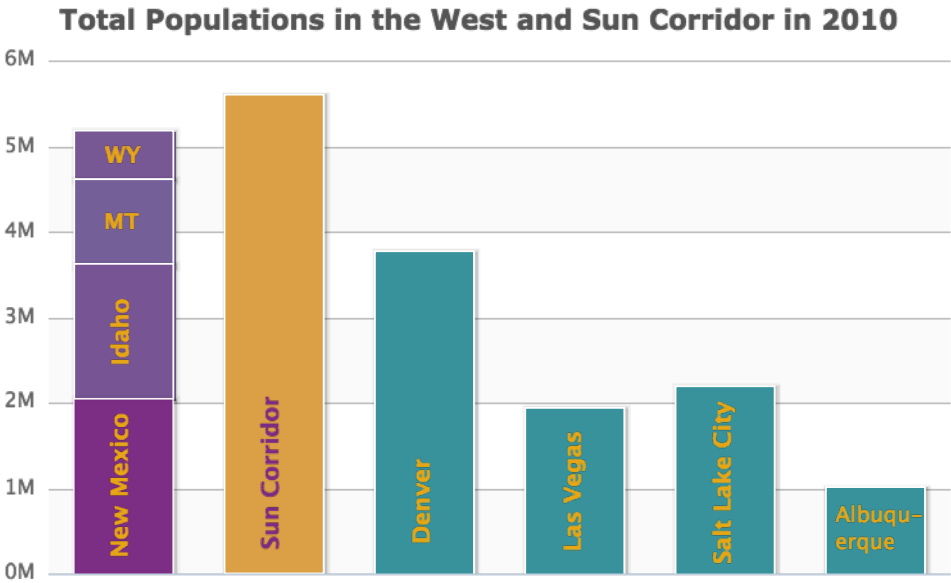
Although the Sun Corridor comprises some 15% of the state's total area, it is home to 84% of the population (Figure 3).¹ This large population necessarily results in a large economy. Although Arizona treasures its roots on the frontier of the Wild West, the Sun Corridor is by far the largest economy in the eight states of the intermountain West. The population and economy of the Sun Corridor is much larger than the Las Vegas, Salt Lake City, or Front Range megapolitan area centered on Denver. The Sun Corridor is larger in these terms than the entire states of New Mexico, Idaho, Montana, and Wyoming combined (See Figure 3 and Figure 4).

TABLE 1: SUN CORRIDOR POPULATION AND AREA

	Arizona Total	Sun Corridor	Sun Corridor Percent
Population	6,323,701	5,288,591	84%
Square Miles	113,978	16,688	15%

source: U.S. Census Bureau

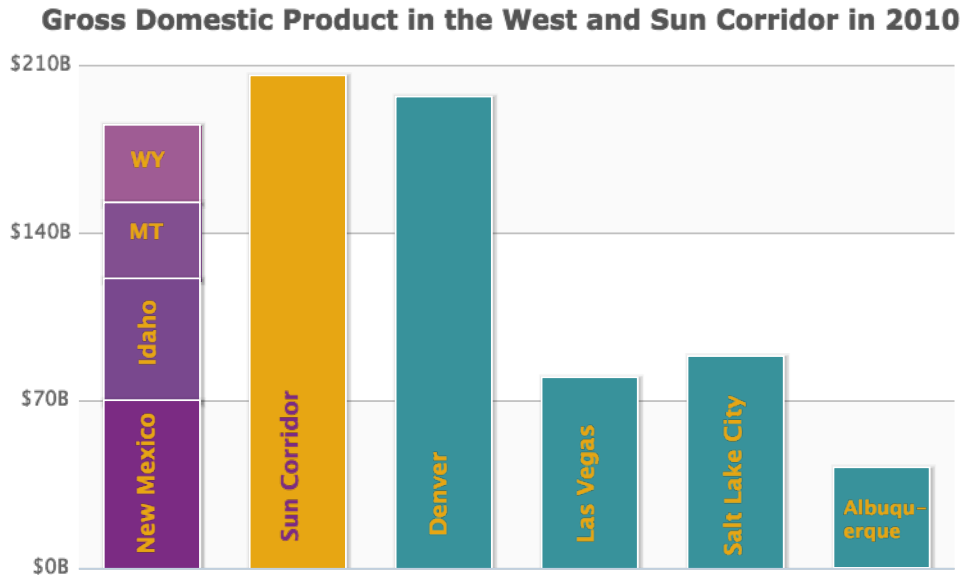
FIGURE 3: POPULATION IN THE WEST



source: U.S. Census Bureau



FIGURE 4: GROSS DOMESTIC PRODUCT IN THE WEST



source: Bureau of Economic Analysis

DISTINGUISHING FEATURES OF THE SUN CORRIDOR

DENSE CORES

It is common to imagine the Sun Corridor as a land of endless suburban sprawl, but the reality is more subtle and more interesting. Although it is true that both metro Phoenix and metro Tucson stretch many miles across their respective valleys, the region's suburban development is relatively dense. A comparison to metropolitan Atlanta illustrates this point. The Atlanta metropolitan area has about the same population as the combined metropolitan areas of Phoenix and Tucson. However, as defined by the Census Bureau, the Phoenix and Tucson metros cover an area nearly three times as large as Atlanta. This gives a crude population density figure of 655 people per square mile for metro Atlanta and 218 per square mile for the Sun Corridor (Table 2).

However, this does not reflect the way people actually live. In modern America, most people live in relatively dense neighborhoods with only a small percentage of the population living on rural farms or large country estates. This is especially true in the Sun Corridor where housing density is fairly high even in subdivisions that are many miles from the center of the city. An analysis by census tract shows that 85% of the Sun Corridor population lives in neighborhoods that are more than twice as dense as a corresponding share of the Atlanta population. The Sun Corridor houses 85% of its residents on just 5% of its land, packing 4.4 million people into just over 1,200 square miles. The effective density for the Sun Corridor is about 3,600 people per square mile, while Atlanta's effective density is about 1,600 per square mile. Metro Atlanta needs twice that amount of land to house a similar number of residents as the Sun Corridor. The great majority of Arizona residents live at densities that are more comparable to Seattle or Denver than to Atlanta or St. Louis (Table 2).

The nighttime image from NASA clearly shows the concentrated density of the Sun Corridor. Comparing views of the Sun Corridor with St. Louis shows a dramatic difference in development patterns (Figure 5). Away from its dense urban core, the St. Louis area gradually dissolves into a network of small towns spaced at regular intervals. The Sun Corridor, by comparison, shows a more definitive edge to the twin urban cores of Phoenix and Tucson. These bright, densely populated cities are surrounded by dark, largely empty deserts and mountains, not rings of diffuse settlement.

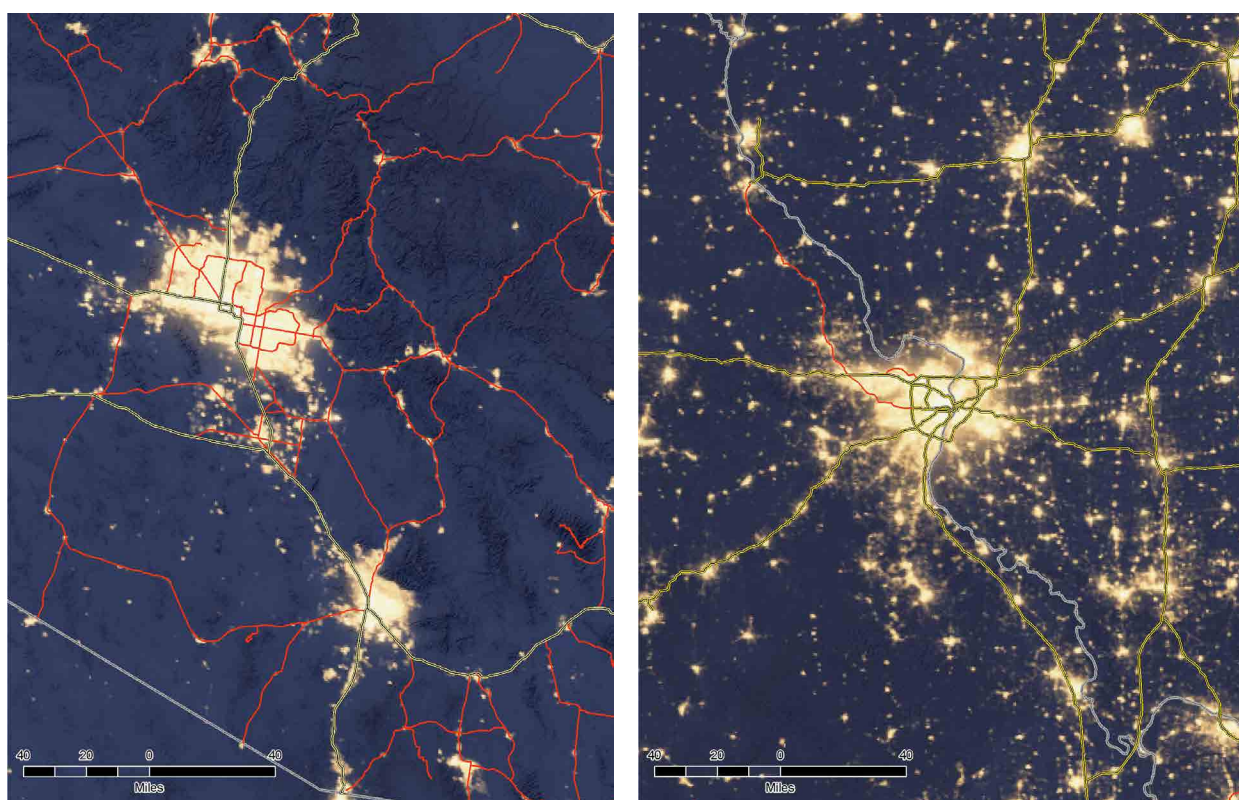


TABLE 2: RELATIVE POPULATION DENSITIES

Metro Area	Total Population	Total Square Miles	Overall Density	85% of the Population	Lives on this many Square Miles	Which is this Percent of Total Area	Density for 85% of the Population
Sun Corridor	5,173,150	22,619	229	4,396,591	1,217	5%	3,612
Atlanta	5,268,860	8,046	655	4,470,364	2,780	35%	1,608
Seattle	3,430,560	5,965	575	2,915,399	839	14%	3,476
St. Louis	2,782,958	8,322	334	2,365,391	1,585	19%	1,492
Front Range	3,986,410	17,376	229	3,387,869	1,027	6%	3,300

Sun Corridor figures are for Maricopa, Pinal, and Pima counties. Front Range figures are for the Denver, Colorado Springs, Boulder, Greeley, and Fort Collins Metropolitan areas.

FIGURE 5: THE SUN CORRIDOR AND ST. LOUIS REGIONS SEEN AT NIGHT, SHOWN AT THE SAME SCALE



Credit: NASA Earth Observatory/NOAA NGDC

PROTECTED LAND

The large areas of dark land around Phoenix and Tucson shown in Figure 5 illustrate why the Sun Corridor has about the same population as metro Atlanta, but covers nearly three times the area. Most of this land is protected to some degree. As Table 3 shows, 23% of the land mass of the Sun Corridor is already protected, primarily as National Forest. Sixteen percent of the land is committed to Native American reservations, and the Bureau of Land Management (BLM) is responsible for another 15% of the total. Tribal and BLM land is semi-protected in the Sun Corridor. Legal restrictions ensure that tribal land in the region is unavailable for large scale residential development. Although a small portion of the area's 2,000 square miles of BLM land may eventually be sold and developed, the vast majority of this land will remain undeveloped. Much of the Sun Corridor's BLM land has already been set aside as part of the National Landscape Conservation System. The nature of these lands combined with the BLM mandate to manage rather than market their portfolio means that these parcels will also remain largely preserved.



The 2.4 million acres of State Trust Land that make up 18% of the total Sun Corridor area will be critical to the future growth of the area. Although most of this land is currently undeveloped and it is frequently used for outdoor recreation, it is not preserved in the way that National Forest or even BLM land is. The Arizona State Land Department has a mandate to sell this land to the highest bidder. As the supply of public land is developed, trust land in the Sun Corridor will inevitably become more valuable and parcels will be sold off. Figure 6 shows that much of this trust land is well located to support future growth especially in Pinal and Pima counties. State Trust Land in the Sun Corridor will act as a sort of land bank to supply developable land as the market demands it. Effective management of the state's trust land portfolio will be essential to the future of the Sun Corridor.

Finally, note the relative scarcity of developable private land in comparison to other metros (Table 3). This indicates that population density in the region will remain high. The growth model of the Sun Corridor since the 1940s has been single-family homes at a density of 6 to 8 per acre. This has given the region its effective density of 3,600 people per square mile. With undeveloped private land in short supply, it is hard to see how this density could decrease.

TABLE 3: LAND TENURE IN THE SUN CORRIDOR AND COMPARISON AREAS

	Sun Corridor ¹	Front Range ²	Atlanta ³	S. Louis ⁴	Seattle ⁵
National Forest	17%	19%	1%	1%	28%
National Parks	2%	1%	0%	0%	5%
Wildlife	2%	1%	1%	0%	0%
Local or State Parks	1%	2%	0%	1%	12%
Sub Total - Protected Land	23%	23%	3%	3%	45%
Military	4%	1%	1%	0%	2%
Tribal Lands	16%	0%	0%	0%	1%
BLM	15%	1%	0%	0%	0%
Other Govt. Land	0%	0%	0%	1%	0%
State Trust Land	18%	5%	0%	0%	0%
Private	23%	70%	98%	95%	51%
Total	100%	100%	100%	100%	100%
<p>Calculated using FAD US Protected Area Database and Census boundaries ¹ Phoenix, Tucson, and Prescott Metropolitan and Nogales Metropolitan Areas ² Denver, Colorado Springs, Boulder, Fort Collins, and Greeley Metropolitan Areas ³ Atlanta- Sandy Springs- Marietta Metropolitan Area ⁴ St. Louis MO ILL Metropolitan Area ⁵ Seattle-Tacoma-Bellevue Metropolitan Area</p>					

URBAN DENSITY + PRESERVED LAND = THE SUN CORRIDOR LIFESTYLE

The Sun Corridor's concentration of population coupled with large amounts of high-quality preserved land is a distinguishing feature of the area. A population of over 5 million lives at a relatively high density and has access to all the economic and social benefits of a large metropolitan area yet is also a short drive away from world-class outdoor recreation sites. This is the Sun Corridor's competitive advantage over its rival megapolitan areas: the ability to deliver the business concentration needed for future economic growth and innovation; the population base to maintain urban amenities such as museums, restaurants, and professional sports teams; and nearby conserved land which provides year round recreation opportunities. The centralization of population and economic activity in the Sun Corridor allows 85% of Arizona's population to enjoy the spectacular landscapes of the state. By living on a small portion of the total land area, we keep the rest of Arizona in de facto, if not absolute, preservation.



WHAT THE SUN CORRIDOR IS NOT

A definition of the Sun Corridor should also include some talk of what the Sun Corridor is not about, for the concept is fraught with opportunities for misunderstanding.

TUCSON AND PHOENIX MERGING INTO A MEGA-SUBURB

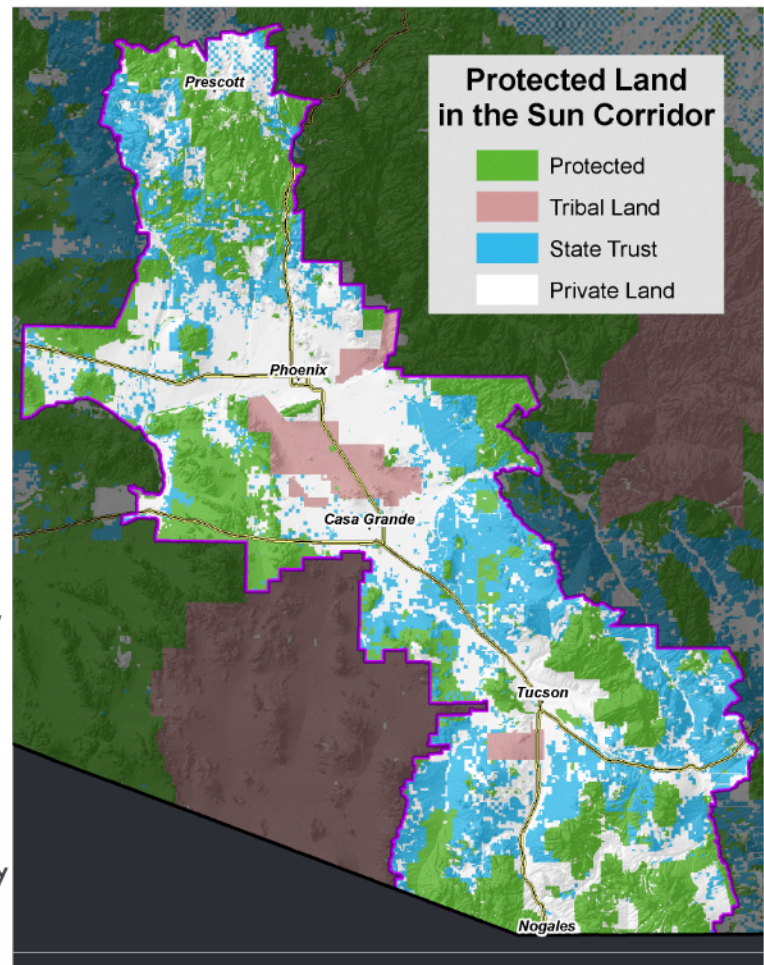
A common misunderstanding of the Sun Corridor concept is that it implies that Phoenix and Tucson will merge together in a sea of red-tile roofs. Although the corridor along Interstate 10 between the two cities will certainly see increased development in the future, a continuous uninterrupted swath of development can never happen. This is because, as noted above, much of the land in the area is simply unavailable for development.

The two types of lands generally available for future growth and development in the Sun Corridor are privately held land and state trust land. There are approximately 5,300 square miles of private land in the Sun Corridor. There is currently housing on about 3,000 square miles of that total. The remaining 2,300 square miles is used for purposes other than residential such as commercial, industrial and agricultural uses, or is undeveloped. Were private holdings the only land in play, we could confidently say that the Sun Corridor is well over halfway to the maximum build-out population. However, state trust land provides a tremendous reserve of land; over 4,000 square miles that are available for potential development. The Arizona State Land Department, acting on behalf of the trust beneficiaries and in marked contrast to the BLM, is constitutionally charged with seeking maximum revenue from these lands, meaning that it will sell when the market demands it. State trust lands in Pinal County will become increasingly valuable as Tucson and Phoenix expand. The state has a tremendous opportunity to profit from these increases and also shape growth in the region through intelligent management of their holdings.

A REGIONAL GOVERNANCE STRUCTURE

Acknowledging and advocating for the Sun Corridor megapolitan does not require the endorsement of a regional government to supplant the region's existing city and county structures. The Sun Corridor came into being as a natural result of the connections across the region, so an overarching government is probably not required for its continuance. However, wise municipal and state leaders must now consider their policy actions on a wider scale, and work megapolitan connections to the best advantage of all.

FIGURE 6: PROTECTED LAND



Credit: Sonoran Institute

HOW CONNECTED IS THE SUN CORRIDOR?

Whether one's grasp of the Sun Corridor is derived from NASA satellite images or just a gut-feeling during a trek along I-10, at some point data are required to operationalize the fluid megapolitan notion.

In the past, data showing the degree of economic interconnection between Phoenix and Tucson were sought to substantiate the existence of the Sun Corridor as an economically relevant entity. To some degree, the process felt more like an exercise in academic theory than coordinated, on-the-ground planning and skeptics questioned its utility.

Today, the objective is far broader and the research outcomes more actionable. Understanding the degree of economic and social interconnection between Phoenix, Tucson and development reaching our neighbors in the Southwest Cluster is about long term planning and smart policy making. It is about understanding shifting demographics, anticipating and addressing infrastructure needs and asserting the Sun Corridor's position in global trade logistics.

In order to do this, planners, analysts and economic developers at all municipal levels must be armed with metrics that show the region's competitive position and trajectory. What is the regional capacity for freight, rail, and air? What are the existing commuter patterns? How are the region's major educational institutions aligned with forecasted job growth and what is the current university population exchange? In terms of gross domestic product, who are our regional competitors and how does the megapolitan framework change our rank and leverage on the national playing field?

Furthermore, charting progress in the Sun Corridor requires a new way of thinking about economic opportunity and how we measure success. We run the very real risk of reverting to old thinking:

"CITIES AND METROS IN THE PRE-RECESSION ERA WERE MEASURING THE WRONG THINGS: SPECULATION RATHER THAN INNOVATION, PAROCHIAL DEMAND RATHER THAN GLOBAL TRADE, REAL ESTATE APPRECIATION RATHER THAN PRODUCTIVE RETURNS. THEY WERE, IN MANY CASES, ALSO MEASURING THE SAME THINGS: HOUSING STARTS, NEW COMMERCIAL SQUARE FOOTAGE AND BIG BOX STORE OPENINGS..."²

As we begin to paint a richer data picture of the Sun Corridor and the Southwest Cluster, it is important to remember that what you measure matters. And, metrics are descriptive, not prescriptive. Indicators also vary widely in availability, quality and comparability as well as their sensitivity to change through public and private action. Thus, as indicators are interpreted and used to guide policy decisions, data users should think of the metrics more like dashboard gauges in a car than a GPS navigation system. There is no definitive route. In fact, the first step is building consensus around a clear vision for the Sun Corridor's economic role and connectivity within the Southwest Cluster ten, 25 and 50 years from now.



MEASURING THE DEGREE OF INTERCONNECTION

There is no such thing as a Tucson postmark. In a move designed to increase efficiency, the Postal Service has discontinued mail processing in Tucson.³

A birthday card from a Tucson grandmother bound for her grandson across town is shipped to Phoenix, sorted appropriately, postmarked “PHOENIX AZ”, and then trucked back to Tucson for delivery. The Postal Service has effectively transformed the Phoenix mail processing facility into the Sun Corridor mail processing facility. It’s simply more cost-effective for them to operate at a megapolitan scale.



It is tempting to describe the Sun Corridor simply in terms of its size. It is the largest economic and population concentration in the Intermountain West, and is home to 84% of the Arizona’s population. These are impressive figures in themselves, but the significance of the Sun Corridor arises not from its size, but from its connectivity. The Sun Corridor megapolitan is defined by the connections that span the region. The utility of the megapolitan model can consequently be measured by examining the strength of those connections. The status of these connections is sometimes readily available from existing data sources, but sometimes available only at scales or intervals that are not well suited to the megapolitan geography, and sometimes completely missing.

The following section looks at several broad measures of Sun Corridor connectivity, examines the data currently available for use as indicators of connection, and suggests areas where better data collection would be useful.

COMMUTING

Understanding the number of commuters shuttling between metropolitan Phoenix and Tucson is critical to the Sun Corridor. In addition to directly measuring a key economic connection of the region, commuting between the metros has important policy implications. However, measurement of actual worker flows is difficult. Even the definition of commuting is hard to nail down in an age of telecommuting and flexible work hours. There are two readily available measures of worker flow; the American Community Survey (ACS) and LEHD Origin – Destination Employment Statistics (LODES), both from the Census Bureau. These two sources produce very different numbers due to their varied methodology.

The ACS asks the following question, “At what location did this person work last week?”⁴ If this person worked at more than one location, print where he or she worked most last week.” A worker who lives in Phoenix and has a job that takes her to Tucson twice a week while working out of a Phoenix office three days, will list ‘Phoenix’ as her work location, even though her work has a strong megapolitan connection to Tucson. The ACS data certainly under reports that actual number of workers shuttling between Phoenix and Tucson.

The LODES data, on the other hand, seems to overestimate worker flows across the Sun Corridor. Rather than surveying workers, LODES relies on data supplied by employers that links the employer’s address with the home address of workers. The problem with this data is that there is not necessarily a connection between an employer’s address in the database and where the worker actually performs his duties. For instance, if a restaurant chain has corporate headquarters in Scottsdale and locations in Tucson, Phoenix, and Prescott, the LODES data would indicate that chefs and servers at all these locations are ‘commuting’ to Scottsdale.

These examples highlight the difficulty in measuring worker flows in a modern workforce where few people report daily to a single location. Changes in the workplace, including employers with many locations and the advent of telecommuting, have resulted in a diffuse workforce that is not easily described by giving each worker clearly defined endpoints labeled, ‘home’ and ‘work.’ Using the ACS and LODES data, though, we can estimate a range of values for worker flows across the Sun Corridor. At the low end, ACS estimates show that out of 2 million workers in the Sun Corridor, approximately 85,000 (4%) cross into a different county in their journey from home to work. The LODES data gives a high-end figure of about 200,000 workers (10%) crossing from one county to another for work. An additional hint at the size of the trans-metro commuter flow comes from traffic counts on



Interstate 10 midway between Phoenix and Tucson. These counts show that over 37,000 passenger cars pass Picacho Peak every day, approximately evenly divided between those headed north to Phoenix and those going to Tucson. While some of these vehicles are surely on the road for pleasure, a large percentage are certainly making this trip for business reasons.



A further indication of the close connection between the two cities is the number of Tucsonans flying out of Sky Harbor International Airport in Phoenix. According to estimates from the Tucson Airport Authority, one million people drive from Tucson to Phoenix each year to fly out of Sky Harbor.⁵ That's an average of over 2,700 people every single day driving up I-10 to fly out of Phoenix, and another 2,700 headed home to Tucson.

EMPLOYMENT INTERCHANGE MEASURE

Commuting patterns can initiate changes in federal policy that can have profound effects on state and local governments. The Employment Interchange Measure (EIM) is used to judge when neighboring Metropolitan Statistical Areas (MSAs) are merged into a Combined Statistical Area (CSA). The EIM between the Phoenix and Tucson MSAs is currently at 3.2%. As this number rises, a series of thresholds are reached, indicating increased levels of connectivity.

At 7.5% EIM, federal pay rates are equalized between the two primary cities. The current federal pay scale in Phoenix is 16.76% higher in Phoenix than in Tucson, so federal workers in Tucson could see an immediate boost in their pay.⁶

At 15% EIM, Phoenix and Tucson will be united into one CSA comprised of both the Phoenix/Mesa/Glendale MSA and the Tucson MSA.⁷ When this happens, all federally-funded transportation projects as well as water and environmental activities will have to be considered at the megapolitan level. The two metropolitan areas will be considered as one unit for most federal purposes.

To achieve an Employment Interchange Measure of 15%, a little over 55,000 workers need to cross the line dividing Pima and Pinal counties. Including their non-working family members, this works out to a population of about 144,000, which will require about 40 square miles of development. This won't happen overnight, but it will happen eventually. The small community of Red Rock along Interstate 10 is situated to boom as the economy recovers. It is located just over the line into Pinal County. It is easy to imagine a couple in this development with one spouse working at Intel in south Chandler and another working in Marana or Tucson. As this area grows, the EIM between the Phoenix and Tucson MSAs will rapidly climb.

FREIGHT TRANSPORTATION

The movement of goods through and across the Sun Corridor is a key indicator of how the region functions. Interstate 10, and the rail line that often parallels it, form the spine that carries much of the Sun Corridor's freight traffic. Virtually all traffic between Phoenix and Tucson travels down I-10, with 47,500 vehicles per day passing by the landmark of Picacho Peak.⁸ Of this number, 21.3% (10,118) are trucks, with the remainder as cars. Traffic on this critical section of freeway is expected to increase by 45% by 2030, creating a potential choke point for the movement of both goods and people in the Sun Corridor.

In 2011, **7.8 million** tons of freight worth over **\$11 billion** in freight flowed between Metro Phoenix and Tucson. Of that amount, \$6.8 billion of that was shipped from Phoenix to Tucson, and \$4.2 billion went from Tucson to Phoenix.⁹ With over \$30 million in goods rumbling between its major cities every single day, the Sun Corridor is highly reliant on a single freeway.

Tucson's location on the main line of a transcontinental railroad gives it a competitive advantage over Phoenix, which is located on a branch line. The Port of Tucson is a multi-modal facility that exploits this advantage. Rail



deliveries from Chicago to Phoenix take an average of six days. The Port of Tucson is efficiently able to take freight off the mainline train and load it onto a truck which is then sent up I-10 to Phoenix, cutting delivery time in half.¹⁰

ARTS AND CULTURE

Arts and culture institutions in Arizona have long acknowledged the strong connection between Phoenix and Tucson. Both Arizona Theatre Company¹¹ and Arizona Opera¹² originated in Tucson's rich arts community, but found Phoenix to be a lucrative market worth pursuing. Both organizations stage productions in both cities but have moved their headquarters to Phoenix, with its mass of potential patrons and donors.



Credit: University of Arizona College of Medicine - Phoenix

EDUCATION

Although Arizona State University reigns as the largest public university in the country, it draws comparatively few students from Tucson. The University of Arizona, on the other hand entices a large share of students from Maricopa County to journey to Tucson. Of the first time college students from Maricopa County headed to an in-state university, 58% choose to enroll in ASU in their home county, and 24% head down the road to Tucson, with 18% attending NAU in Flagstaff. Similar students in Pima County are more likely to stay at the UA (78%). Flagstaff lures 13% of Pima County's freshman college students, with only 9% choosing to go to ASU.

The integration of resources across the Sun Corridor is on full display with the emergence of University of Arizona College of Medicine in downtown Phoenix. For years, third and fourth year medical students from Tucson had been traveling to perform rotations at Phoenix area teaching hospitals. First and second year students can now do their classroom studies in downtown Phoenix as well. It is possible for a doctor to earn an M.D. degree from the University of Arizona and never set foot in Tucson. The expertise in medical education that the University developed in Tucson over the years has now been exported to Phoenix where it can grow with an abundant supply of both students and patients.

ECONOMY

Business flows naturally across the Sun Corridor, especially between the large economic nodes of Phoenix and Tucson. A large, but not entirely comprehensive database of Arizona businesses was altered to identify firms that have locations in multiple Arizona counties.¹³ A total of 4,054 firms have locations in both the Phoenix MSA (comprised of Maricopa and Pinal counties) and the Tucson MSA (Pima County). These firms are operating throughout the Sun Corridor and have annual sales of \$142 billion, employing over 895,000 people at 47,591 separate locations. A large number of these are firms with locations nationwide, including retail employers such as Walmart, but also manufacturing firms such as Intel and Honeywell that bring import dollars to the region as they export products. All of these firms certainly benefit from efficiencies gained by locating several branches within the Sun Corridor.

The database also identifies 145 Arizona-based firms headquartered within the Sun Corridor that do business across the megapolitan space, employing over 144,000 people at over 2,800 locations and generating well over \$13.6 billion in annual sales. Large Phoenix-based employers include retailers such as Basha's and Shamrock Foods, but also significant industrial firms such as Freeport-McMoRan, Apollo Group, and Avnet. Tucson-based firms serving the Phoenix market include Providence Service (a nationwide provider of social services), Asarco, and Brake Masters.





Comparing the Sun Corridor to other megapolitan regions in the United States is a difficult task. There has been no standardized definition of an urbanized area beyond the Metropolitan Statistical Area (MSA) as applied by the U.S. Census. That definition suffers from being remarkably imprecise in comparing geographies because it relies on counties, and counties in the West and counties in the East are so different. Several Arizona counties are the size of states in the eastern U.S. The best attempt at understanding the emerging megapolitan geography of America appears in Arthur C. Nelson and Robert E. Lang's book *Megapolitan America* published in 2011 by the American Planning Association Press. There, Nelson and Lang apply their own definition of megapolitan areas. As they state:

“IN OUR VIEW, MEGAPOLITAN AREAS ARE THOSE WITH PROJECTED POPULATIONS OF MORE THAN 4 MILLION PEOPLE, ANCHORED BY AT LEAST ONE METROPOLITAN AREA OF MORE THAN 1 MILLION PEOPLE THAT IS CONNECTED THROUGH CURRENT OR PROJECTED COMMUTING PATTERNS WITH AT LEAST TWO AND OFTEN SEVERAL OTHER METROPOLITAN AREAS OF MORE THAN ABOUT A QUARTER MILLION. MEGAPOLITAN AREAS ARE BIG BUT NOT SO LARGE THAT THEY CANNOT BE TRAVELED BY CAR IN A DAY, ROUND TRIP—ABOUT 200 MILES IN DISTANCE.”¹⁴

This definition feels somewhat like an “I know it when I see it” standard sometimes used by court decisions. Nelson and Lang’s methodology is useful because they consistently apply this framework to analyze the entire nation and provide us with metrics for comparing the Sun Corridor with other places. Nelson and Lang are the principal champions of megapolitan thinking in the U.S. Their essential message is that the U.S. is sorting itself into larger urban agglomerations. This phenomenon is an American manifestation of the increasingly urban world. They note: “Megapolitan clusters and megapolitan areas will account for more than about 70% of the nation’s growth between 2010 and 2040, with their share of the total population rising from less than 65% in 2010 to about 66% in 2040. The 67 million new megaregion and megapolitan area residents will occupy about 17% of the privately owned land in the contiguous 48 states.”¹⁵

POPULATION, GROWTH AND DEMOGRAPHICS

Viewing the Sun Corridor as a unit can change the nature of the dialogue about urban Arizona versus competitive locations. The most useful megapolitan comparisons are with the Sun Corridor’s neighbors and geographic competitors in the western United States. We will consistently use a reference set including the Seattle (Puget Sound) and Portland (Willamette) areas, as well as Las Vegas, Denver (Front Range), Dallas-Fort Worth, Houston, and Southern California. Each of these represents an economic and geographic area generally considered to be a Sun Corridor competitor. We also include Atlanta because of its similar population and strong economic base. For each metric we use to analyze the Sun Corridor, we also sometimes include one or more “out of reference set” comparisons. For example, on the overall population we include the “Steel Corridor” in Pennsylvania-Ohio. The reason is that this megapolitan is not expected to grow from 2010 – 2040 and therefore as an urban area it will be passed by the Sun Corridor probably by the year 2025.



TABLE 4: MEGAPOLITAN AREA POPULATION, 2010, 2025, 2040 (in thousands)¹⁶

Megapolitan Area	2010	2025	2040	Change 2010-2040	Percent Change
Las Vegas	2,352	3,180	4,025	1,673 (8)	71.1 (1)
Sun Corridor	5,730	7,429	9,166	3,436 (4)	60.0 (2)
Dallas-Fort Worth	7,445	9,264	11,129	3,684 (2)	49.5 (3)
Front Range	4,066	5,055	6,071	2,005 (6)	49.3 (4)
Houston	6,723	8,343	10,007	3,284 (5)	48.8 (5)
Willamette	3,521	4,274	5,049	1,528 (9)	47.4 (6)
Atlanta	7,792	9,605	11,470	3,677 (3)	47.2 (7)
Rugt Sound	4,472	5,363	6,283	1,811 (7)	40.5 (8)
Southern California	22,469	26,217	30,105	7,636 (1)	34.0 (9)
Steel Corridor	6,831	6,895	6,994	163	24

source: Megapolitan America

This table makes clear that the population of the Southern California megapolitan is simply of a different scale than any of the others included in the reference set. Southern California is, of course, second only to the New York-Philadelphia megapolitan in population in the United States. While it is of a different scale than the rest of the reference set, it is, like the planet Jupiter, hard to ignore. The existence and gravitational pull of the Southern California population base exerts an influence throughout the western U.S. and particularly on the Sun Corridor. Viewed as a megapolitan area, Dallas-Fort Worth actually emerges in the western U.S. as the second largest, eclipsing its Texas competitor of Houston. Of the megapolitans in the reference set, the Sun Corridor is projected to be, by a significant margin, the fastest growing from 2010 to 2040.

TABLE 5: PERSONS PER SQUARE MILE FOR MEGAPOLITAN AREAS, 2010, 2025, 2040¹⁷

Megapolitan Area	2010	2025	2040
Southern California	887 (1)	1,035	1,188 (1)
Sun Corridor	700 (2)	907	1,120 (2)
Rugt Sound	576 (3)	680	809 (3)
Houston	398 (4)	494	593 (4)
Las Vegas	344 (9)	464	588 (5)
Atlanta	388 (5)	478	571 (6)
Front Range	359 (7)	447	536 (7)
Dallas-Fort Worth	346 (8)	431	517 (8)
Willamette	364 (6)	438	514 (9)
Florida Atlantic	1,218	1,498	1,786
New York-Philadelphia	1,294	1,406	1,526

source: Megapolitan America

One of the myths about the Sun Corridor is that it is extremely low density to the point of barely being urban. Table 5 debunks this myth. The myth is primarily based on the flawed methodology of dividing the number of people in the Sun Corridor by the size of the counties which make up the Sun Corridor. The dilemma of doing so is that Maricopa County, for example, is less than 1/3 urbanized. Nelson and Lang use a more complex methodology that subtracts the substantial amount of public land in the Sun Corridor to derive the comparisons shown in Table 5.



In the year 2010 the Sun Corridor was second only to California in density among the reference set and it holds that position through the year 2040. The density is below that of some of the densest northeastern cities but it's nearly twice that of places like Houston or Atlanta.

The changing demographics of America are dramatically displayed in Tables 6 and 7. It is not just the Sun Corridor where the minority non-White share of the population is going to dramatically increase—it is the entire United States. In Table 6, for example, we added a comparison of New York-Philadelphia and the Steel Corridor where the minority share of growth actually exceeds the overall population growth of the entire region. This is because the non-minority share of the population in those two megapolitans continues to grow even as total population is declining. This is also true in the Southern California megapolitan where the White, non-Hispanic population is projected to decline between 2010 and 2040 while the minority population surges. In the Sun Corridor both cohorts—minority and non-minority—increase.

TABLE 6: WHITE AND MINORITY SHARE OF POPULATION CHANGE BY MEGAPOLITAN AREA, 2010-2040 (IN THOUSANDS)¹⁸

Megapolitan Area	Population Change	White Non-Hispanic Population Change	Minority Population Change	Minority Share of Growth
Puget Sound	1,811	127	1,685 (6)	97.0 (3)
Willamette	1,389	208	1,181 (8)	85.0 (4)
Southern California	7,636	(2,358)	9,994 (1)	130.9 (1)
Las Vegas	1,673	541	1,132 (9)	67.7 (9)
Sun Corridor	3,436	845	2,591 (5)	75.4 (7)
Front Range	2,021	516	1,505 (7)	74.5 (8)
Dallas-Fort Worth	3,684	827	2,857 (3)	77.6 (6)
Houston	3,284	(64)	3,348 (2)	102.0 (2)
Atlanta	3,679	963	2,716 (4)	77.8 (5)
Steel Corridor	163	(438)	601	368.1
New York-Philadelphia	6,053	(3,376)	9,430	155.8

source: Megapolitan America

Table 7 deals with another misconception of the Sun Corridor: that its population growth is disproportionately made up of retirees. In fact, the senior component of the population in the Sun Corridor in 2010 – 2040 is only about 31%, lower than that of Puget Sound, Atlanta, Southern California, or Las Vegas. Again, here the most interesting comparison is to the Steel Corridor or New England where even with the declining overall population the number of seniors is dramatically increasing.



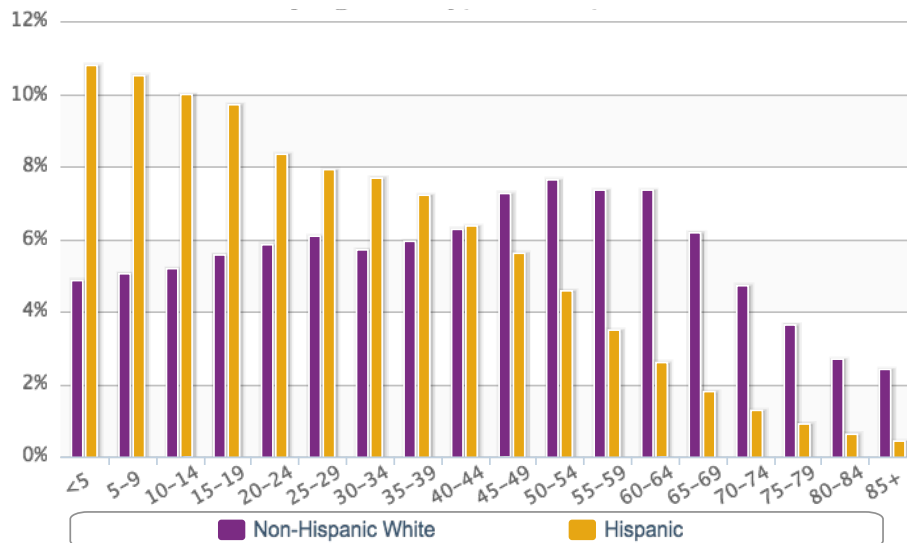
TABLE 7: MEGAPOLITAN AREA SENIOR POPULATION CHANGE AND SHARE OF TOTAL POPULATION CHANGE, 2010-2040 (IN THOUSANDS)¹⁹

Megapolitan Area	Total Population Change 2010-2040 (N)	Senior Population Change 2010-2040 (N)	Seniors as Share of Population Change 2010-2040 (%)
Southern California	7,636	3,558 (1)	46.6 (1)
Puget Sound	1,811	710 (6)	39.2 (2)
Las Vegas	1,673	557 (7)	37.3 (3)
Willamette	1,389	448 (9)	32.3 (4)
Sun Corridor	3,436	1,090 (4)	31.7 (5)
Atlanta	3,679	1,143 (2)	31.1 (6)
Houston	3,284	998 (5)	30.4 (7)
Dallas-Fort Worth	3,684	1,094 (3)	29.7 (8)
Front Range	2,021	546 (8)	27.0 (9)
Steel Corridor	163	703	430.6
New England	1,675	1,151	68.8

source: Megapolitan America

The demographic picture which does emerge for the Sun Corridor, and indeed for Arizona as a whole, was highlighted by the Morrison Institute in *Arizona Directions 2013*. In Arizona, as elsewhere, the White non-Hispanic population is aging in place while the Hispanic population is made up of a much younger cohort that will expand over time.

FIGURE 7: SHARE OF HISPANIC AND NON-HISPANIC WHITE POPULATION BY AGE GROUP, ARIZONA, 2010



source: U.S. Census Bureau

Demographically, the picture of the Sun Corridor that emerges is that by 2040 it will be the largest urban area west of the Mississippi and not located in either Texas or California. It will be denser, younger, and more Hispanic than most other megapolitan areas. And, in reaching that position between 2010 and 2040, it will be the fastest growing of America's large metropolitan areas.



ECONOMIC COMPARISONS

In economic terms the Sun Corridor is not as comparatively robust as it is in population terms. There is some truth to the perception that the Sun Corridor has a lot of people working in a relatively low wage environment. Table 8 shows the Gross Regional Product by metropolitan area for the reference set of cities. Here, despite its significantly greater size, the Sun Corridor falls well behind the Puget Sound megapolitan as well as the Texas and Atlanta comparisons. By 2040, Nelson and Lang project that the Sun Corridor will pass Puget Sound in Gross Regional Product and they show it as having the greatest change in Gross Regional Product between 2010 and 2040. This dramatic growth is driven primarily by population growth and not necessary by any expected dramatic change in the Sun Corridor's economic base. A similar comparative statistic is the amount of commercial and industrial space supported in the megapolitan area, which is a marker of business activity. This statistic (Table 9) similarly places the Sun Corridor at the top of the growth curve but in the middle of the pack overall.

**TABLE 8: GROSS REGIONAL PRODUCT BY MEGAPOLITAN AREA
AND THE CONTIGUOUS STATES, 2010-2040** (in millions of US\$) ²⁰

Megapolitan Area	Gross Regional Product, 2010	Gross Regional Product, 2040)	Change in Gross Regional Product 2010-2040	Percent Change in Gross Regional Product 2010-2040
Las Vegas	97 (9)	234	137	141.8 (1)
Sun Corridor	208 (6)	475	267	128.7 (2)
Houston	349 (3)	714	365	108.5 (3)
Dallas-Fort Worth	352 (2)	711	359	101.9 (4)
Atlanta	300 (4)	582	282	93.9 (5)
Willamette	131 (8)	242	111	88.8 (6)
Southern California	940 (1)	1,731	791	88.1 (7)
Puget Sound	227 (5)	425	198	87.1 (8)
Front Range	188 (7)	351	163	86.8 (9)
Central Texas	173	388	215	128.6
New York-Phil	1,807	3,084	1,277	70.7

source: Megapolitan America



**TABLE 9: NONRESIDENTIAL SPACE SUPPORTED
BY MEGAPOLITAN AREA, 2010-2040** (in millions of square feet) ²¹

Megapolitan Area	2010	2040	Change	Percent Change
Las Vegas	620 (9)	1,095	475	76.7 (1)
Sun Corridor	1,468 (5)	2,388	920	62.7 (2)
Houston	1,912 (4)	3,027	1,114	58.3 (3)
Front Range	1,192 (7)	1,794	601	50.4 (4)
Atlanta	2,219 (3)	3,328	1,109	50.0 (5)
Dallas-Fort Worth	2,233 (2)	3,331	1,098	49.2 (6)
Rust Belt	1,317 (6)	1,874	557	42.3 (7)
Willamette	916 (8)	1,291	375	40.9 (8)
Southern California	5,878 (1)	8,015	2,137	36.4 (9)

The Sun Corridor is often criticized for having an undiversified economy that is focused only on construction and real estate. However, data from the Urban Land Institute indicates that metropolitan Phoenix and Tucson actually have greater industrial diversity than Seattle, Las Vegas, and Los Angeles. These three competitors are reliant on aircraft construction, gaming, and entertainment production, respectively, which leaves them vulnerable to downturns in those sectors. Arizona's economy is less reliant on construction and real estate than these places are on their signature industries.

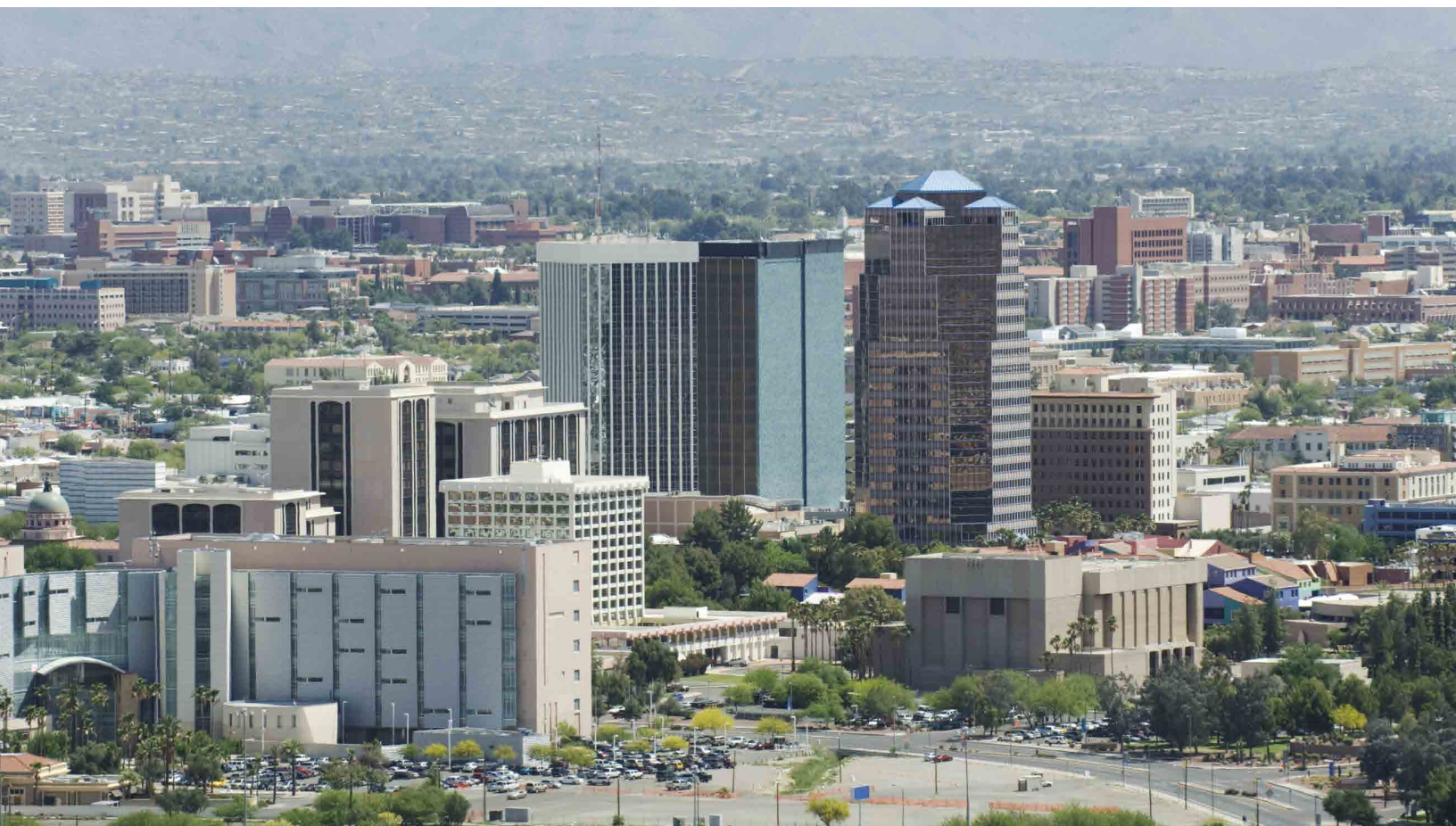


TABLE 10: ECONOMIC DIVERSITY²²

MSA	%Employment		Key Industries		
	Industrial Diversity	Bus & Pro Services	Educ & Health	Energy	Const.
USAVERAGE	1.0	13.6%	15.5%	0.6%	4.1%
Los Angeles, CA	0.55	15.4%	13.6%	0.1%	3.1%
Dallas/Fort Worth, TX	0.81	15.4%	12.6%	0.4%	4.9%
Houston, TX	0.61	14.3%	12.8%	3.6%	6.4%
Atlanta, GA	0.81	18.0%	12.7%	0.1%	3.7%
Phoenix, AZ	0.79	16.4%	15.0%	0.2%	4.9%
Seattle, WA	0.39	14.1%	13.1%	0.0%	4.7%
Denver, CO	0.83	17.6%	12.7%	0.4%	5.6%
Portland, OR	0.68	13.6%	14.8%	0.1%	4.7%
Las Vegas, NV	0.23	12.1%	9.0%	0.0%	4.4%
Tucson, AZ	0.63	13.4%	16.1%	0.5%	5.1%

source: Megapolitan America

Interestingly, neither Phoenix nor Tucson stands out as being disproportionately dependent on construction in these statistics. Tucson, not surprisingly, has a larger portion of its economy in education and health care than the national average. Phoenix is significantly ahead of the national average in business and professional services, reflecting its relatively urban character. Especially interesting is the significantly higher percentage of Phoenix employment in business and professional services compared to Seattle or Portland.



WHERE WE STAND

In May of 2008, the Morrison Institute issued *Megapolitan: Arizona's Sun Corridor*. That report was one of the first efforts to “brand” the urban heart of Arizona stretching from Yavapai County through Phoenix, Pinal County, and Tucson to the border. The term “Sun Corridor” had evolved from a course taught by John Hall and Robert E. Lang at ASU.

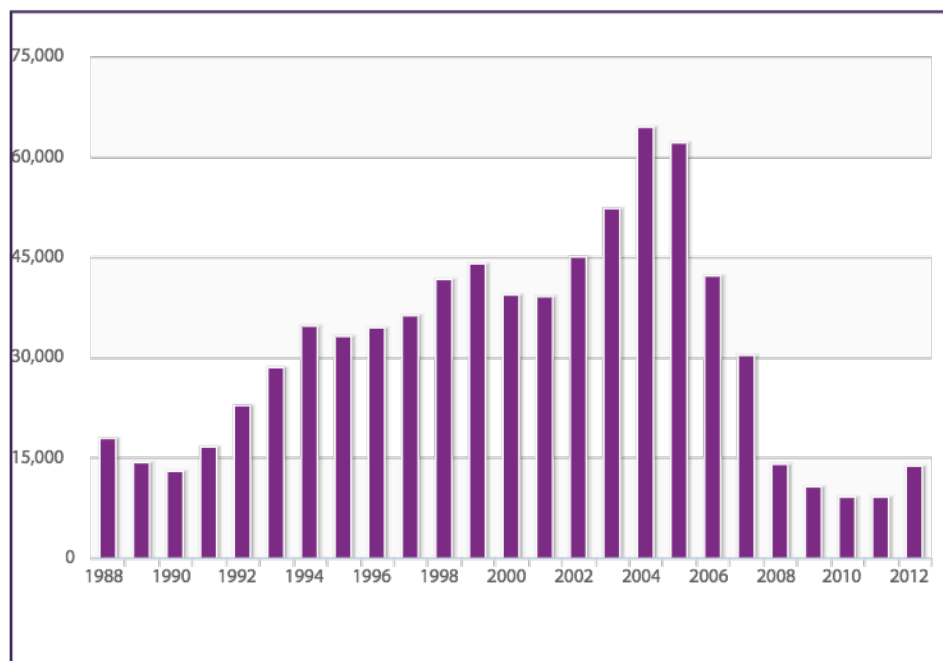
The original Sun Corridor report introduced Arizona to thinking about urban connections not as geographic but as economic. Unlike numerous earlier accounts, which saw development patterns proceeding down I-10 and merging Phoenix and Tucson into a gigantic suburb, Morrison Institute's study recognized that intervening Indian reservations and public land would make a continuous pattern of urbanization unlikely. The more significant point, it argued, was that an economic merging of Phoenix and Tucson could make the region competitive on the national and global stage.

Some parts of the putative Sun Corridor embraced the notion and asked what they could do to further the impending connection. Other places were grateful to be left out. But for the most part the elected officials, policy makers, and business leaders who were introduced by the report to the Sun Corridor raised a quizzical eyebrow trying to figure out what it meant to them.

Even as the report was released, the Great Recession began to unfold with a vengeance. From authorizing over 72,000 new private housing units in 2004 and 2005, the Sun Corridor's construction-based economy had virtually collapsed, with only 10,581 new home building permits authorized in 2010. Thoughts of a distant megapolitan future took a back seat to hanging on until the economic storm had passed.²³

By 2012, the Sun Corridor started to come back with housing prices in Arizona increasing by 20% in 2012 as foreclosures cleared the market and the homebuilding and jobs returned. As the upturn in the economy began to take hold the book *Megapolitan America: A New Vision for Understanding America's Metropolitan Geography*

FIGURE 8: SUN CORRIDOR HOUSING STARTS



by Nelson and Lang was issued with a wealth of statistics comparing the megapolitan areas of America. At the Morrison Institute, we decided it was time for an update on the earlier study.

So the concept of the Sun Corridor is back. The reality coming out of the downturn is that the urban heart of Arizona is becoming a more and more integrated place. The one million Tucsonans annually that fly out of Sky Harbor alone are a clear indication of the degree to which urban Arizona is increasingly functioning as a single economic unit.



Yet the raised eyebrow from the reaction to 2008's report is still apropos. This report has demonstrated that the Sun Corridor is a reality, but what are the implications of this reality? How do things change if we live in a megapolitan region instead of a city?

By thinking of the Sun Corridor as a unit, urban Arizona becomes more important than the individual cities of Phoenix, Tucson, Mesa, Glendale, Prescott Valley, or Sierra Vista. The Sun Corridor becomes an entity which can be compared to other great urban concentrations. It becomes a brand to use when competing at the global level. When we look for the advantages the Sun Corridor holds over our competition, several themes emerge. The Sun Corridor, simply put, is young, growing, and on the edge.

YOUNG

The Sun Corridor has a demographic profile significantly younger than the country as a whole.²⁴ This represents both a challenge and an opportunity. The challenge is that the Sun Corridor does not do a particularly good job at the moment of educating its young people. But the opportunity is huge since unlike many of the other megapolitan regions in the United States, the Sun Corridor is not poised to be overwhelmed by an aging population supported by a dwindling pool of workers. Instead, it has a ready supply of up-and-coming workers ready to power the next generation of our economy.

GROWING

The population of the Sun Corridor is expected to grow by 60% between 2010 and 2040.²⁵ That means we need to build 60% more roads, houses, schools, offices, and shopping centers and everything else by then. The infrastructure of the Sun Corridor is arguably the least developed of the major megapolitan areas in the United States. It has the most potential for change and adaptation. This opportunity means that the Sun Corridor has a far greater opportunity to shape its future—to design itself—in the context of the emerging future realities of urban life.

ON THE EDGE

Finally, while success as a region is increasingly about brand and competition; our physical location still matters. And location is part of brand. The Sun Corridor is on the edge of the United States, adjacent to the border with Mexico. It had been easy for the northern part of the Sun Corridor to forget about that until we suddenly woke up to the problems of illegal immigration and decided the border proximity is a disadvantage. But in the world of the future, proximity to the Mexican border and to trade with Central and Southern America and the ports on the Pacific Coast of Mexico and through them to Asia is the major advantage for the Sun Corridor over other parts of the country. It is an advantage that must be embraced and exploited. It does not happen if we turn our back on the relationship with Mexico.

So what? The answer is pretty simple. Do not think of the Sun Corridor as a place, as just a piece of dirt with surveyed boundaries. It's more interesting and more complex than that. The Sun Corridor is not about boundaries, it's about connections and relationships that can strengthen the whole, even when acting at a distance. In this light, the Sun Corridor is more like an extended family than a piece of real estate. The Sun Corridor needs to figure out where it stands as a competitive urban megapolitan. Build on its unique attributes. We will all be better off.





POLICY RECOMMENDATIONS

Dozens of reports from organizations across Arizona, including Morrison Institute, have made hundreds of policy recommendations over the years. These recommendations often fall into a few well-supported, but predictable categories; diversify our economic base, educate our children so they're ready to participate in a modern workforce, engage a larger swath of the population to produce better leadership and governance. Each of these recommendations still stands in light of the Sun Corridor reality. As an organic entity, policy actions that strengthen one portion of the Sun Corridor (for example, an economic development plan for Tucson) will generally have a beneficial effect on the whole of the megapolitan structure.

However, there are some specific ideas that come to the fore when Arizona is thought of in megapolitan terms. These are the actions that logically follow if we accept the logic that the fates of Phoenix, Tucson, Prescott, and Nogales are intertwined in a profound way. Indeed, since the 2008 Morrison Sun Corridor report, "megapolitan" connotes an even larger Southwest-without-borders framework. However, for Arizona to be a strong and even aggressive player in that space, this report offers a set of recommendations specific to the Sun Corridor. They focus primarily on the issue of infrastructure, the connective tissue that provides strength and resilience to the state's economic engine along with the ability to be part of a more robust Southwest economic emergence.

AGGRESSIVELY PURSUE TRADE WITH MEXICO

WHY?

True economic growth does not come from adding another big-box retailer to the state; it comes from trading goods and services with those outside our boundaries. The economic size and concentration of the Sun Corridor make trading partnerships with Mexico and Canada attractive to everyone. The economic boundaries of the Sun Corridor already extend into Mexico: one only needs to note that the population of Nogales, Sonora is ten times that of Nogales, Arizona to see the certainty of this relationship.

WHO?

The Arizona Commerce Authority and Morrison Institute are working together, exploring possibilities for increased cross-border trade. They aren't alone. Economic development organizations such as the Greater Phoenix Economic Council (GPEC), Tucson Regional Economic Opportunities (TREO), cities, including Phoenix, regional entities like the East Valley, along with the state's major universities are working on plans as well. That's good. But, to be effective they need to be working together, in concert, to pursue this strategy. The threat of Arizona falling behind in the race for global trade demands working collaboratively. Other states, notably Texas and Nevada have well-defined trade plans in place.

HOW?

There is tremendous potential to pair the technical expertise and innovation coming out of Arizona's universities with the manufacturing capability and labor supply south of the border. Wait times to cross the border in Nogales need to be reduced dramatically for legitimate commercial traffic while stopping illicit trade. These are just two of many opportunities.

IMPROVE FREEWAY INFRASTRUCTURE

WHY?

The Sun Corridor's economic health is highly dependent upon traffic along the Interstate 10 corridor. If this vital link were closed for any length of time, business in Phoenix and Tucson would grind to a halt. A redundant link between the two metros is an option worth exploring, especially if it facilitates trade with Mexico along the proposed Interstate 11 / CANAMEX corridor.

WHO?

Arizona Department of Transportation (ADOT), MAG, PAG, and CAG have primary responsibility over transportation planning. They, too, need to be working in concert with identified players in this space.

HOW?

For Interstate 11 to become a reality, aggressive pursuit of federal funding will be necessary. There are considerable, but not insurmountable environmental concerns to be addressed for this project, but the groundwork for this project is well underway.

PASSENGER RAIL BETWEEN PHOENIX AND TUCSON

WHY?

Every day, 2,800 Tucsonans travel to Phoenix to fly out of Sky Harbor. Over 37,000 passenger vehicles travel between the two cities each day.

WHO?

Again, ADOT, MAG, PAG, and CAG have primary responsibility over transportation planning. The state legislature would undoubtedly be involved in funding the project and acquiring rights of way to state land.

HOW?

It is possible to site a high speed rail line between Phoenix and Tucson largely on state trust land. While there are considerable legal challenges to this, the rewards would be substantial. The state's education system would see a windfall from the increased value of trust land sales and leases. New developments along the rail line in Pinal County could be much more rational than the often haphazard patterns seen during the boom of the early 2000s. Tucsonans have complained for years about the lack of airline connections out of Tucson International Airport. A high speed rail line from downtown Tucson to Sky Harbor and its twin airline hubs would address this issue.

INTERNATIONAL FLIGHTS FROM SKY HARBOR

WHY?

The Sun Corridor needs to be better connected to global markets. Potential investors from Europe or Asia shouldn't have to stop in New York or Los Angeles or Las Vegas on their way to scout industrial locations in Arizona.

WHO?

The City of Phoenix, which operates the airport, will be a primary player, as will the City of Tucson.

HOW?

By emphasizing that the Sun Corridor is much more than simply metropolitan Phoenix, the area becomes more attractive to airlines considering extending their routes. Incentives to international air carriers are an obvious tool. Tucson's support of this idea is critical to its success.



WHERE WILL WE FIND REGIONAL LEADERSHIP?

There is no Sun Corridor Mayor, no board of directors, no headquarters building, and no bylaws or charter. But that doesn't mean that it doesn't need leaders. Local and state elected officials and business leaders determine the direction of the Sun Corridor every day, whether they know it or not. But if their actions are driven by their own local interests at the expense of the wider region, they may undermine the very communities they are trying to improve. Recognition of the Sun Corridor reality has many benefits, while ignorance of our economic surroundings is perilous.

Local leaders are beginning to embrace the idea of a regionally connected economy, but state leaders have lagged. State officials need to acknowledge the Sun Corridor and act to facilitate productive interaction between the many parts of the region. For instance, the Growing Smarter Act requires cities to update their General Plans every ten years. However, there is no mechanism to ensure that plans of adjoining cities mesh together in a sensible way.

Leadership in the Sun Corridor needs to understand that the Sun Corridor isn't a project that is waiting to be developed in the future. The Sun Corridor is here today.

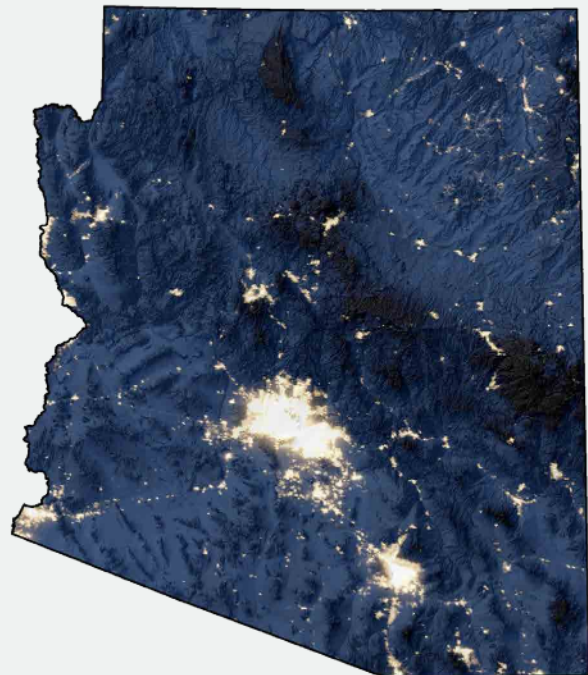
CONCLUSION

This report began with a view of Arizona from orbit. Political boundaries are invisible from that elevation, and yet structure is still visible. The organic structure that transcends of Åcial boundaries is the Sun Corridor. Still, the complex networks of large and small jurisdictions we've constructed are important to organizing our lives. Not just cities and towns but also school districts, legislative districts, special taxing districts, and a slew of well-meaning, hard-working economic development organizations. Each of these entities has a role to play in supporting our lives here.

In order to participate in a regional, national, and global economy, we need to acknowledge that the business of our lives transcends lines on a map. We need to look beyond the neat compartments that have been artiÅcially created for the sake of political convenience.

The competition is Åerce, fast and aggressive. Mexico isn't waiting. Texas and Nevada and Southern California aren't waiting. Forward-thinking organizations such as the state's universities and the Arizona Commerce Authority are already taking actions that transcend traditional boundaries, looking across borders of all kinds to Ånd the most efÅcient solutions to the challenges of tomorrow. Arizona's various jurisdictions and organizations need to work in concert, not in silos, to ensure the state's future.

FIGURE 9: ARIZONA AT NIGHT



Credit: NASA Earth Observatory/NOAA NGDC

END NOTES

1. Unless indicated, Sun Corridor figures used in this report were based on 2010 Census Tracts in Maricopa, Pima, Pinal, Yavapai, Santa Cruz, and Cochise Counties. Tracts were considered to be part of the Sun Corridor if their population density was greater than 500 people per square mile or if they were directly adjacent to a tract with a density greater than 500 per square mile.
2. Bruce Katz and Jennifer Bradley, "Mastering the Metro," published online at New American City.
3. Arizona Daily Star, March 27, 2013.
4. Question #30, American Community Survey. <http://www.census.gov/acs/www/Downloads/questionnaires/2013/Quest13.pdf>
5. Hunting, Dan, Kalt, Joe, and Propst, Luther. (May 2010) Tucson's New Prosperity: Capitalizing on the Sun Corridor. Sonoran Institute, Tucson, AZ. p. 18.
6. Federal pay scale with locality adjustments: <http://www.opm.gov/policy-data-oversight/pay-leave/salaries-wages/2012/general-schedule/>
7. http://www.whitehouse.gov/sites/default/files/omb/assets/fedreg_2010/06282010_metro_standards-Complete.pdf p. 37248
8. Arizona DOT traffic counts and projections: <http://mpd.azdot.gov/mpd/data/aadt.asp>
9. Federal Highway Administration Freight Analysis Framework - <http://faf.ornl.gov/fafweb/Extraction2.aspx>
10. Hunting, Dan, Kalt, Joe, and Propst, Luther. (May 2010) Tucson's New Prosperity: Capitalizing on the Sun Corridor. Sonoran Institute, Tucson, AZ. p. 19.
11. <http://www.arizonatheatre.org/inside-atc/about-atc/atc-history>
12. <http://azopera.org/about/>
13. ESRI Business Analyst.
14. Arthur C. Nelson and Robert E. Lang, Megapolitan America: A New Vision for Understanding America's Metropolitan Geography (Chicago: Planners Press, 2011), 23.
15. Nelson and Lang, Megapolitan America, 62.
16. Nelson and Lang, Megapolitan America, 63.
17. Nelson and Lang, Megapolitan America, 66.
18. Nelson and Lang, Megapolitan America, 70.
19. Nelson and Lang, Megapolitan America, 76.
20. Nelson and Lang, Megapolitan America, 102.
21. Nelson and Lang, Megapolitan America, 98.
22. Nelson and Lang, Megapolitan America, 96.
23. Urban Land Institute: Emerging Trends in Real Estate 2013 Appendix A. p. 90-91
24. <http://www.arizonaindicators.org/demographics/ACS/age>
25. Nelson and Lang, Megapolitan America, 63.

sun corridor



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