

SUNCORRIDOR, FUTURECORRIDOR



A GLOBAL MEGAREGION
IN THE 21ST CENTURY.

**AECOM
GLOBAL
CITIES
INSTITUTE**

Progress Report

June 28, 2010



Introduction and Overview

John McNamara, AIA, FAICP



The Human Condition Is Now Urban...



The Global Cities Institute brings together fully integrated planning, design and management capabilities to help make regions and cities better.

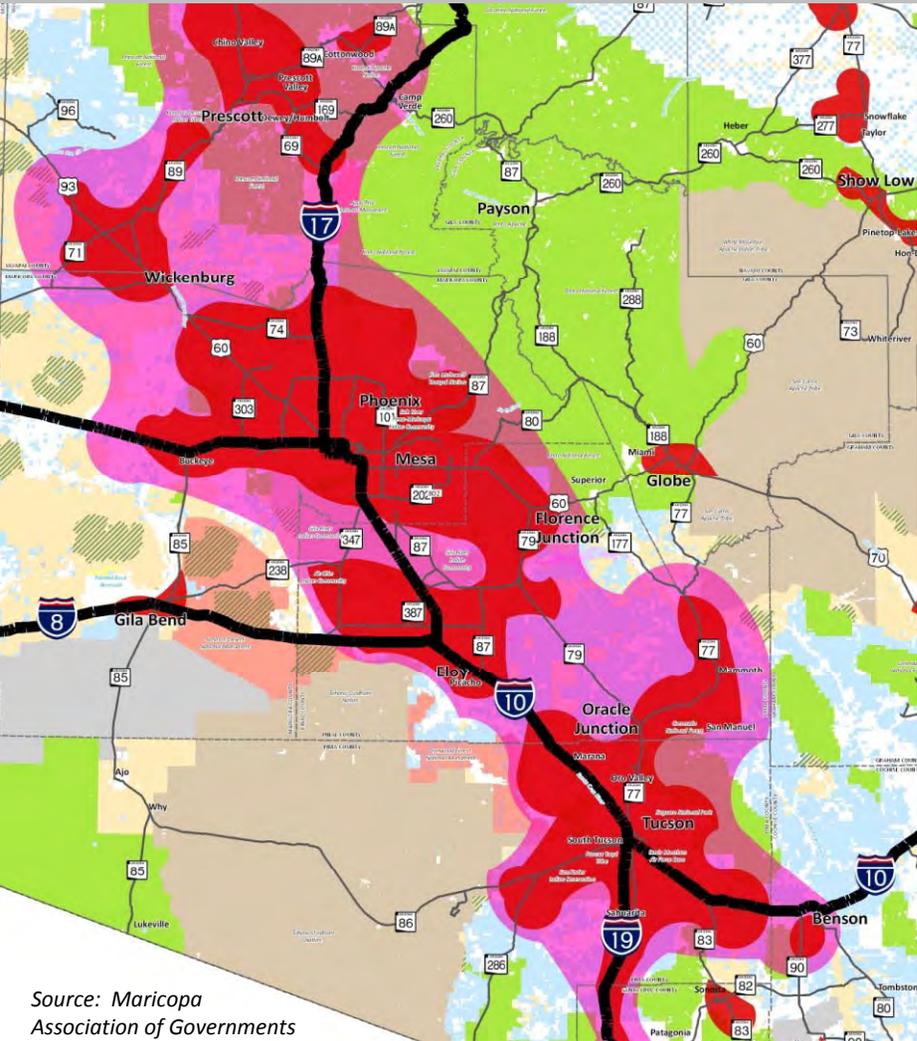


Location Criteria Include Potential For:

- Political support and institutional receptivity.
- Cooperation between public and private sectors to comprehensively address urban (re)development issues.
- Demonstration of sustainability in growth and revitalization with integrated infrastructure systems.
- Positioning location to successfully compete on a global basis.



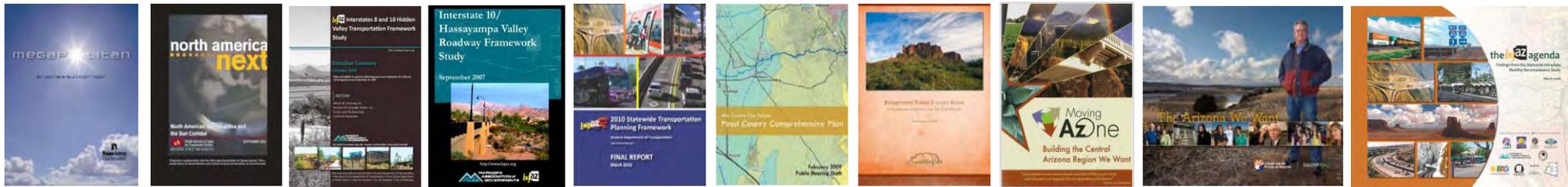
Sun Corridor Megaregion



- Phoenix and Tucson are principal metropolitan areas.
- 85% of statewide population and employment expected to be located in Sun Corridor by in 2050.
- Will require comprehensive and interconnected economic, social, environmental, land use, and multimodal transportation systems to foster economic growth and high quality of life.

Contributing to the Dialogue

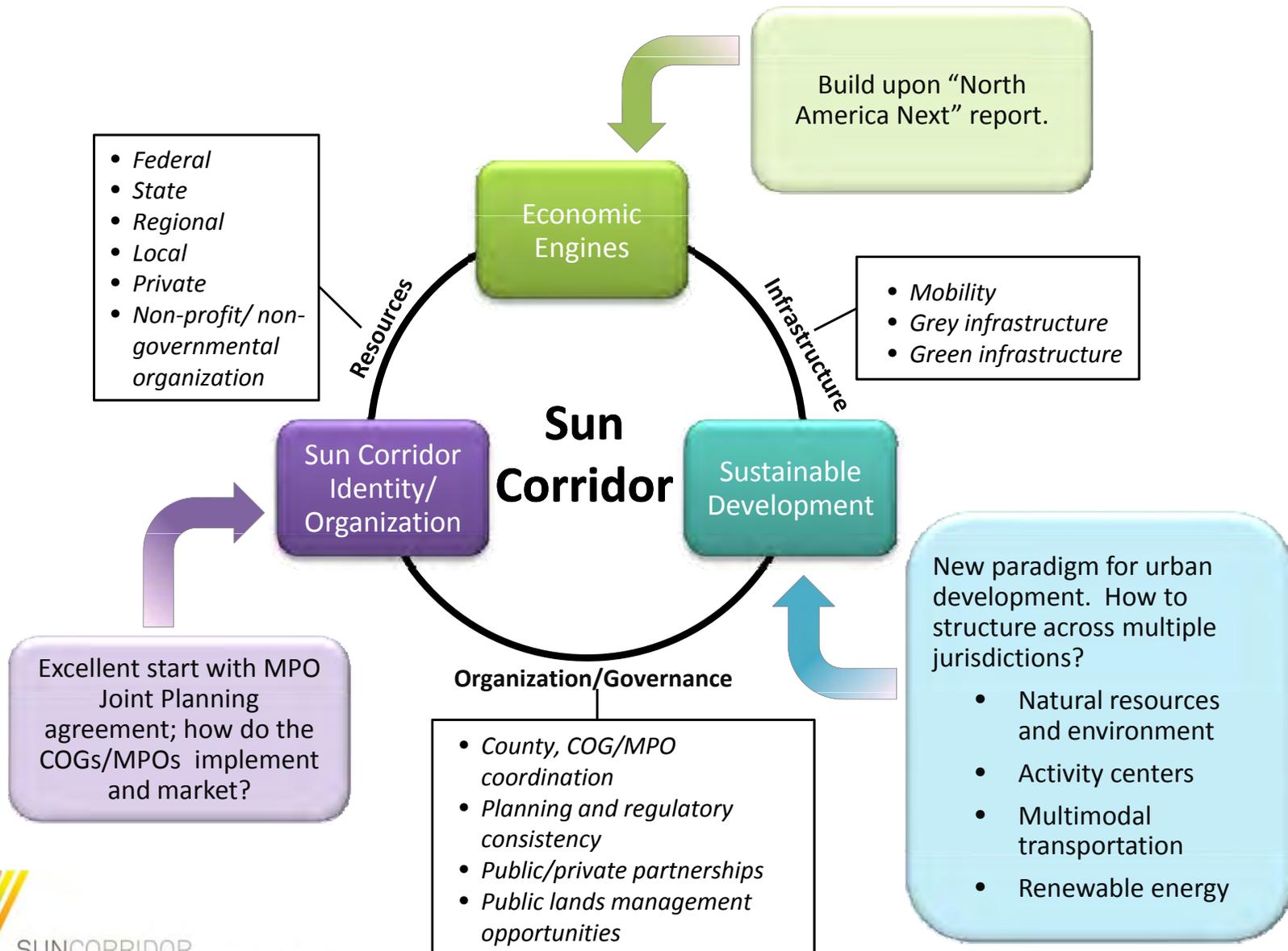
- Many issues and opportunities already identified in past planning studies; efforts ongoing to further sustainable development of the Sun Corridor.



- Global Cities Institute efforts are intended to be part of that larger process; contributing to the dialogue and advancing strategic thinking.



Focusing on the Big Issues Identified



Today's Presentation

1. Understanding and Achieving the Sun Corridor's Economic Potential
Mario Iacobacci
2. Approach to Sustainable Growth
Jay Hicks
3. Megaregion Identity and Organizational Challenges and Opportunities
Lee Farmer
4. Next Steps
John McNamara



Understanding and Achieving the Sun Corridor's Economic Potential

Mario Iacobacci, Ph.D.



Economic Overview

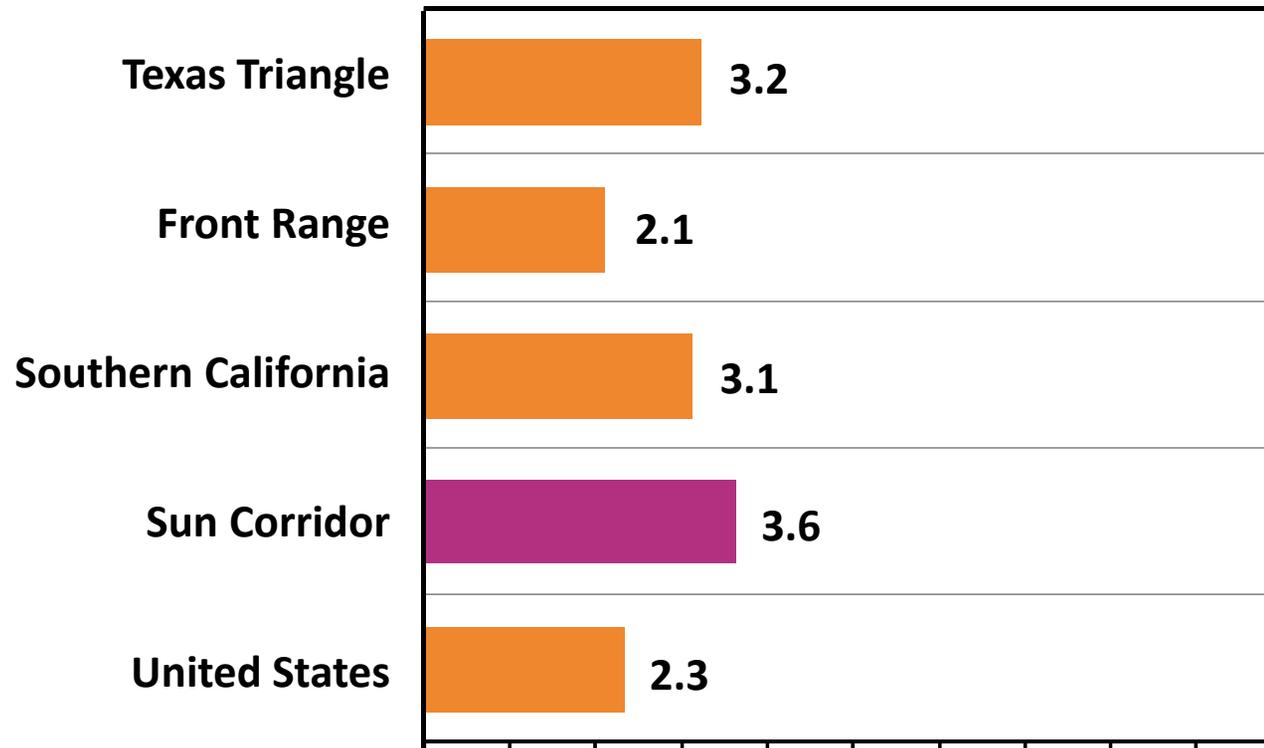
1. **Recent Economic Performance in Comparison to Other Megaregions**
2. Understanding the Sun Corridor's Economic Potential
3. Achieving the Sun Corridor's Full Economic Potential
4. Summary and Implications



Real GDP Growth

The Sun Corridor has exhibited above average performance

**Real GDP, Chained 2010 Dollars
Compound Average Growth Rates (Percent), 2001 - 2008**



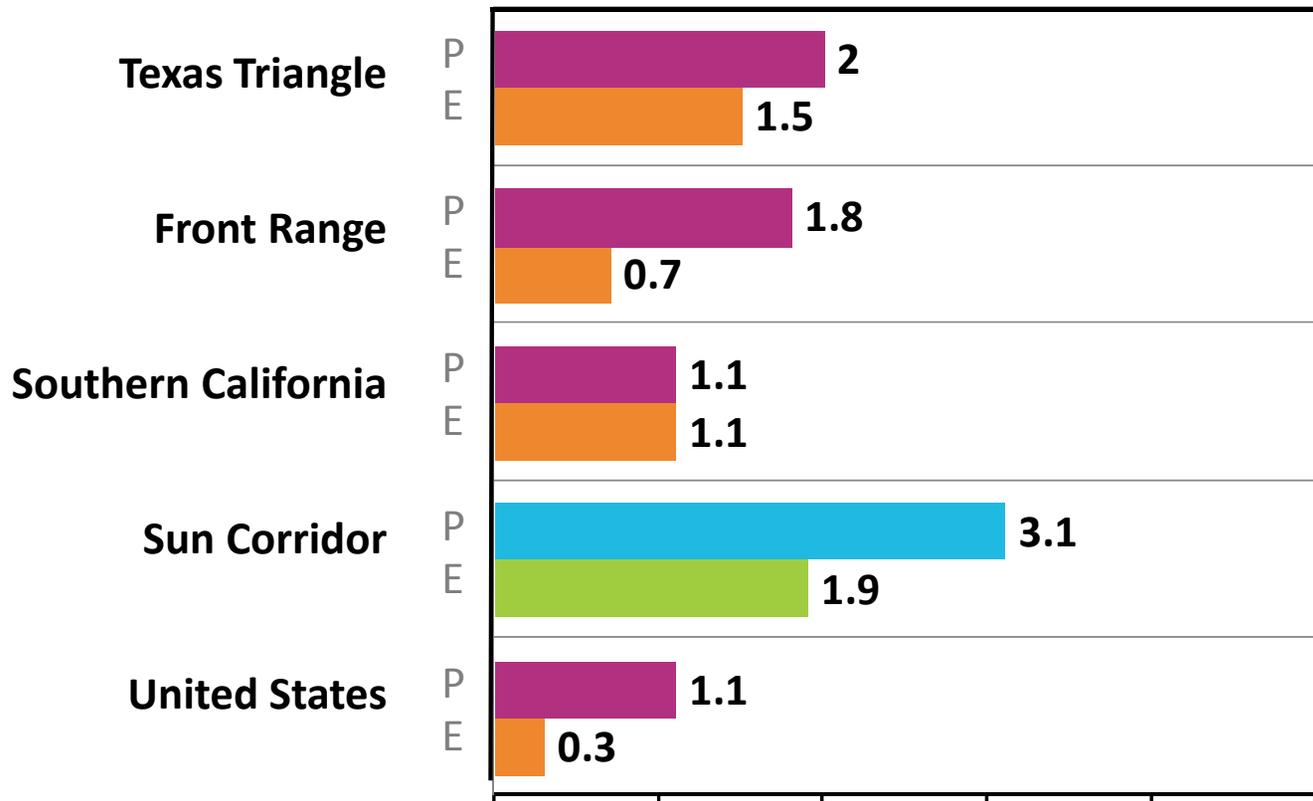
Source: Bureau of Economic Analysis (U.S. Department of Commerce), AECOM analysis



Population and Employment

Top performer in historical jobs and population growth

**Population Growth, 2000 - 2009; Employment Growth, 2001 - 2008
Compound Average Growth Rates (Percent)**



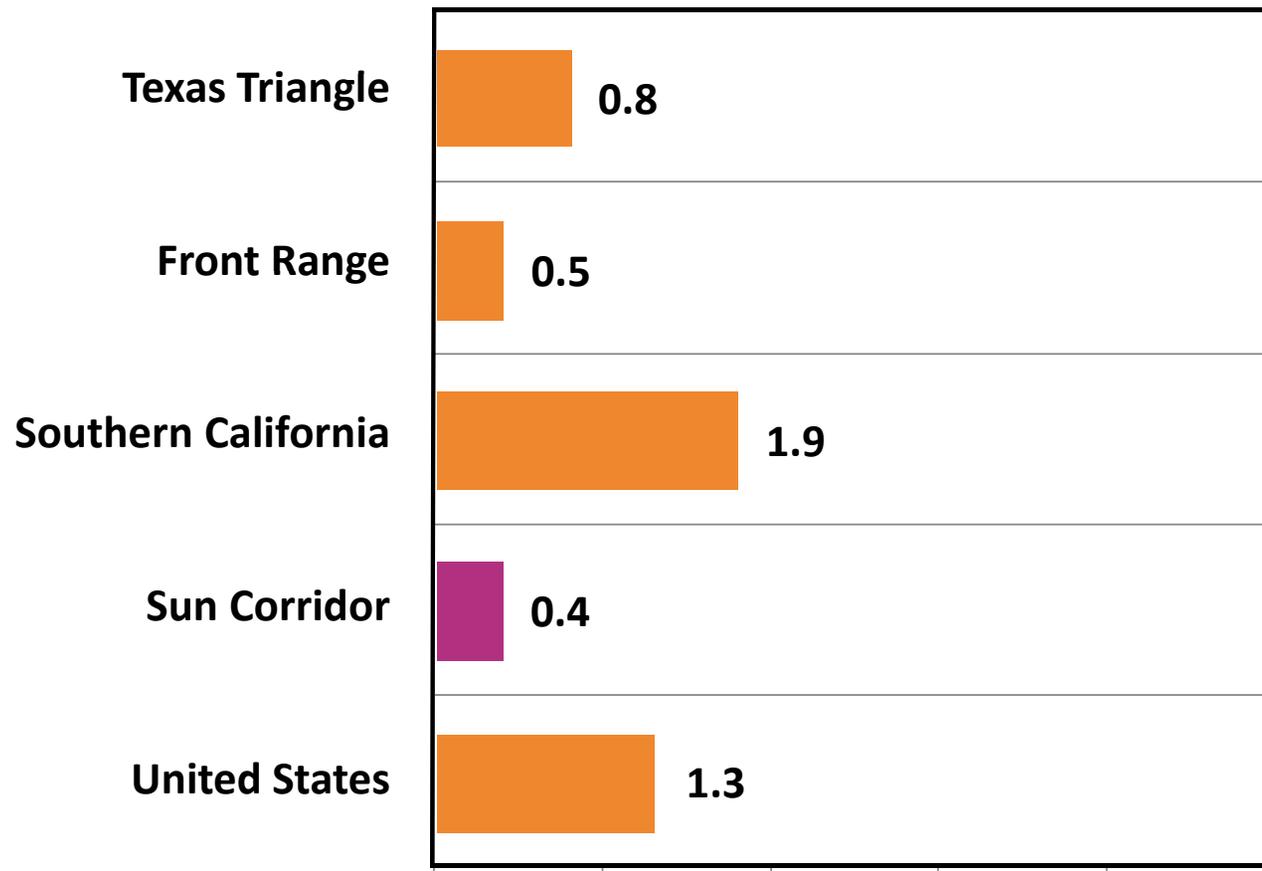
Source: Bureau of Labor Analysis (Arizona Department of Commerce), AECOM analysis



Real GDP Per Capita

At the bottom of the pack in this key standard of living measure

**Real GDP Per Capita
Compound Average Growth Rates (Percent), 2001 - 2008**



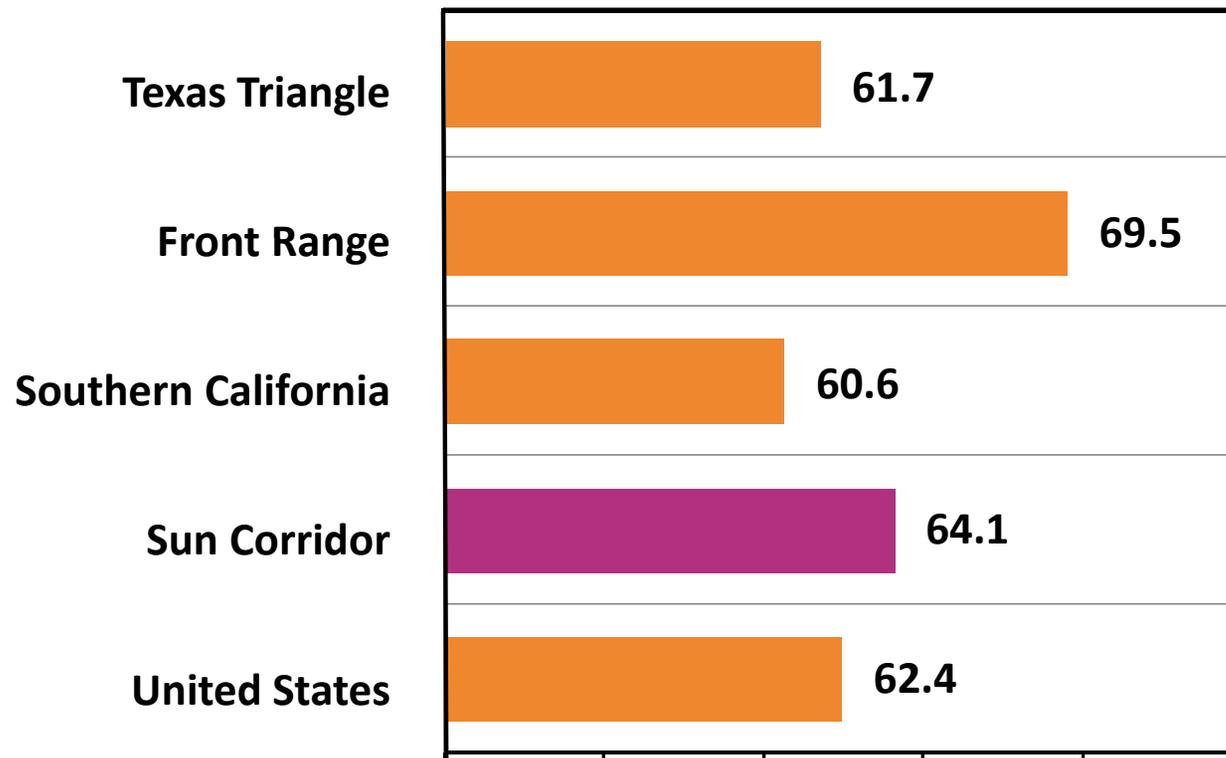
Source: Bureau of Economic Analysis (U.S. Department of Commerce), AECOM analysis.
Note: Index derived from real GDP per capita in chained 2005 dollars.



Labor Force Quality

Close to the U.S. average

**Percent with Associate Degree or Higher in Labor Force
(Percent), 2008**



Source: U.S. Census Bureau, 2006-2008 American Community Survey and Census 2000



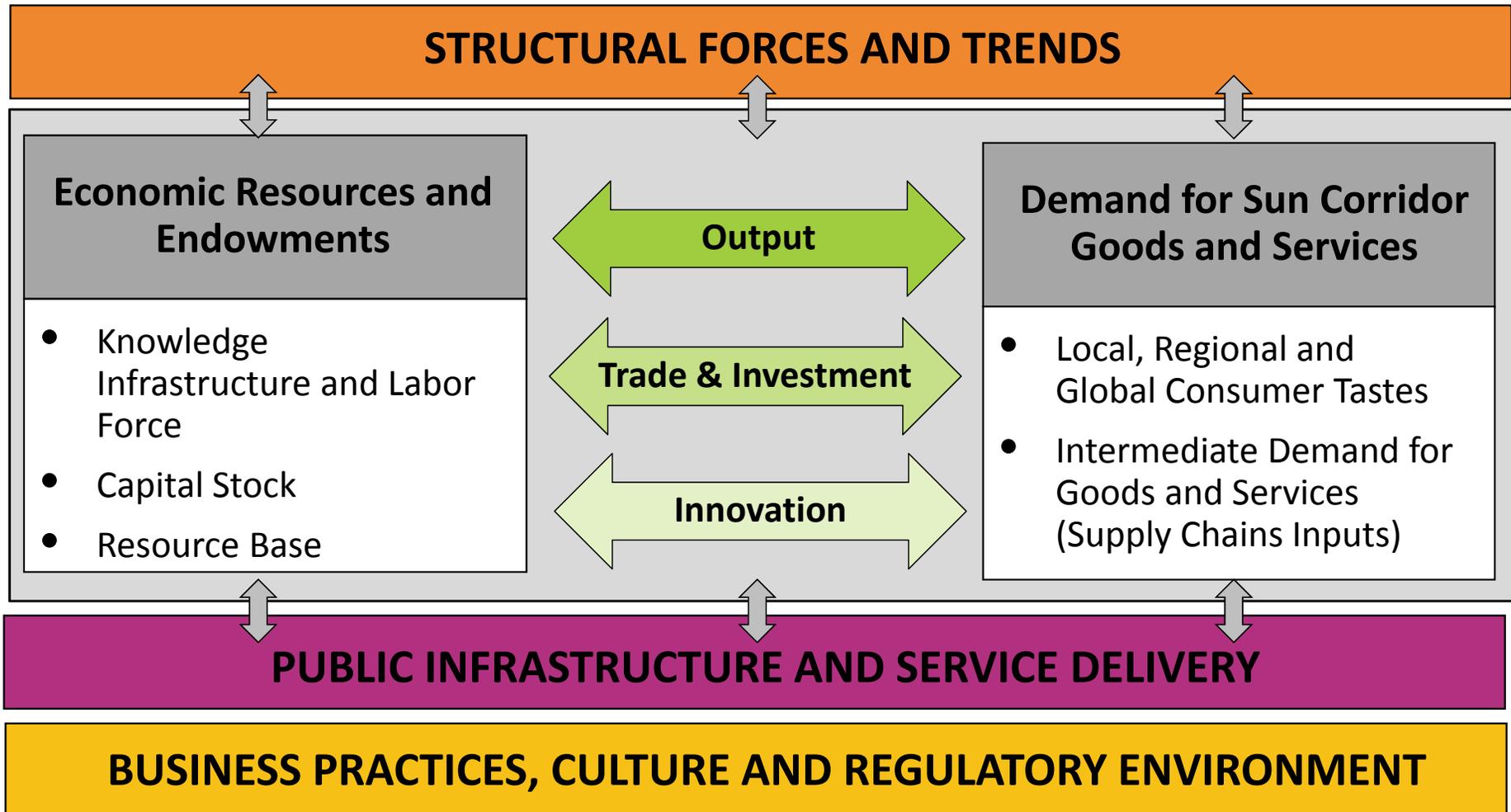
Economic Overview

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Understanding Economic Potential

A framework for the Sun Corridor



Structural Change Represents Both Opportunities and Pressures

- Demographic change
 - Population growth, immigration and aging
- Emergence of China, India, Brazil, and other low-cost producers
 - Sun Corridor has its own emerging market neighbor, which provides remarkable opportunities, harnessed through trade and investment flows, and some challenges.
 - Rising transportation and logistics costs could give Mexico renewed vigor if global supply chains are regionalized.



Structural Change Represents Both Opportunities and Pressures

- ... Amid supply-chain integration at regional and global levels
 - Sun Corridor participation in these supply chains improves competitiveness and productivity growth – as a source of cost-effective inputs and a market for value-added goods and services.
 - Both inward and outward trade and investment flows are important to achieving this vision (“integrative trade”).
 - Transportation (not labor) has become largest cost component for many manufacturers due to globally-extended supply chains.
- Fiscally-constrained governments in North America and Europe



Public Infrastructure Provides the Foundation for Long-Term Growth

Public Infrastructure and Service Delivery

- Public infrastructure investment has significant impact on output and productivity:
 - 1% increase in public infrastructure capital stock leads to an increase in output of 0.15 - 0.35%¹
 - Other studies found relatively high rates of return on highway investments (18% in the 1970s); these dropped in the 1980s and 1990s²
 - Impact of each investment closely tied to the benefit-cost ratio for the project

Business Practices and Regulatory Environment

- Entrepreneurial initiative
- Intellectual property protection, especially for digital media
- Clear regulatory framework, with adequate monitoring and enforcement
- Safety regulations

Note: (1) Aschauer "Is Public Expenditure Productive?" and Munnell "Why Has Productivity Growth Declined?"
(2) Keeler "Measuring the Benefits" and Shirley "Firm Inventory Behaviour"



Economic Overview

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Achieving Full Economic Potential: Two Dimensions

- Where opportunities lie – by industry cluster or sector:
 - Identify top-ten high-growth sectors nationally (i.e., emerging sectors vs. mature sectors).
 - Emerging sectors where Sun Corridor already has a reasonable presence (marginal presence not enough to succeed).
 - High-productivity growth combined with output growth.
 - Sectors with high potential put forward by other studies.
 - Not intended as target sectors in any exclusive sense.
Governments and policy-makers not always capable of choosing winners and losers – either at the firm or sector level.



Achieving Full Economic Potential: Two Dimensions



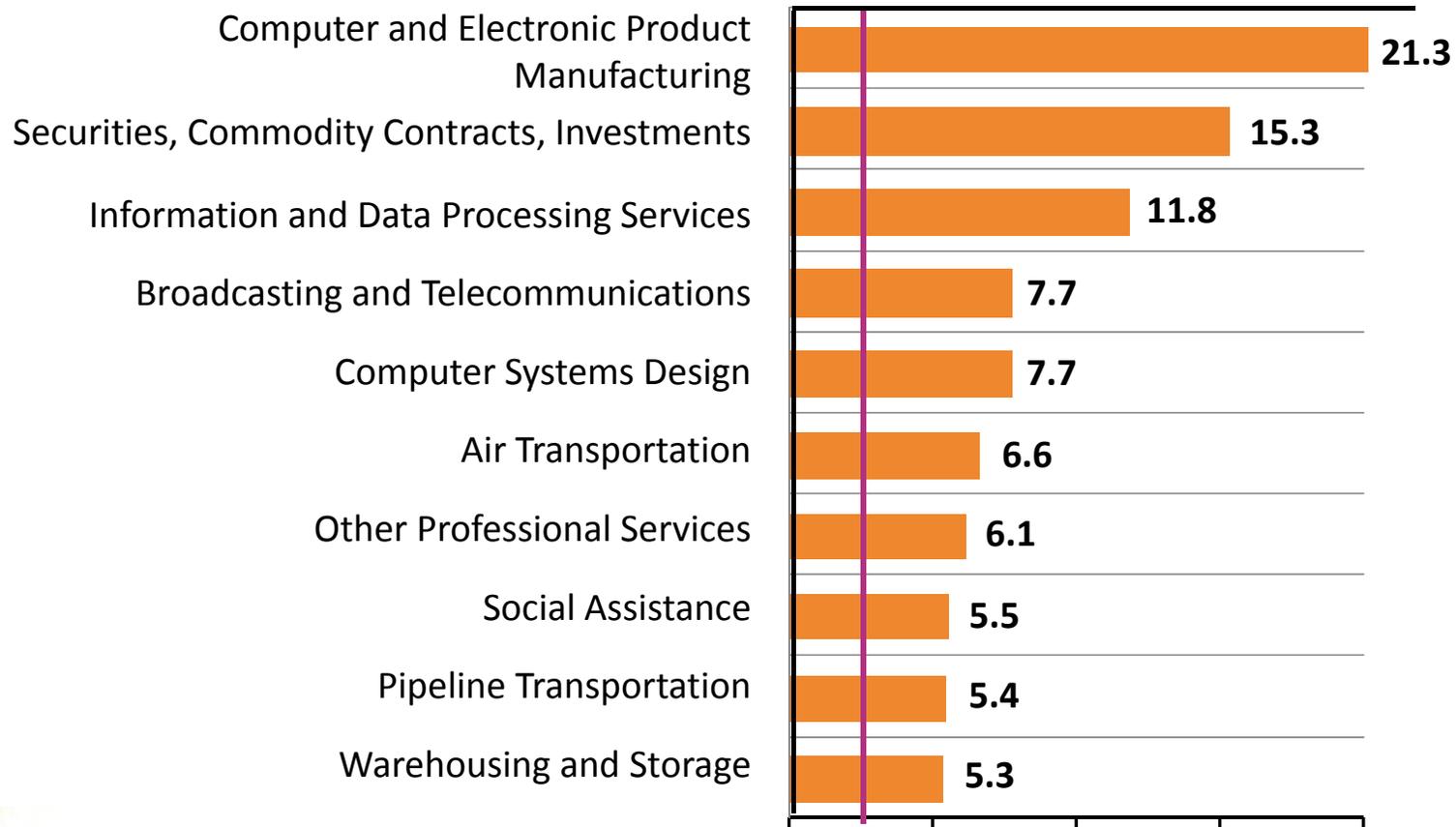
- Enabling conditions needed to fully develop opportunities:
 - Public infrastructure
 - Education and training
 - Trade and investment
 - Innovation



Top Ten Growth Industries

U.S. 1997-2007

Real GDP by Industry, U.S. Compound Average Growth Rates (Percent), 1997 - 2007



Source: Bureau of Economic Analysis (U.S. Department of Commerce), AECOM analysis

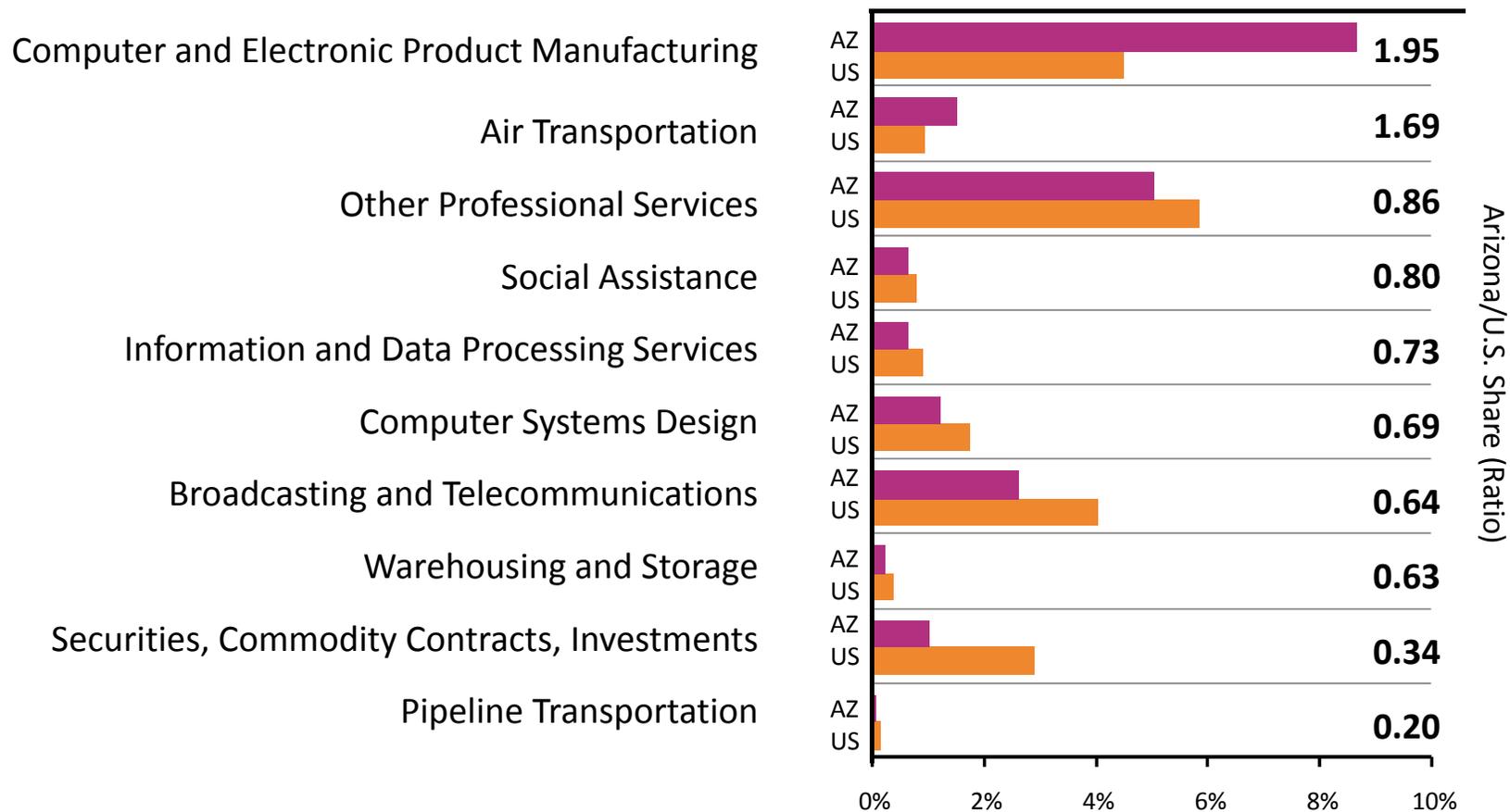
**All Private Industries,
Overall U.S. = 2.9**



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Arizona Underrepresented in Most High Growth Industries

Industry Shares of GDP, U.S. and Arizona (Percent), 2007



Source: Bureau of Economic Analysis (U.S. Department of Commerce), AECOM analysis



Sector Results Assessment for the Sun Corridor



- Based on historical growth rates (top ten) and a solid Arizona presence (i.e., sector share of total output in Arizona is at least 75% of the sector share of output nationally).
 - Computer and Electronic Product Manufacturing
 - Air Transportation
 - Other Professional Services (excluding legal and computer systems design)
 - Social Assistance (excluded since mostly non-profit institutions)
 - Information and Data Processing Services (borderline)



Sector Results Assessment for the Sun Corridor



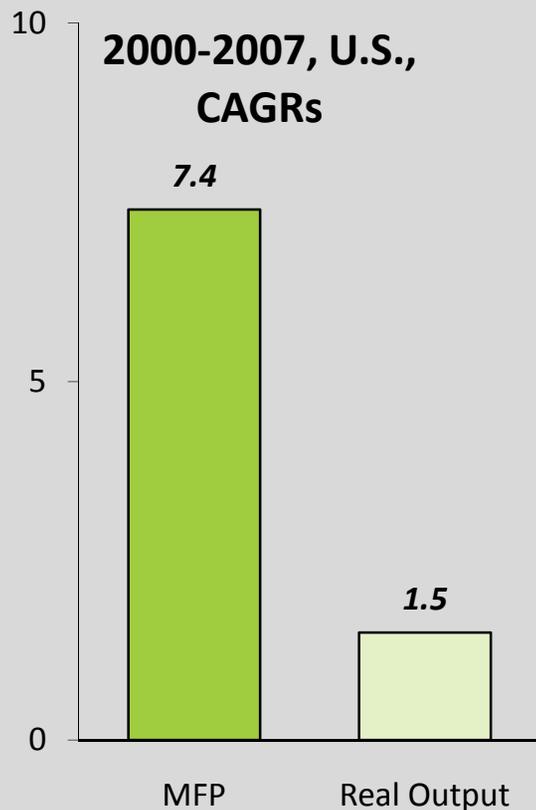
- Others sectors and clusters identified in past studies and other reports:
 - Transportation, Logistics and Warehousing (e.g., inland ports, supply chain management)
 - Aerospace and Defense
 - Biotechnology and Pharmaceuticals
 - Renewable Energy
 - Tourism and Hospitality



Computer/Electronic Component Manufacturing:

A thing of the past?

Diagnostics



Growth Potential

- Highly productive sector exhibited increases in output; partial growth achieved in reduced employment (U.S. work hours fell by 5.3% in 2000-2006).
- Real output grew 14.8% in Arizona over 1997-2007.
- Largest subsectors: semiconductors and electronic instruments; 2000-2006 MFP growth of 8.1% and 1.6%.
- Third largest subsector: computer and peripherals, 2000-2006 MFP growth of 21%.

Challenges

- Growth potential limited in total employment; continue to provide high-wage jobs.
- High-tech manufacturing employment in Arizona dropped from 2000 peak of 100,000 jobs to 75,000 in 2009.
- Recovery from contraction
- Offshore production remains a threat for employment.
- Long-term shift of high-tech sector from manufacturing to services output will support high-quality jobs in services clusters.

Note: Multifactor productivity (MFP) is defined as output per combined units of labor and capital inputs. It avoids the pitfalls associated with partial productivity measures, such as labour productivity.

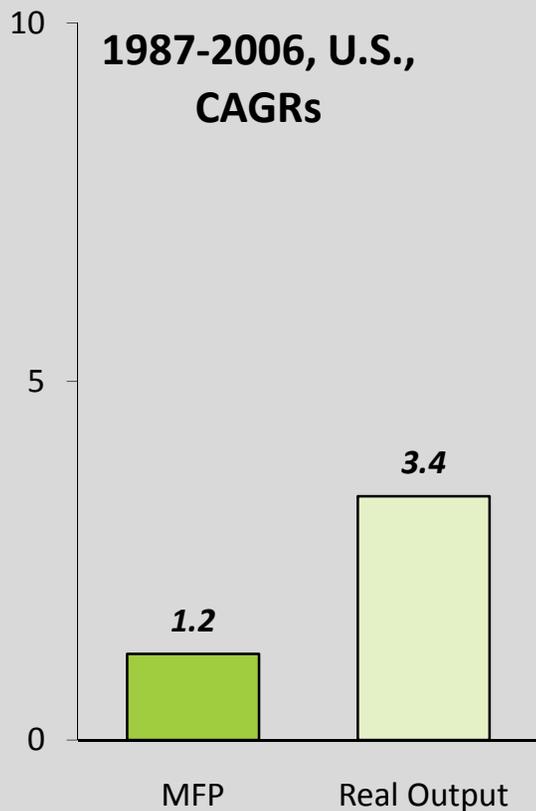
Source: Bureau of Labor Statistics: Multifactor Productivity Trends for Detailed Industries, 2006 (August 29, 2008) and Multifactor Productivity and Related KLEMS Measures from the NIPA Industry Database, 1987 to 2007



Air Transportation:

An emerging Sun Corridor advantage

Diagnostics



Growth Potential

- Mature industry nationally; growth potential significant for Sun Corridor and Southwest.
- Real output grew 10.3% in Arizona from 1997-2007.
- Air cargo is a high-growth niche with significance for high-tech.
- Key attractiveness contributor as a destination for globally mobile entrepreneurs.
- Tourism is driver/beneficiary as better connectivity improves competitiveness as a vacation/retirement destination.

Challenges

- Hub status of Phoenix Sky Harbor leads to more direct services and improved frequency for business community to major U.S. and international destinations.
- Address capacity constraints at Phoenix Sky Harbor.
- Avoid cannibalizing valuable connecting traffic at Phoenix Sky Harbor through regional airport development.
- Develop mutually supportive airport network for passenger and cargo traffic.

Source: Bureau of Labor Statistics, Multifactor Productivity Trends for Detailed Industries, 2006 (August 29, 2008). Note that MFP grew at an annual rate of 3.6 per cent between 2000 and 2006.



Other Professional Services & Information and Data Processing Services

Other Professional Services

- Sector consists primarily of architectural, engineering, financial, consulting and advertising services (excludes legal and computer design services).
- Services are relatively mature, nationwide labor productivity for architectural, engineering and advertising services was 1.5%, 1.8% and 2.0%, respectively, for 1987-2007, close to the average for all sectors.
- Sun Corridor serves as regional service center in Southwest.

Information and Data Processing Services

- Sector provides information, storage, access, and processing; consisting of news syndicates, libraries, archives, online information service providers, and data processors.
- Arizona averaged a growth rate of 19.5% between 1997 and 2007 (compared to 11.8% nationwide), but represented only 0.56% of the state economy in 2007.
- If growth rate in Arizona outpaces national growth rate, it will close the under-representation gap in Arizona.

Source: U.S. Bureau of Economic Analysis (<http://www.bea.gov/regional/gsp/action.cfm>)



Transportation, Logistics, and Warehousing:

The inland port vision

Opportunity

Market Rationale

Recent Investments

- | Opportunity | Market Rationale | Recent Investments |
|---|---|---|
| <ul style="list-style-type: none">• Co-location of intermodal terminals and logistics warehouses operated by retailers, manufacturers and industrial suppliers.• Located on one site with hundreds of acres, usually inland, on edges of metropolitan areas.• Attract ancillary economic activity, a wide array of other firms that support or trade with transportation, logistics, and warehouse service providers. | <ul style="list-style-type: none">• Continued increase in intermodal freight traffic, driven by (a) increased overall freight traffic, and (b) the continued containerization of freight.• Reduced drayage costs (i.e., costs of truck shipments between intermodal terminal and warehouses) and more efficient supply chain management in context where transportation is the largest cost component for manufacturers. | <ul style="list-style-type: none">• UPRR logistics parks in Joliet (Chicago) (3,900 acres), Salt Lake City, and San Antonio• BNSF logistics park in Chicago; plans for Dallas and Kansas City• Norfolk Southern logistics park in Columbus, OH; forthcoming in Rossville, TN (Memphis area) and McCalla, AL (Birmingham area)• Kansas City Southern in Houston• CSX in Winter Haven, FL (forthcoming) |

Source: Jeffrey Spivak "Freight Finds its Niche" *Planning* (May/June 2010).



Transportation, Logistics, and Warehousing:

The inland port vision

Requirements

Why Sun Corridor?

Challenges

- Minimum of 500 acres of flat land.
- Easy access to highways, Class I railroad mainlines, and air cargo.
- Designated Foreign Trade Zone status (for tax relief on goods stored on site).
- Major public sector investment in supporting infrastructure.
- Relatively cheap land.

- Sun Corridor at crossroads of two trade corridors (CANAMEX and California-to-Texas).
- Ports of Los Angeles/Long Beach congestion and political/environmental pressures limits expansion.
- Potential opening of Punta Colonet port in Mexico (earliest 2016).
- Port expansion underway at Guaymas and others.
- Two Class I railways (BNSF and UPRR) within Sun Corridor.

- Inland ports have tended to locate on outskirts of major population centers (Chicago, Dallas), or at major rail hubs.
- Texas inland ports remain heavily underutilized.
- Warehousing and storage sector share of Arizona output is well below national average.
- Appropriate siting for large parcel of land (Arizona State Land Department holdings?).

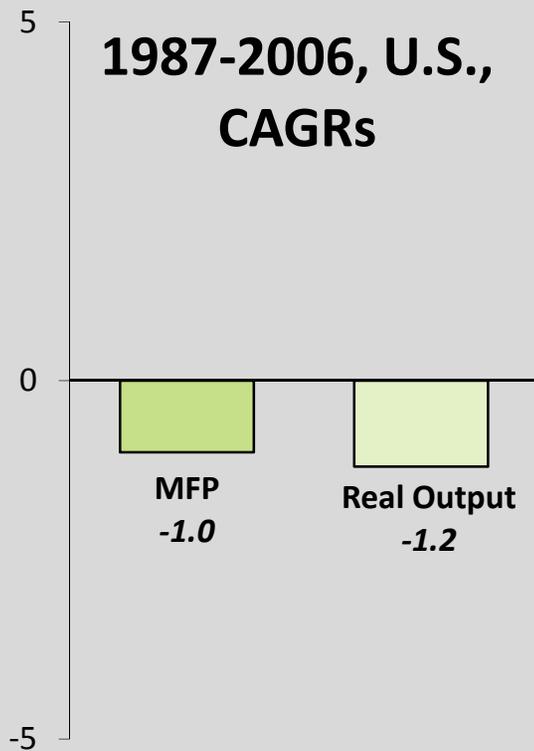
Sources: Jeffrey Spivak "Freight Finds its Niche" *Planning* (May/June 2010).



Aerospace and Defense:

Building on a Sun Corridor advantage

Diagnostics



Growth Potential

- Mature industry, some niches have high growth potential (e.g., avionics, software development).
- Defense and space-related manufacturing, R&D, industrial high-tech fields, assembly, distribution and warehousing.
- Strong presence with more than 50,000 employed in Arizona at wages above average rates.
- Synergies with other high-tech sectors: precision instruments, software development.

Challenges

- Extensive competition from clusters in other North American regions: Texas, Washington, Mexico.
- Dependent on extensive government procurement (e.g., Homeland Security) and tax incentives for attraction; both to be limited by public sector fiscal constraints.
- Challenge of attracting, retaining, and educating highly-skilled workforce with aging workforce and high number of retirements.

Source: Bureau of Labor Statistics, *Multifactor Productivity Trends for Detailed Industries, 2006* (August 29, 2008); "An Initial Assessment: Creating an Arizona Aerospace Institute" (October 2008); Arizona's Aerospace and Defense Commission Strategic Plan (Dec. 31 2009)



Renewable Energy:

A potentially promising Sun Corridor cluster

Sector Composition

Growth Potential

Challenges

- Wide range of businesses and technologies related to renewable energy production (solar, wind, waste to energy), R&D, and environmental remediation, including:
 - Water and wastewater treatment
 - Resource recovery
 - Pollution control
 - Distributed power generation
 - Watershed management
 - Carbon management

- High market growth potential.
- Limited presence to date.
- Long-term growth potential depends on:
 - (1) Relative decline in production and distribution costs for alternative energy, especially solar power, relative to conventional energy sources; and
 - (2) Implementation of policies which raise prices and/or limit reliance on conventional energy sources (e.g. carbon taxes).

- Ability to develop, attract, and retain a highly-skilled workforce.
- Access to venture capital.
- Commercial-scale opportunities in solar energy likely to remain limited if production and distribution costs remain higher than those for conventional energy sources.
- Uncertainty about regulatory framework regarding carbon mitigation.
- Uncertainty of public policies for promoting R&D.



Bioscience and Related Pharmaceutical Activities

Sector Composition

Growth Potential

Challenges

- Pharmaceutical R&D, including drug discovery and drug delivery, medical devices, medical imaging technologies, industrial products and biomaterials.

- High market growth potential.
- Fledgling presence to date, anchored by higher-education and research institutions in medicine, pharmaceuticals and agriculture, including the Translation Genomics Research Institute (TGen) located in Maricopa County and Flagstaff, and Innovation Park biosciences R&D in Oro Valley.
- Bioscience industry synergistic with other high-tech sectors in attracting employees with similar amenity preferences.

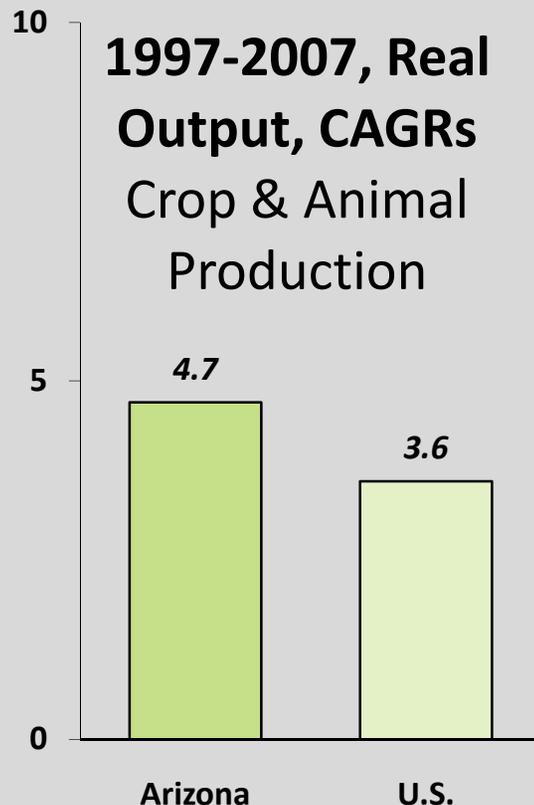
- Ability to develop, attract and retain highly-educated workforce.
- Access to venture capital funding and commercialization of innovations in basic research.
- Uncertainty of public and private sector research funding.



Agriculture:

Traditional sector with a new role in the Sun Corridor

Diagnostics



Growth Potential

- Gila River Indian Community agriculture production to grow dramatically, with benefits of Arizona Water Settlements Act.
- Sector may play new role in meeting niche sector demands and contributing to sustainable development.
- Overall sector is mature, but potential high-growth niche opportunities include:
 - Gourmet agriculture for tourism, hospitality, and export sectors
 - “Locavore” movement

Challenges

- Farm production is a small part of the Arizona economy (under 1% of private sector in 2007).
- Agriculture can be a water-intensive activity, which can exacerbate water scarcity in an already arid region. However, can be mitigated through:
 - Use of effluent for irrigation
 - Charging for water (and effluent) based on market prices which capture full cost (to avoid subsidizing water-intensive activities)

Source: Bureau of Economic Analysis, <http://www.bea.gov/regional/gsp/action.cfm>



Sun Corridor Enabling Conditions to Sector Development

Public Infrastructure

- Continued investments in infrastructure essential to support connectivity within Sun Corridor and access to neighboring regions and trade partners.
 - Transportation infrastructure
 - Border crossing infrastructure
 - Water and energy systems and grids (including renewable energy systems)
- Cost-benefit analyses required to compare capital projects using public funds.
- User pricing should be used to recover public infrastructure costs when feasible.

Education and Training

- Attracting highly-educated and skilled people is a key driver of productivity.
- Relatively low levels of educational attainment among fast-growing foreign-born population in the Intermountain West can hold back future productivity growth, if not addressed.
- Sun Corridor must be more effective in education and skills development within immigrant workforce (e.g., ESL, priority on education, technical training).



Sun Corridor Enabling Conditions to Sector Development

Trade and Investment

- Trade and investment flows are key mechanisms for enabling Sun Corridor firms to achieve higher integration in regional and global supply chains.
- Arizona's location near a major emerging economy, which usually sustains higher growth rates than mature economies in the mid-term, presents exceptional trade and investment opportunities.
- Arizona should increase economic cooperation with Mexico and Sonora, and contribute to reducing remaining trade barriers.

Innovation

- Innovation (developing and commercializing new goods, services, processes and business models) is valuable across all sectors, and can be key engine for generating high-wage jobs and improving quality of life.
- Government spending on R&D in the Intermountain West has not kept up with national increases; commercialization also depends on private sector R&D spending.
- Industry clusters in Phoenix and Tucson are under-performing as contributors to high-wage jobs.

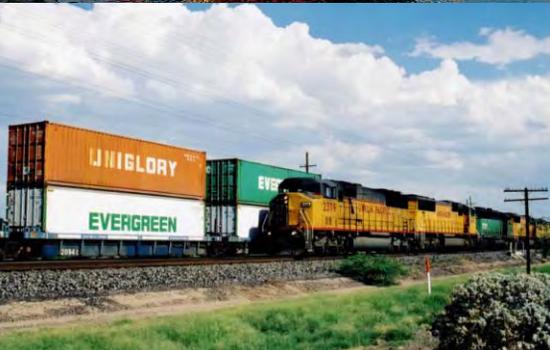


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Summary and Implications



- Sun Corridor inland port is an ambitious vision which could serve as a rallying point for several initiatives and interests:
 - More than a logistics, warehousing, and distribution center; could include significant manufacturing and/or final assembly.
 - Leverage concept to channel policy efforts toward improving trade links with emerging Mexican markets.
 - Alleviating trade barriers will have immediate impacts on Sun Corridor (even if inland port concept is not realized as expected).
 - Maximizes locational advantages of transportation crossroads.



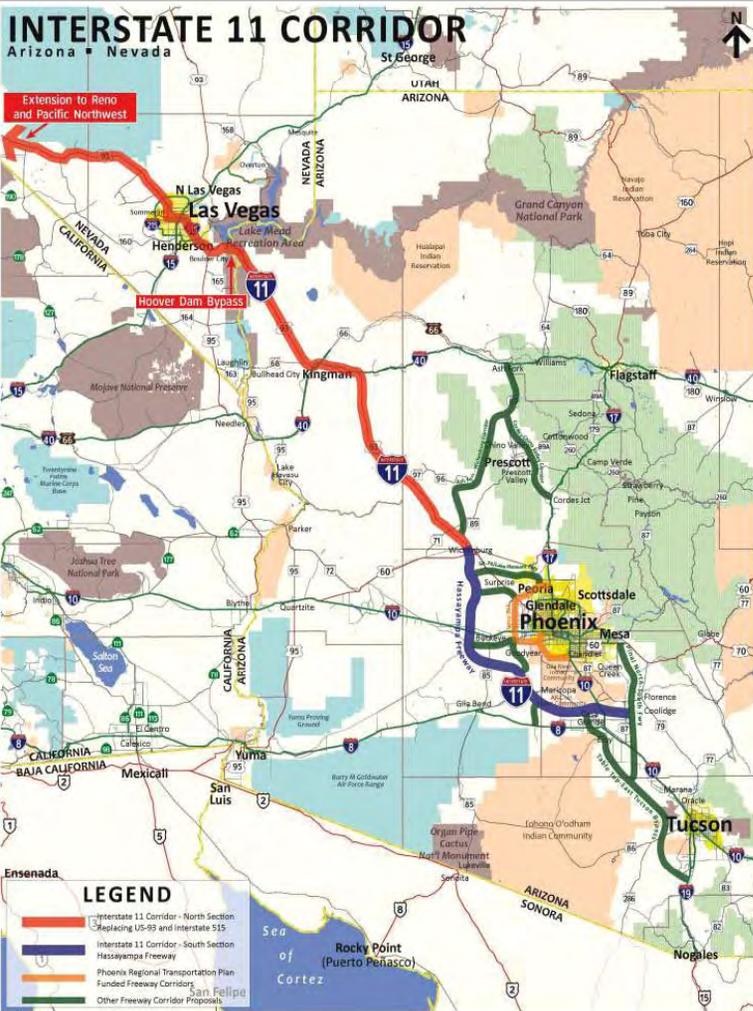
Summary and Implications



- Promote trade and economic cooperation with neighboring Mexican states:
 - Proximity of such a large and rapidly growing market is a major opportunity for the Sun Corridor.
 - Requires joint planning of bi-national border region infrastructure.
 - Strategically invest in key infrastructure elements that enable international trade.



Summary and Implications



- Public infrastructure challenges:
 - Choose right infrastructure projects; use resources strategically. Key projects to establish infrastructure spine in the Sun Corridor include:
 - Phoenix to Tucson intercity rail
 - Pinal County north-south multimodal transportation corridor
 - I-11 transportation corridor
 - Revisit projects in light of the impact of recession in order to maximize benefit-cost impact per dollar of public investment.
 - Transportation connectivity and coordination across the bi-national border.



Summary and Implications



- Addressing the public funding crunch
 - Reinvigorating user-pay principles in the provision of public infrastructure services (e.g., transportation, water, wastewater).
 - Greater role for public/private partnerships (P3) for a faster and more efficient delivery of public infrastructure.
 - Take advantage of new/upcoming federal funding initiatives (e.g., Transportation Act Reauthorization, Sustainable Communities Partnership, federal emphasis on rail and border transportation improvements).



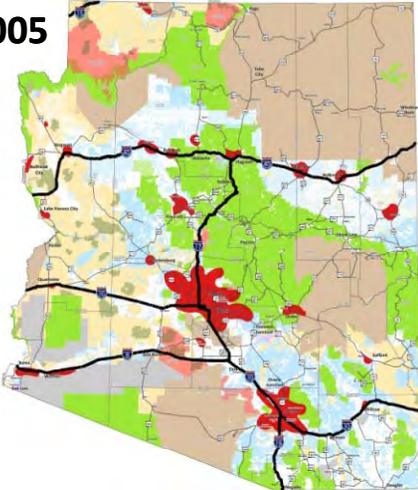
Approach to Sustainable Growth

Jay Hicks, ASLA



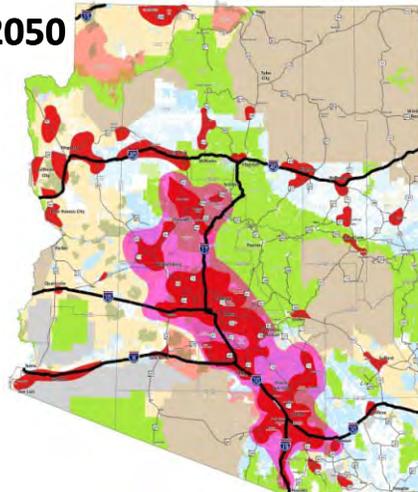
Growth: Framing the Challenge

2005



- Historical unprecedented growth.
- Emergence of the Sun Corridor as one of eleven initial U.S. megaregions; one of only four with bi-national border challenges/opportunities.
- Stretches from Prescott to Nogales at bi-national border, a distance of about 275 miles.

2050



Source: Maricopa Association of Governments

- Population and employment forecast to double by 2050, encompassing more than 85% of statewide total.
- Significant Arizona State Land Trust holdings with potential to demonstrate new paradigm for development.



Growth: Framing the Challenge

The Arizona We Want, Center for the Future of Arizona



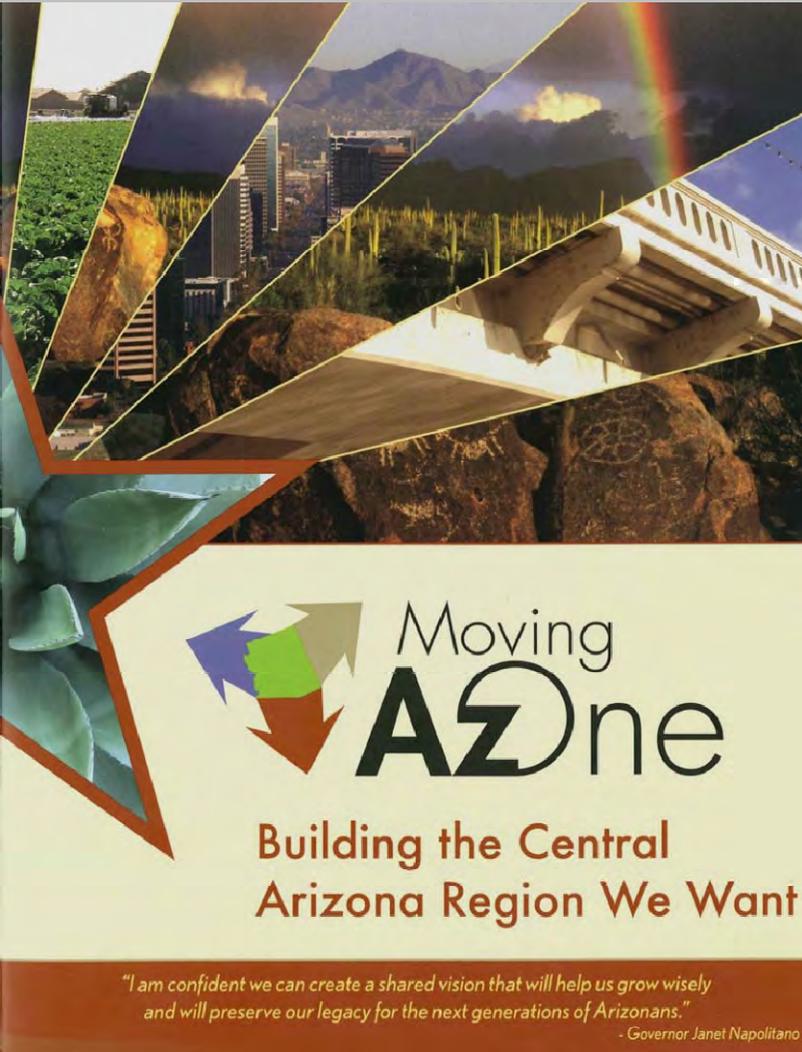
- Help students prepare for the jobs of the future.
- Make healthcare more available and affordable.
- Increase the number of quality jobs.
- Build the infrastructure needed for the future.
- Become more energy independent.



SUNCORRIDOR,
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Growth: Framing the Challenge

ULI Reality Check Program



- Guiding principles:
 - Preserve open space.
 - Support current infrastructure by growing along existing transportation corridors.
 - Connect employment and housing with multimodal transportation.
 - Create new urban centers and infill currently developed areas.
 - Locate housing near jobs.



Growth: Framing the Challenge

Superstition Vistas Visioning Process



Superstition Vistas

SUPERSTITION VISTAS VISIONING PROCESS
DRAFT Summary of Experts Workshop on Sustainability
October 13, 2008

Workshop Sponsors:

EAST VALLEY PARTNERSHIP LINCOLN INSTITUTE OF LAND POLICY SONORAN INSTITUTE

Consultant Team:

Robert Grow consulting FREGONESE ASSOCIATES HarrisInteractive® RCLCO EDAW | AECOM

- Value statements:
 - Nature and outdoors
 - Safe and secure communities
 - Education
- Key drivers of sustainability:
 - Ecological resources
 - Water
 - Energy
 - Urban heat island
 - Transportation
 - Urban form
 - Sociocultural
 - Economy



Overview of Sun Corridor Potential Sustainable Development Principles

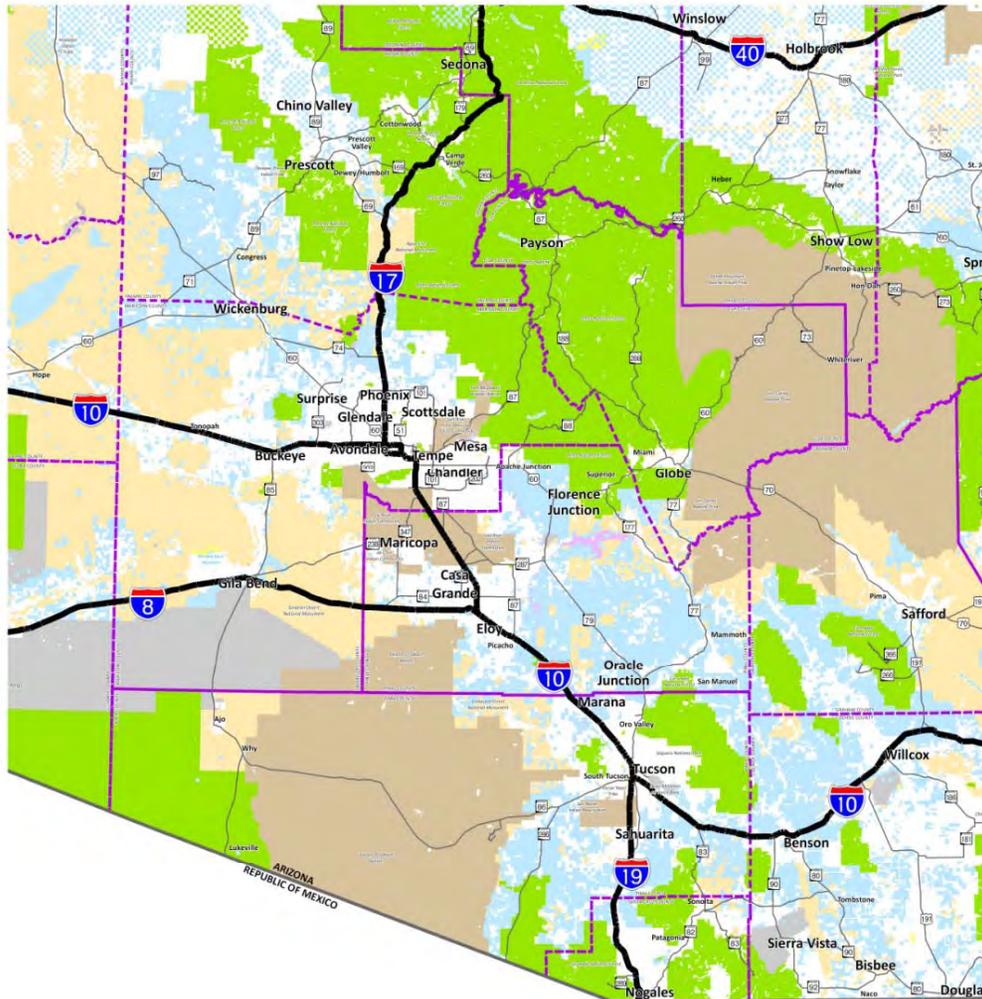


1. Preserve **open space** and the **natural environment**.
2. Enable development of **multi-use activity centers** composed of location efficient land uses.
3. Create **quality job centers** proximate to a range of housing options.
4. Develop **multimodal transportation network** for efficient community and regional mobility and to create economic opportunity.



Open Space and the Natural Environment

Recognize the environmental and land ownership context

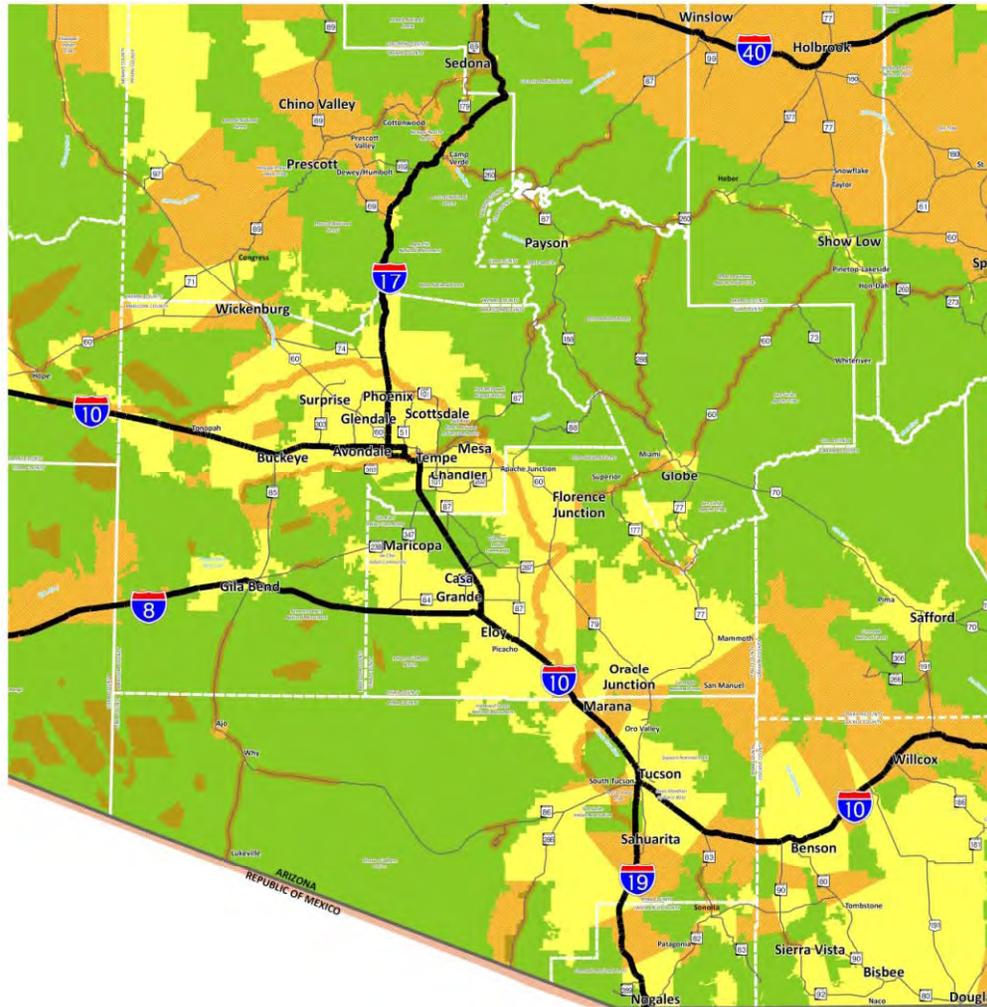


- The Nature Conservancy estimates that there are approximately 3 million acres of developable land between Phoenix and Tucson in the Sun Corridor.
- Approximately 1+ million acres of developable land will be needed to support forecast growth.
- ASLD owns 36% of all land in Pinal County, and more than half of all developable lands in Pinal County.
- What should be preserved?



Open Space and the Natural Environment

Create an environmental framework



- Preserve natural, cultural, and scenic heritage.
- Protect streams, natural washes, and wildlife corridors.
- Maintain and enhance wildlife habitats, migration corridors, and linkages across jurisdictional boundaries.
- Utilize natural open space and agricultural lands as buffers between activity centers.



Multi-Use Activity Center Development

Location-efficient land uses



- Incorporates residential, commercial, and employment uses to varying scales and intensities in mixed use or multi-use configurations.
- Focuses development to:
 - Reduce sprawl
 - Conserve open space
 - Protect irreplaceable natural resources
 - Most efficiently utilize infrastructure investments (e.g., transportation, energy, water, wastewater)
 - Enable the use and efficiency of multimodal transportation options
 - Reduce energy and water resource needs
 - Enable less carbon footprint impact than suburban development patterns

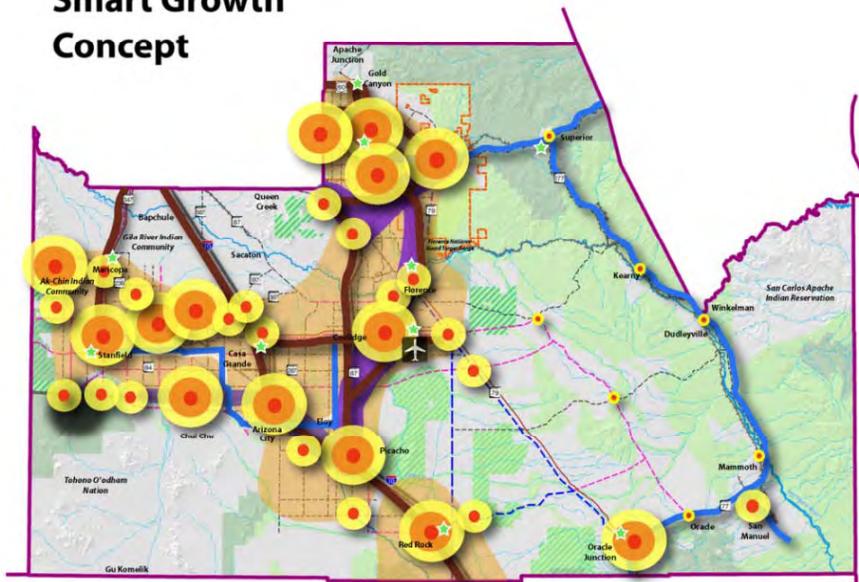


Multi-Use Activity Center Development

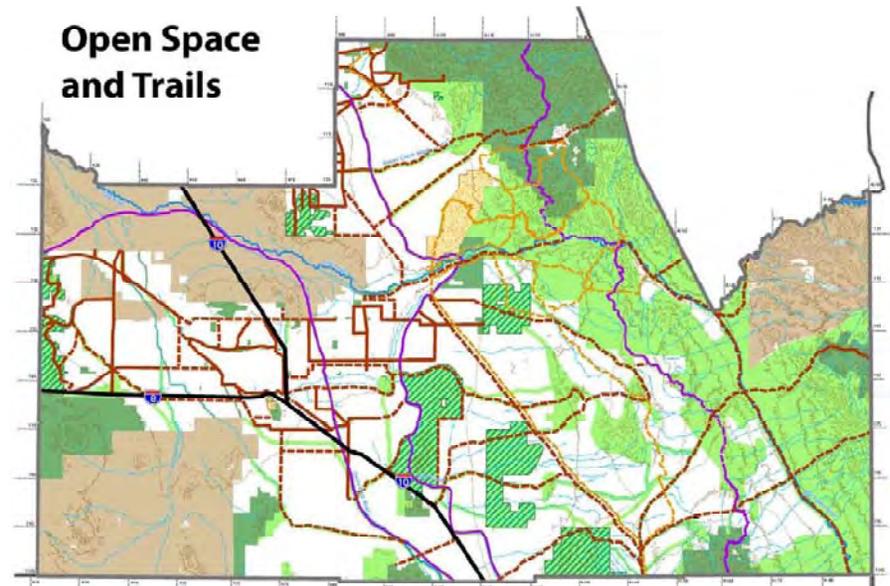
Growth around centers and along multimodal corridors

- Pinal County Comprehensive Plan exemplifies Smart Growth.
- Identify activity centers as growth and reinvestment areas.
- Allow preservation of sensitive and unique open space.

**Smart Growth
Concept**



**Open Space
and Trails**



Multi-Use Activity Center Development

Diversity of centers

Metropolitan Centers



Suburban Centers



Rural Centers



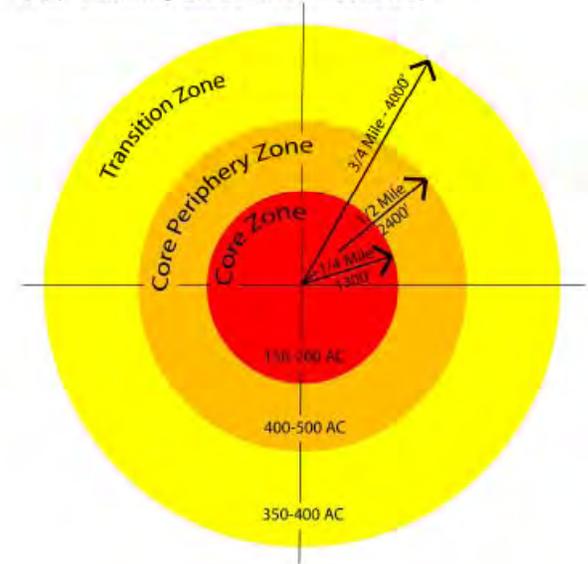
- Centers vary in size, mix, and intensity of uses.
- Multi-use centers include, at a minimum:
 - Employment, commercial, and residential land uses
 - Each has a role in building the urban environment

3-15: High Intensity Activity Center Characteristics
(Approximately 1,000 Acres Illustrated)

Activity Center Development Zone Suggested Land Use Mix	Approximate Area of Activity Center	Suggested Land Use Mix	Primary Means of Mobility	General Activity Center Characteristics
<ul style="list-style-type: none"> 80% Basic Employment 20% Service Employment 80% Residential 	<ul style="list-style-type: none"> 15-20% 150-200 acres 1,800' radius from center core 	<ul style="list-style-type: none"> Corporate Offices Medical Professional Governmental Concourse High Density Hospitality and Entertainment High Density Residential 	<ul style="list-style-type: none"> Transit Cyclator Neighborhood Electric Vehicles Walking Bicycling 	<ul style="list-style-type: none"> Most Height Ranging to High rise Most Vertical Mixed Use Structured Parking
<ul style="list-style-type: none"> 40% Basic Employment 35% Service Employment 25% Residential 	<ul style="list-style-type: none"> 40-60% 400-500 acres 2,400' radius from center core 	<ul style="list-style-type: none"> Mid Density Professional Office Regional Retail Hospitality and Entertainment Urban/Resident Park Mix of High and Mid Density Housing 	<ul style="list-style-type: none"> Transit Cyclator Neighborhood Electric Vehicles "Car Share" Program Bicycling 	<ul style="list-style-type: none"> Mid rise to high rise Character Vertical and Horizontal Mixed Use Mix of Structured and Surface Parking
<ul style="list-style-type: none"> 50% Basic Employment 45% Service Employment 35% Residential 	<ul style="list-style-type: none"> 35-60% 350-600 acres 3,800' radius from center core 	<ul style="list-style-type: none"> General Office Business and Light Industrial Parks in Campus Setting Lifestyle Retail Mid Density Residential 	<ul style="list-style-type: none"> Transit Cyclator Neighborhood Electric Vehicles Bicycling Fixed Route Bus Private Automobile 	<ul style="list-style-type: none"> Mid rise to Garden Scale Character Mostly Horizontal Mixed Use Mostly Surface Parking

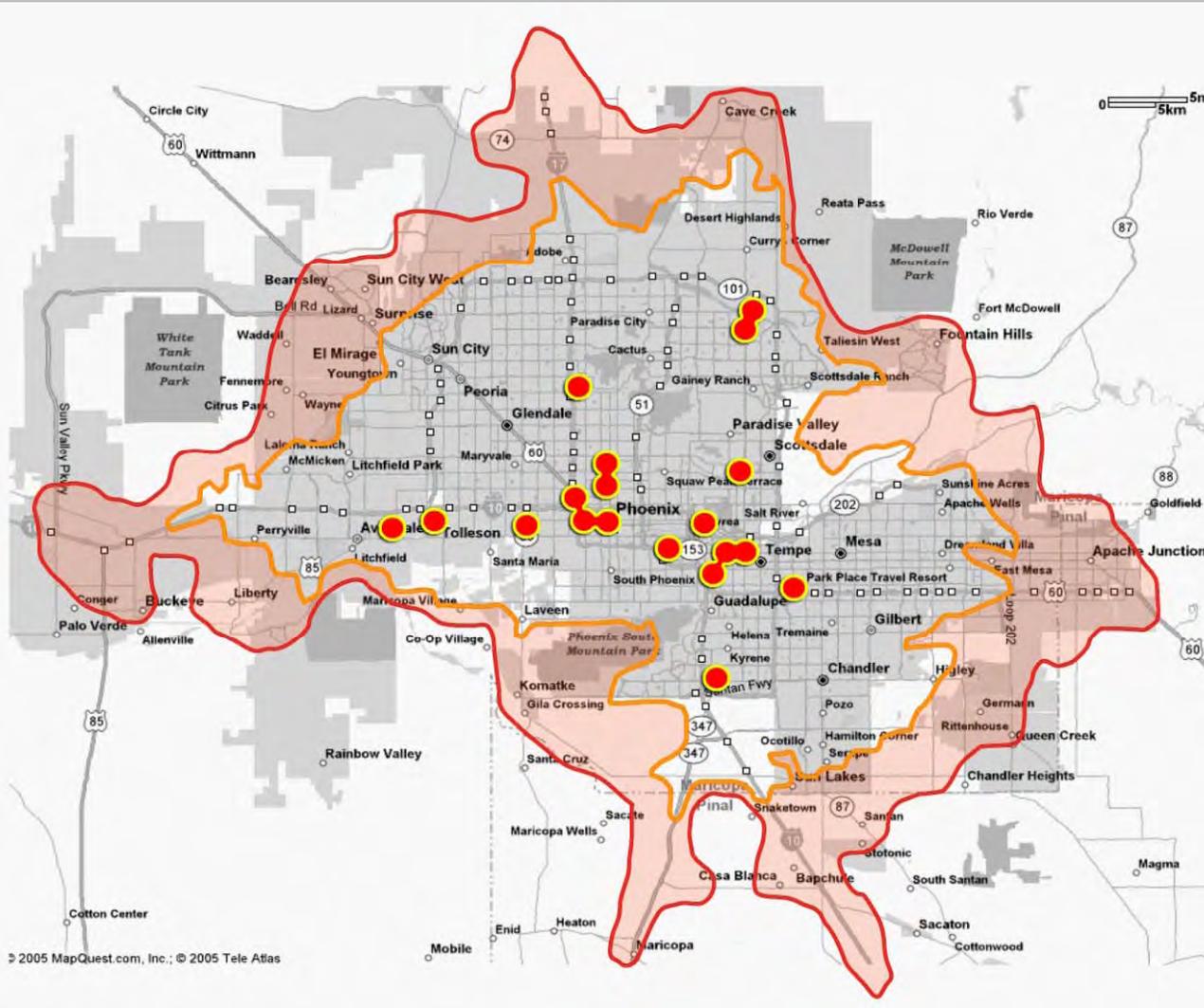
Source: Pinel County Comprehensive Plan, 2009

3-16: High Intensity Activity Center Development
(Approximately 1,000 Acres Illustrated)



Job Centers Proximate to Housing Options

Employment and housing choices



- Workforce attracted to certain standard of living.
- Low commute times a preferred amenity.
- Average U.S. commute time is 100 hours a year.
- Companies choosing location based on workforce:
 - Antigua Sportswear
 - USAA Insurance



Job Centers Proximate to Housing Options

Employment and work force



- Biomedical/high technology work force preferences:
 - 20-minute commute
 - High level of amenities
 - Ongoing education options
 - “Technology rich” quality of life (e.g., light rail transit, renewable energy systems)



Multi-Use Activity Center Development

Reinvestment and emerging centers



- Reinvestment in existing centers to revitalize urban areas
- New centers located proximate to workforce and convenient to transportation networks
- Examples within Sun Corridor:
 - Activity centers undergoing reinvestment
 - Emerging activity centers



Job Centers Proximate to Housing Options

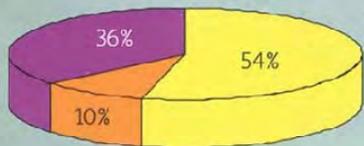
Superstition Vistas, a potential opportunity and model example?

- Superstition Vistas – State Trust Land megaparcel
- Scenario planning grounded in providing jobs, housing diversity, and open space preservation.
- Performance measures for carbon, land consumption, open space, and commute time.

CARBON PRODUCTION BY SOURCE (MILLION TONS - "BASELINE")

Transportation	1.8
Buildings	5.0
TOTAL	6.8

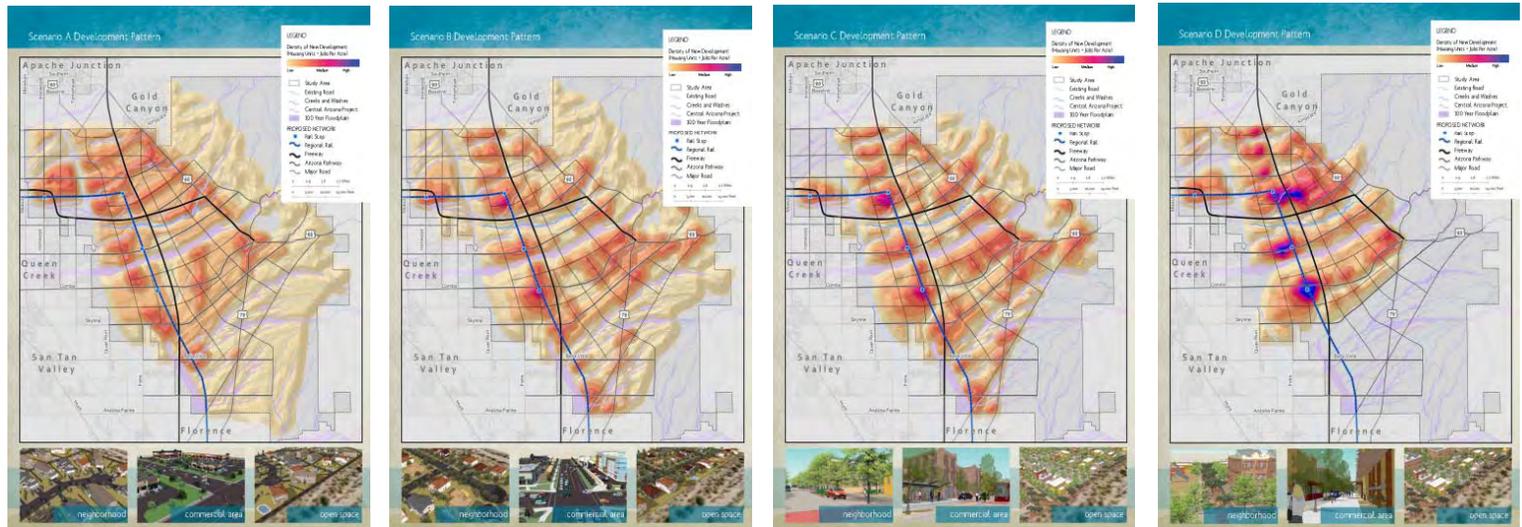
HOUSING MIX



- Multi-Family - 36%
- Townhouse - 10%
- Single Family - 54%

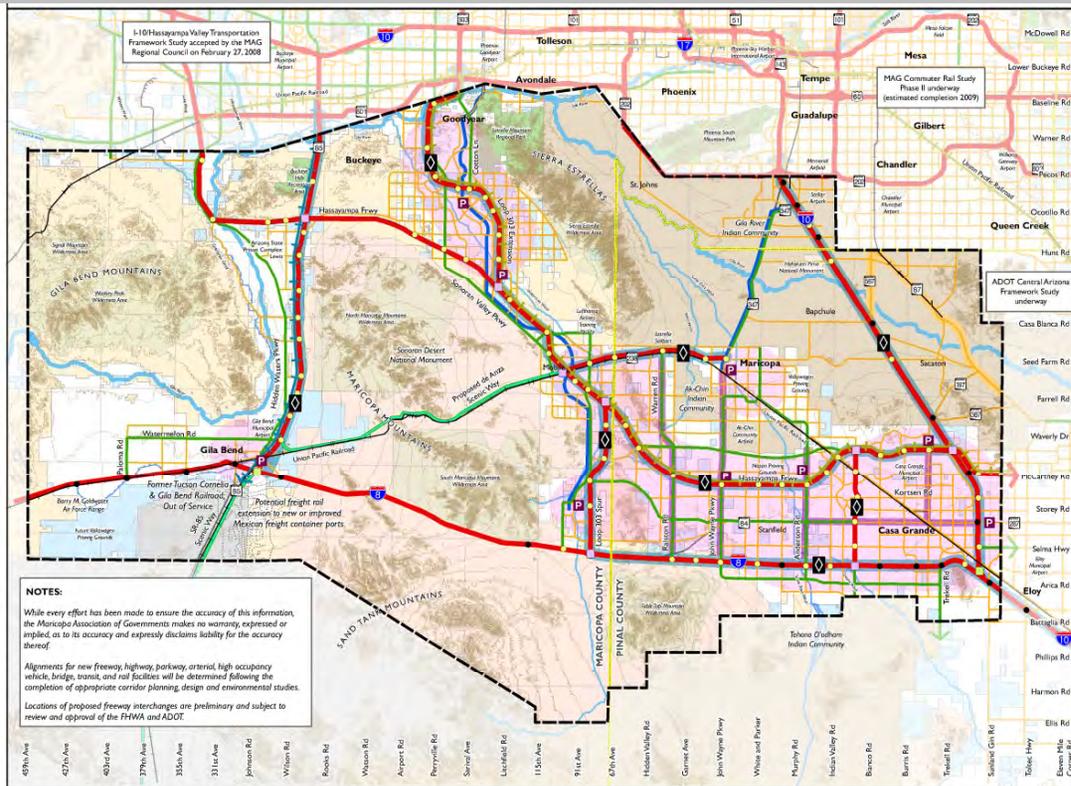
SCENARIO STATISTICS

People	1 million
Jobs	489,000
Land consumed by development	143 sq. mi.
Percentage of homes 1/2 mile from transit service	26%
Acres of open space per 1,000 people	87
Average time spent in the car per day	18 mins.
Transit trips per day	387,400



Multimodal Transportation Network

Locate activity centers within interconnected multimodal network



- Link existing community and regional mixed use activity centers.
- Support emerging activity centers.
- Encourage mixed use development to maximize trip purpose and foster use of alternative modes.
- Provide existing commercial and industrial centers with multimodal access to facilitate Arizona products reaching national and international markets efficiently.

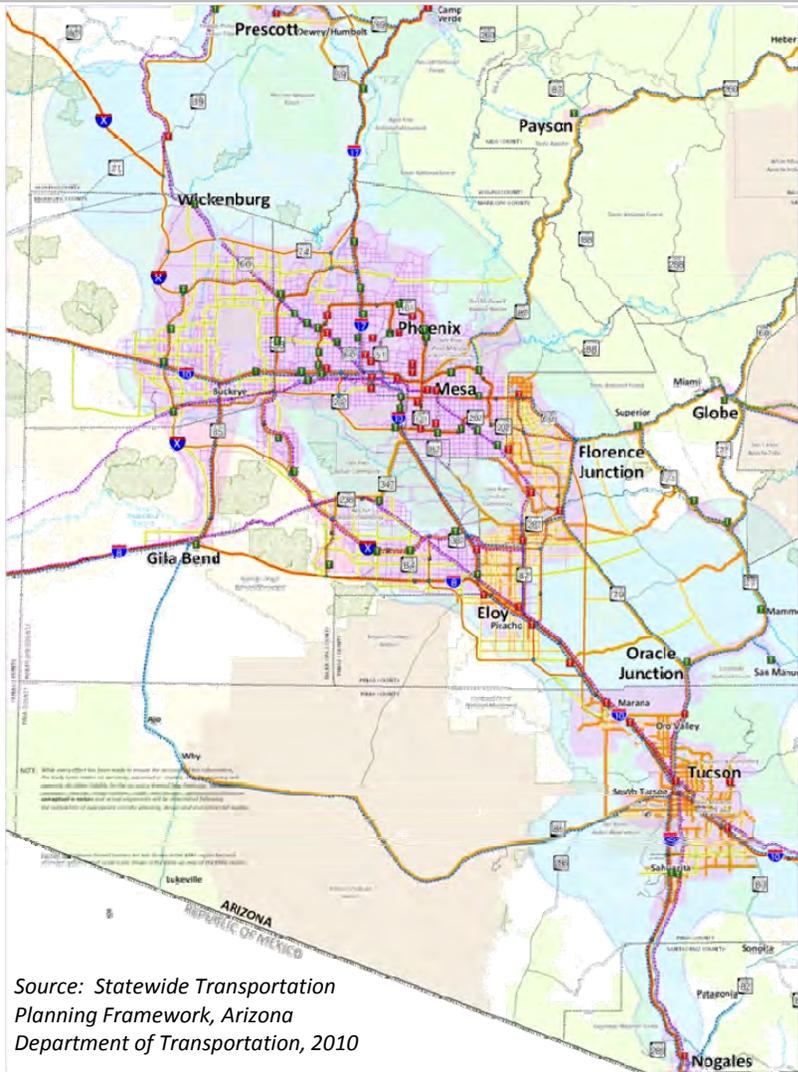
Source: I-8 and I-10/Hidden Valley Transportation Framework Study, Maricopa Association of Governments



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Multimodal Transportation Network

Build a transportation spine to support economic vitality



- Utilize transportation infrastructure (as well as other public investments) as a tool to direct growth.
- Expand existing high-priority highway and freight corridors for efficient passenger and freight mobility.
- Provide intermodal linkages with freight facilities that can accommodate movement among highway, rail, and air travel modes.
- Enhance connectivity with the bi-national border to foster economic trade and tourism.

Source: *Statewide Transportation Planning Framework, Arizona Department of Transportation, 2010*



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Multimodal Transportation Network

Connect employment and housing with multimodal options



- Develop multimodal system that recognizes and strengthens relationship between land use and transportation, connecting workforce to employment centers.
- Support infill and revitalization through transportation investments that reinforce existing communities.
- Enable development patterns that maximize use of multiple modes of transport, particularly focusing on public transportation options for regular trip-making.

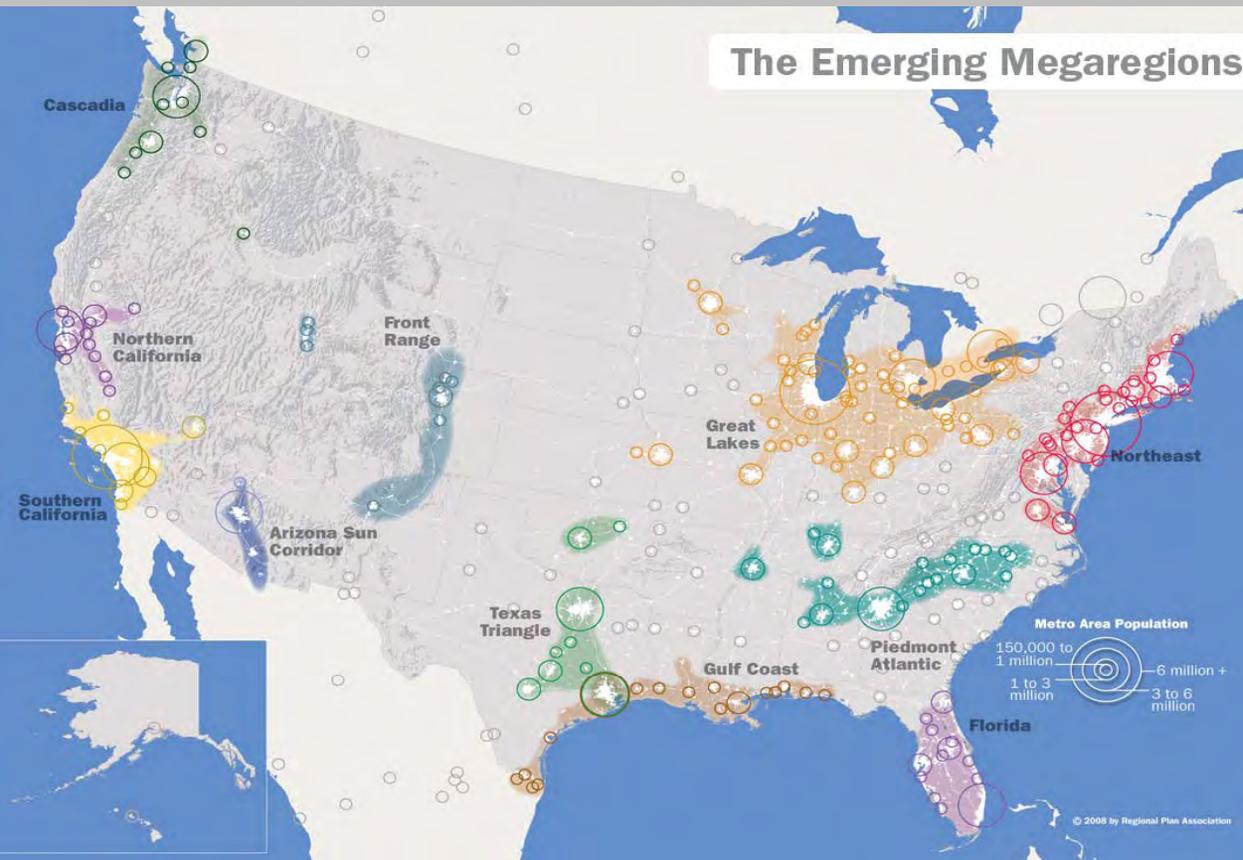


Megaregion Identity and Organizational Challenges and Opportunities

Lee Farmer, AICP



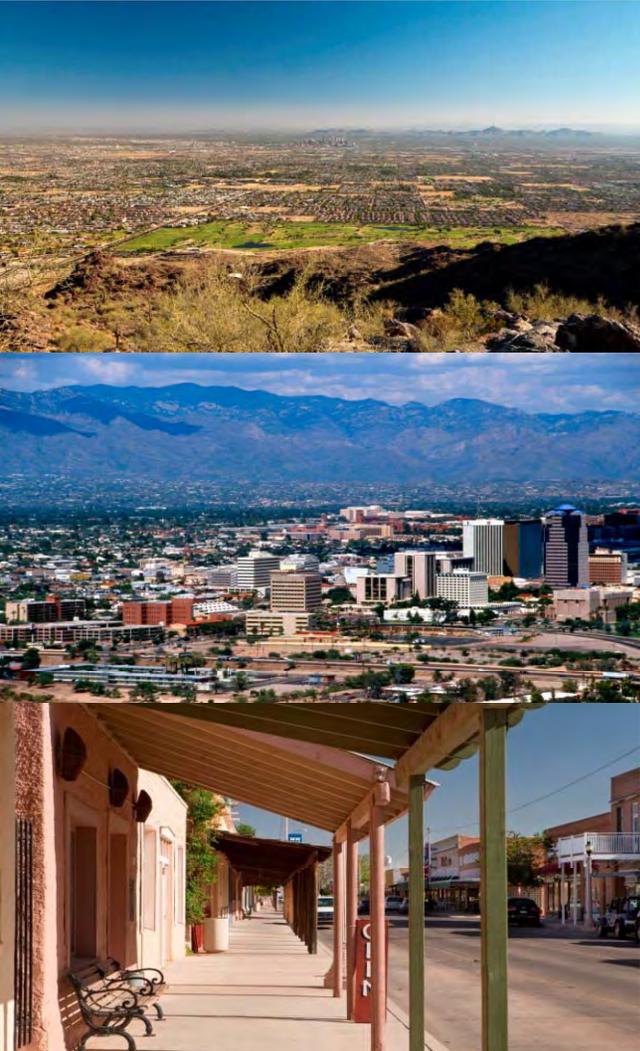
The Megaregion Concept



- Networks of urban, suburban, and rural areas linked by:
 - Proximity
 - Physical infrastructure
 - Common environmental concerns
 - Social, cultural, and economic relationships
- Areas of common interest that could benefit from coordinated policies



The Arizona Sun Corridor



- Emerging megaregion stretching from Prescott through Phoenix and Tucson to border at Nogales.
- One of the fastest growing regions in the U.S.
- Growth presents opportunity.
 - Two-thirds of housing units in 2050 will have been built since 2007.
 - At least half of the transportation infrastructure needed in 2050 has yet to be built.
 - Chance to set the course for future development.



Arizona's Mobile Population



35 (percent of Sun Corridor residents born in Arizona)

60 (percent of U.S. residents born in state of residence)

21 (percent of Sun Corridor residents who move in a given year)

16 (percent of U.S. residents who move in a given year)

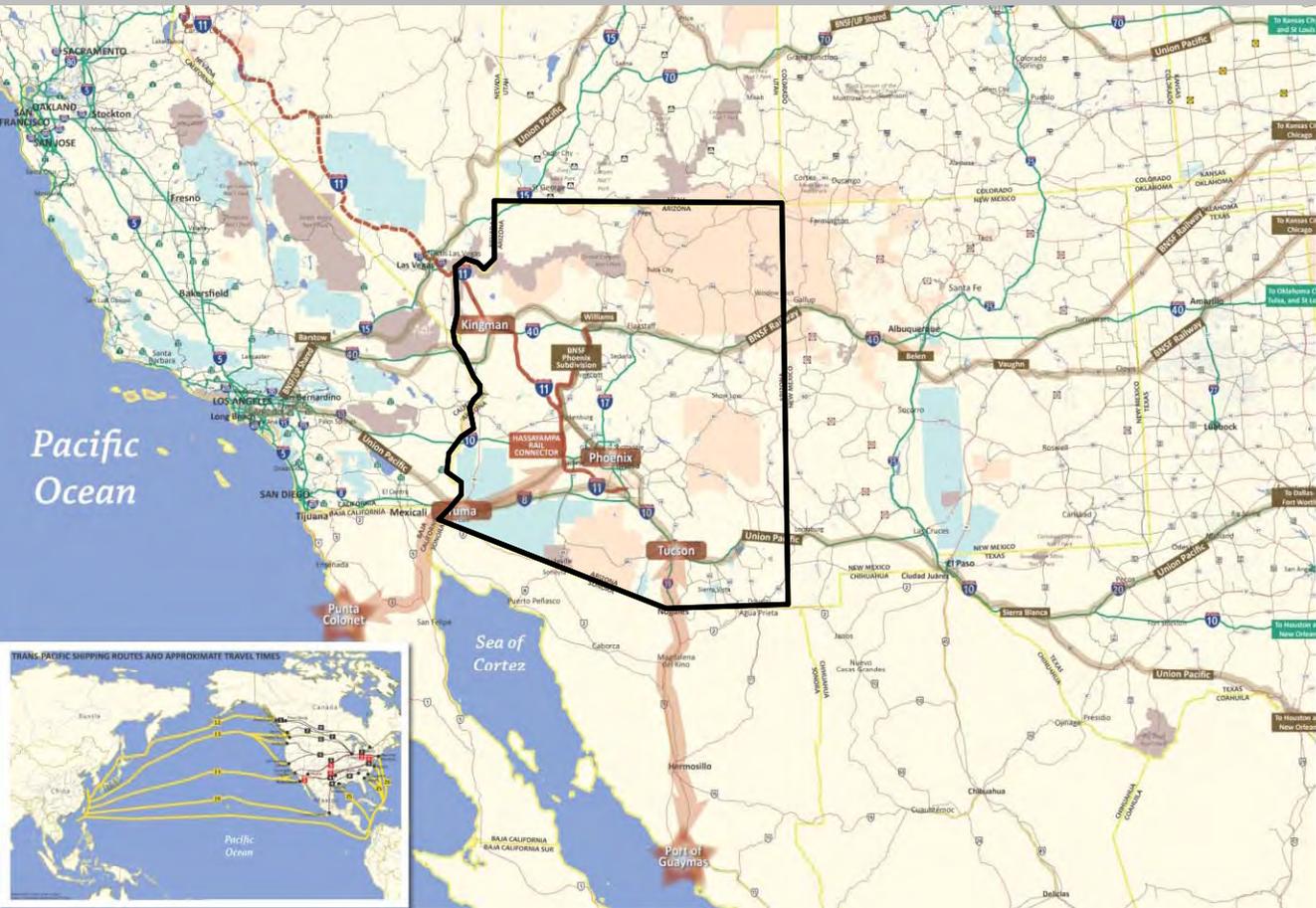
16 (percent of Sun Corridor residents born abroad)

13 (percent of U.S. residents born abroad)

29 (percent of new Sun Corridor residents who come from California)



Sun Corridor is a Southwestern Gateway



- Sun Corridor links Arizona to the world.
- Economic anchor for the state, representing 88 percent of GDP.
- Shares a border with Mexico – 13th largest economy in the world.
- Key part of the CANAMEX trade corridor.

Source: Maricopa Association of Governments



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The Sun Corridor Megaregion: Vision and Implications



- Take advantage of opportunities offered by increasing size.
- Preserve qualities that make Sun Corridor communities attractive to new and existing residents.
 - Quality of life
 - Natural and cultural resources
- Decisions made now will affect how well the region addresses challenges and takes advantage of future opportunities.



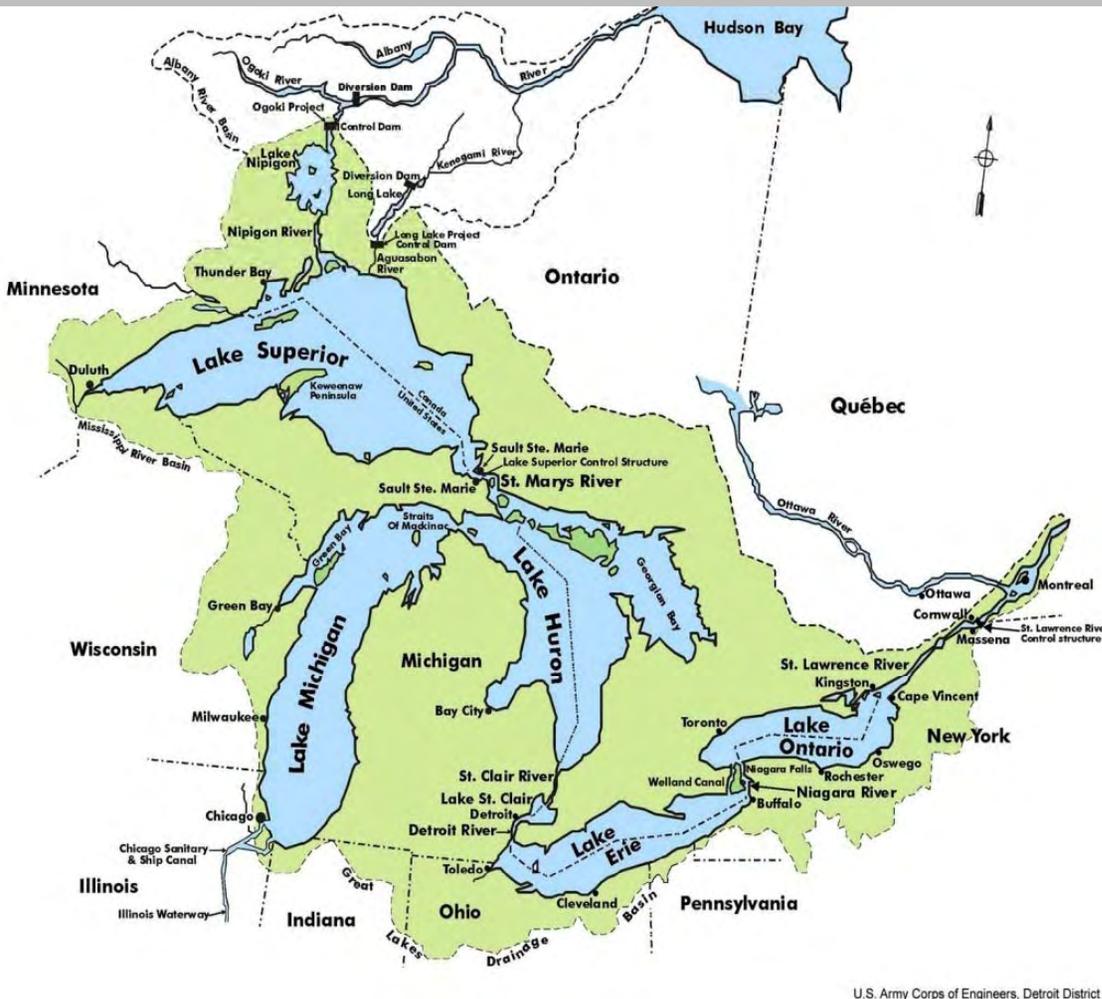
Implications: Governance



- Large numbers of jurisdictions complicate development of plans and strategies on a megaregional scale.
- Governance is a common issue across the country and world.
- JPAC is a good start toward regional cooperation and coordination.
- Regular data collection and reporting important to support planning.
- Regional cooperation often centers around a specific issue of common interest.



Example: The Great Lakes Commission



U.S. Army Corps of Engineers, Detroit District

- Includes eight Great Lake states and two Canadian provinces.
- Formed to promote “the orderly, integrated and comprehensive development, use and conservation of the water and natural resources of the Great Lakes Basin and St. Lawrence River.”
- Coordination on issues of regional interest



Example: Washington Metropolitan Area Transit Authority



- Established by interstate compact (The WMATA Compact) in 1967.
- Charge: to plan, develop, build, finance, and operate a comprehensive transit system.
- Governed by a Board of Directors with members appointed by Virginia, Maryland, D.C., and the federal government.



Implications: Strategies for Development of the Megaregion



- Beyond cooperation, development into a megaregion requires the formulation and adoption of:
 - Strategic plans
 - Specific policies
 - Investment priorities
- Recent examples:
 - European Spatial Development Perspective
 - Irish National Spatial Strategy
- Inform infrastructure investment decisions, as well as those in social programs, R&D, and education.



Example: European Spatial Development Perspective

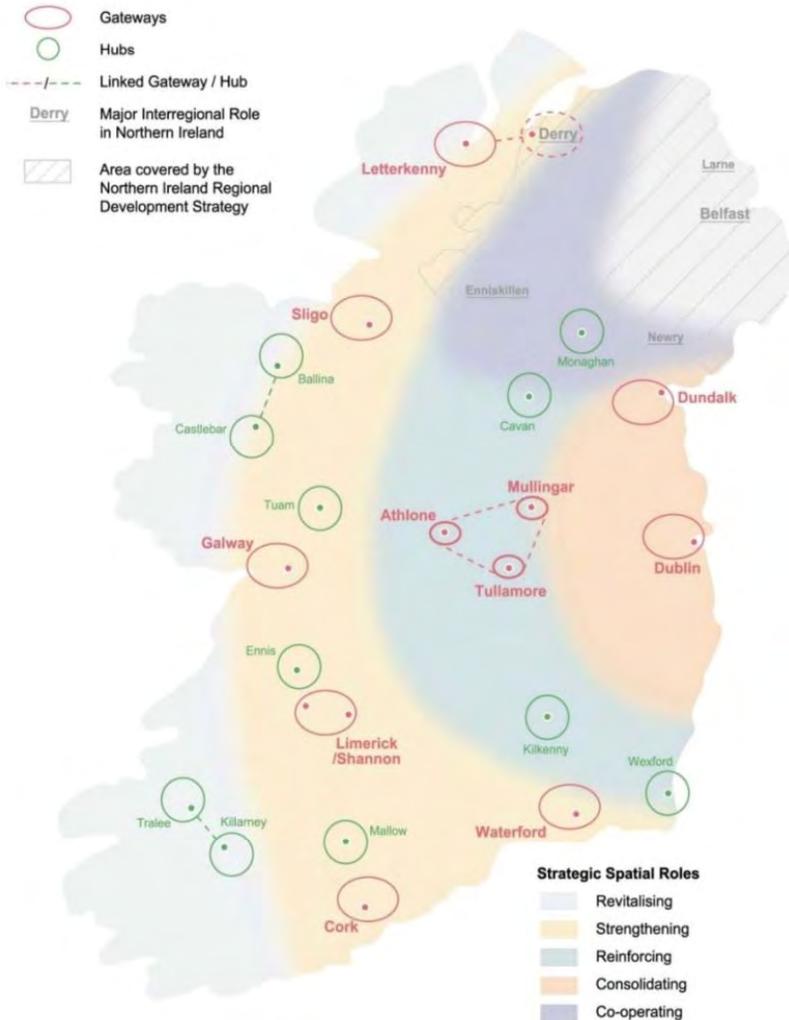
MAP 7: Major urban and economic development



- Framework for achieving balanced and sustainable development.
- 3 policy guidelines:
 - Polycentric spatial development and a new urban-rural relationship;
 - Parity of access to infrastructure and knowledge; and
 - Wise management of natural and cultural heritage.
- Intended to influence decision-making for EU policies that have a spatial impact.



Example: Irish National Spatial Strategy



- 20-year national planning framework.
- Focus on balancing social, economic, and physical development across the country.
- Implementation:
 - National Development Plan
 - Regional Planning Guidelines
 - Gateway Innovation Fund



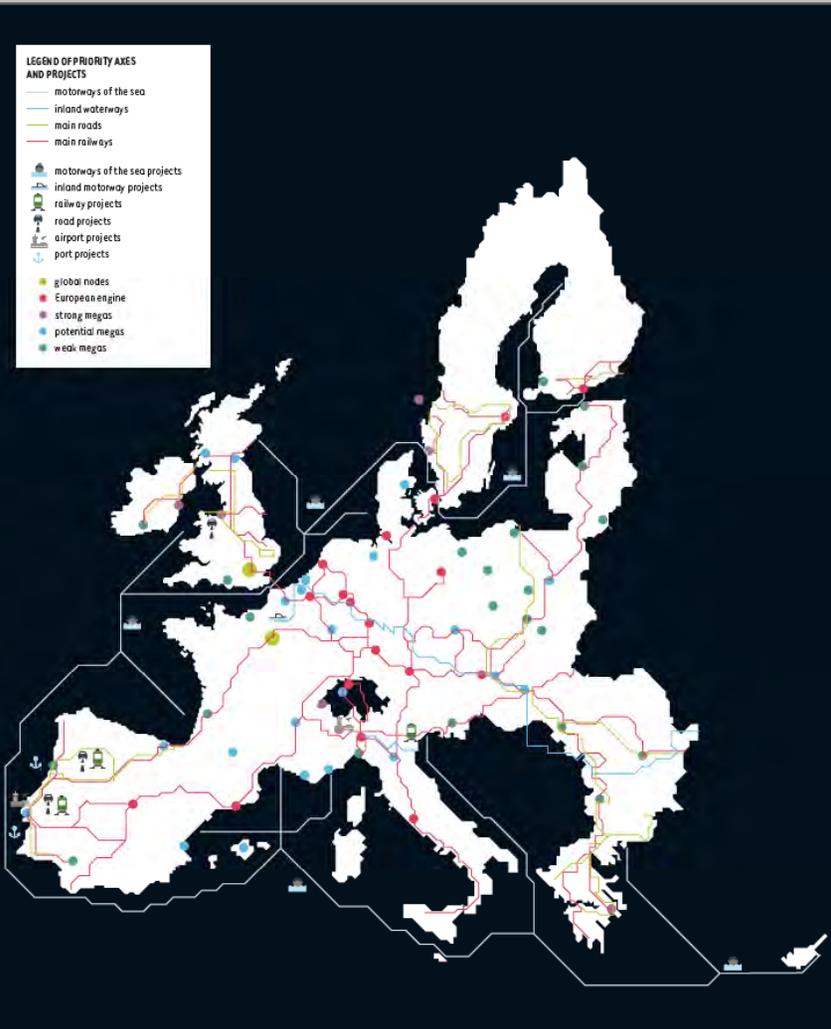
Implications: Role of Infrastructure



- Infrastructure investment often transcends jurisdictional boundaries.
- Transportation infrastructure ensures the free flow of goods and people.
- Telecommunications infrastructure enables continual flow of information and interaction.
- Water and energy provision are both necessary and increasingly precarious.
- Important to identify and support key projects of megaregional significance.



Example: Trans-European Networks - Transportation (TEN-T)



Source: Demet Mutman

- Priority projects for achievement of European goals.
- Program focuses on:
 - Building missing links
 - Removing bottlenecks
 - Integrating a redundant system of multiple modes
 - Ensuring the future sustainability of transportation networks
 - Integrating environmental protection in transportation facility development

Example: Trans-European Networks - Energy (TEN-E)



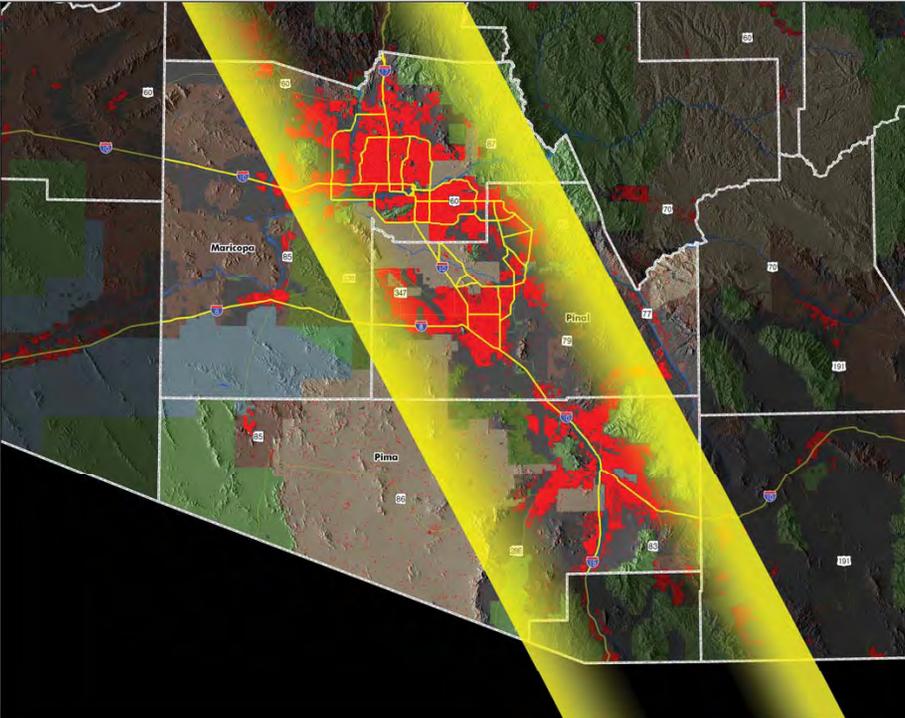
Source: The European Commission

- TEN-E program focuses on:
 - Funding for electricity and gas transmission infrastructure
 - Reducing negative impact of energy production and consumption on the natural environment
 - Increasing the security of energy supply through diversification
 - Reducing dependence on external energy supplies



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Taking up the Challenge



Source: Maricopa Association of Governments

- Piedmont, Cascadia, and Sun Corridor have made strides toward megaregion development strategies.
- Megaregion idea at federal level gaining traction (e.g., high-speed rail).
- Common issues of governance, identity, and planning for an economically, socially, and environmentally sustainable future.
- Methods chosen to address issues will likely reflect the unique character and circumstances of each megaregion.



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Taking up the Challenge

- Sun Corridor well positioned to take up this challenge:
 - High level of growth expected to continue
 - Opportunity to shape built environment is significant
 - Located within single state
 - Southwestern gateway opportunity, in proximity to Mexico
- Challenges include:
 - Maintaining high level of natural beauty and quality of life
 - Building a more sustainable development pattern
 - Diversifying the state and regional economy to create broad economic opportunity



Next Steps

John McNamara, AIA, FAICP



Next Steps

- Complete outreach and coordination with regional stakeholders.
- Make refinements on work to date based on input from:
 - Joint Planning Advisory Council (JPAC)
 - Strategic Partners Group
 - Resource Working Group
- Formulate key implementation direction.
- Present final Global Cities Sun Corridor report to JPAC in mid-September.



Thank You

www.jpacaz.org

