



Framework Studies and their Results

Planners Stakeholder Group

April 15, 2008



Why do we need Frameworks?

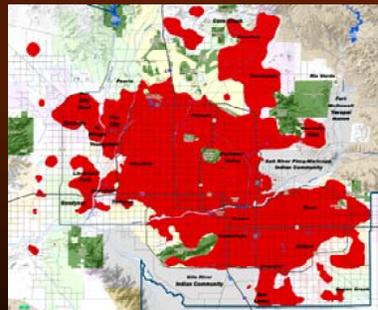
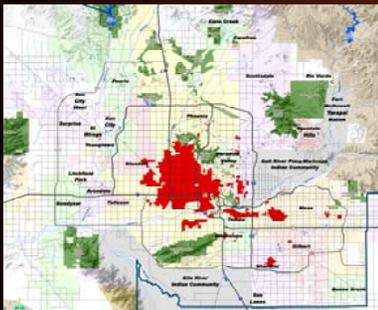
- “Getting in front of Growth,” by understanding:
 - Land use, socio-economic, and development patterns
 - Environmental Issues
 - Cultural Resources
 - Programmed improvements
 - Connections - Continuity
 - Corridor preservation



Lessons From the Past Maricopa County Population

1955 AND 2000

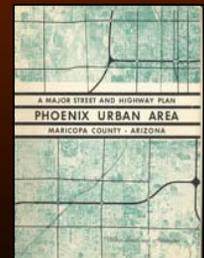
- | | |
|-------------------|-------------------|
| ▪ 1955 Population | ▪ 2000 Population |
| ▪ 470,000 | ▪ 3,100,000 |



A Major Street & Highway Plan

WILBUR SMITH & ASSOCIATES - 1960

- 1958 Traffic Conditions
 - No facilities for high-speed traffic
 - Streets & highways are physically deficient
 - 7 of 68 railroad crossings have grade separations
 - Excessive traffic delays at mile intersections
 - Excessive incidence of traffic accidents



A Major Street and Highway Plan

WILBUR SMITH & ASSOCIATES - 1960



BUILDING A QUALITY ARIZONA

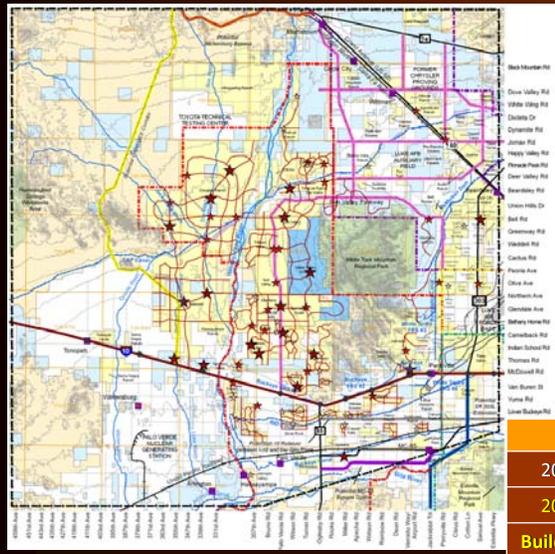
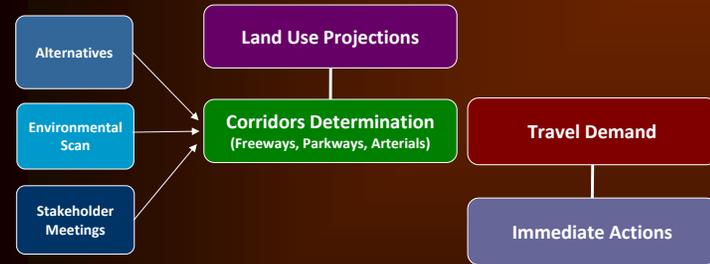
- 1958 population 520,000
- 20-year population 1,440,000
- 2.7 times increase



Framework Study Sequence



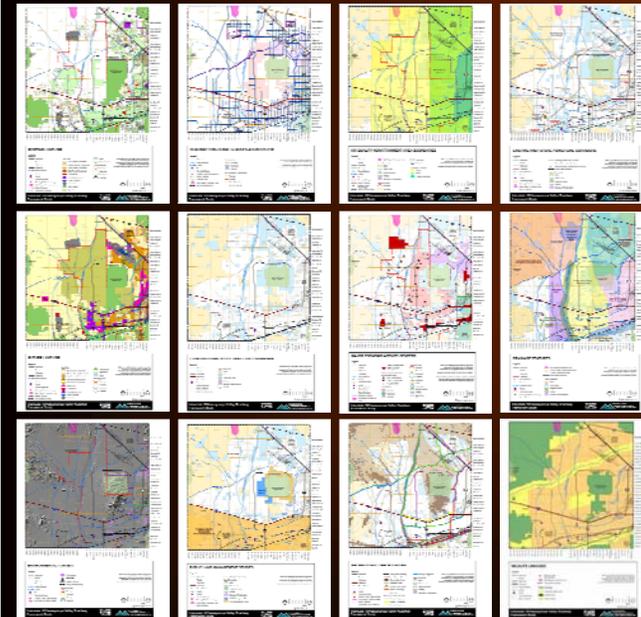
BUILDING A QUALITY ARIZONA



BUILDING A QUALITY ARIZONA

	Population	Employment
2005	138,000	48,000
2030	948,000	379,000
Build-Out	2,862,000	836,000

Interstate 10-Hassayampa Valley



Environmental Scan

INTERSTATE 10-HASSAYAMPA VALLEY

- Existing Land Use
- Future Land Use
- Environmental Context
- Functional Classification
- Land Ownership
- Public Land Management
- Air Quality
- Major Economic Centers
- Utility Corridors
- Drainage
- Wildlife Corridors

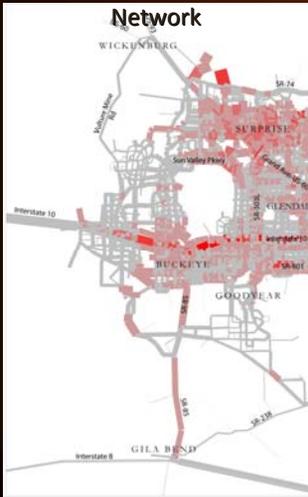
Travel Demand



BUILDING A QUALITY ARIZONA

Buildout Assumption

Network



2030 Network with Framework Recommendation

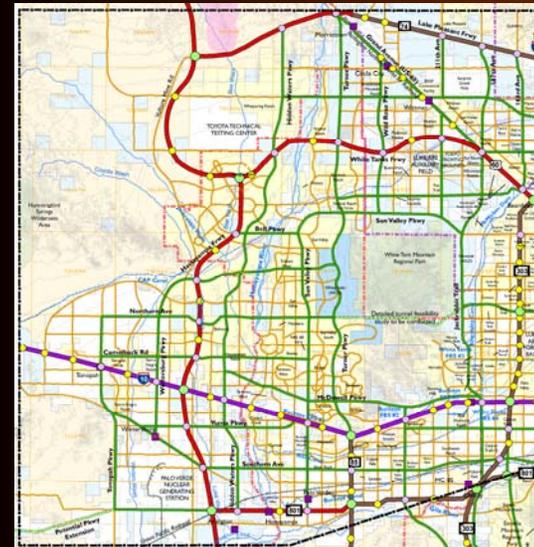
Recommendation



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Roadway Framework

INTERSTATE 10-HASSAYAMPA VALLEY



Freeways

- Existing Freeway Improvements
- Future RTP Freeways
- New Freeway Proposals

Parkways

- New Parkway Alternatives
- - - New Parkway Proposals

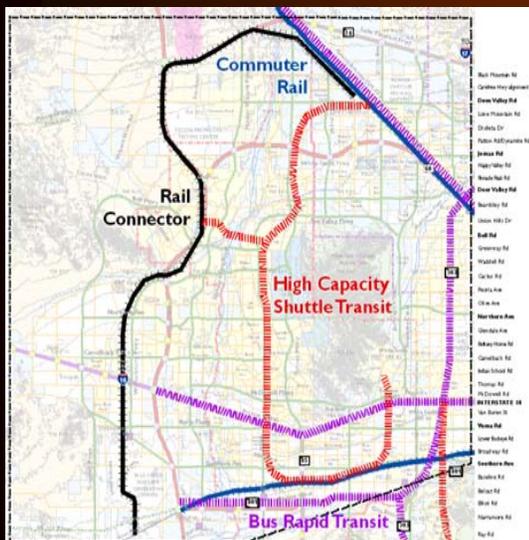
Major Arterials

- Future Major Arterial Network

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Transit Framework

INTERSTATE 10-HASSAYAMPA VALLEY



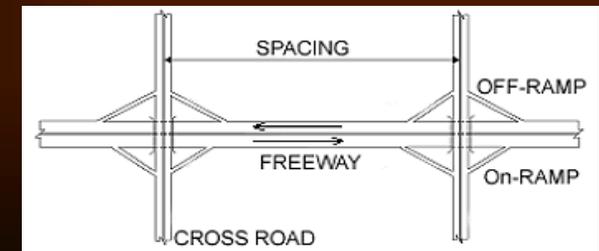
Proposal

- - - Bus Rapid Transit
- - - High Capacity Shuttle Transit
- Commuter Rail
- Freight and Passenger Rail Connector

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Freeways

- Traffic Interchange Spacing
 - Guidelines – 3 miles in urban areas*
 - Greater throughput**
 - Greater Safety – Splitting a 2-mile segment means 2.5 greater crash frequency on high volume freeways***



*Source: Access Management Manual, Transportation Research Board, 2003

**Source: Highway Capacity Manual, Transportation Research Board, 2000

***Source: Safety Assessment of Interchange Spacing on Urban Freeways, Report FHWA-HRT-07-031, www.thrc.fhwa.gov, 2007



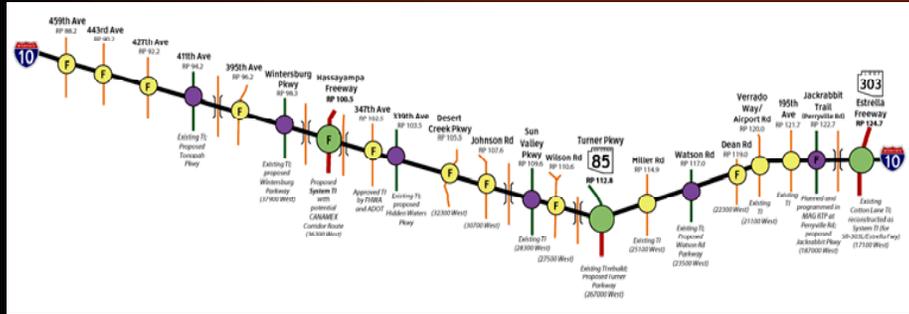
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Interchange Spacing Recommendation



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- Interstate 10 Freeway
 - SR-303L/Estrella Fwy to 459th Ave
 - 21 Traffic Interchanges



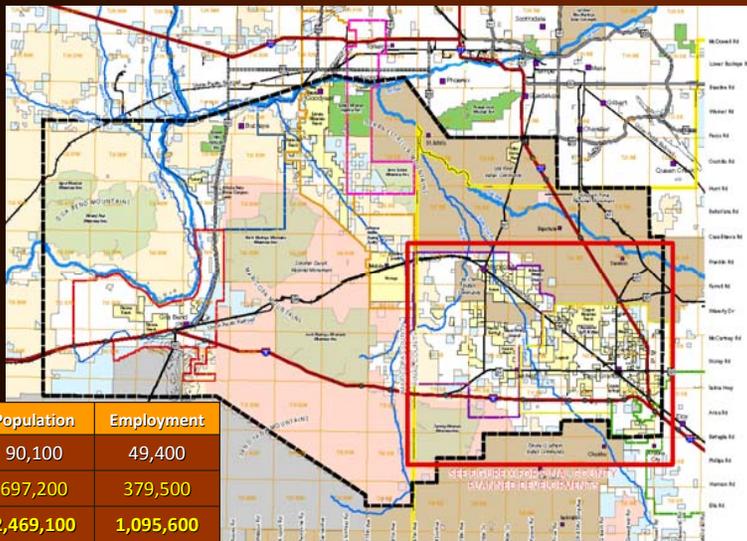
"The Arizona Parkway"



BUILDING A QUALITY ARIZONA



- 40 years practice in seven states
- Marginal cost increase over conventional arterials
- Near-freeway volumes
- Context-sensitive
- Fewer Conflict Points
 - 60 percent fewer crashes
 - 75 percent fewer injuries



	Population	Employment
2005	90,100	49,400
2030	697,200	379,500
Build-Out	2,469,100	1,095,600

Interstates 8 and 10 – Hidden Valley



Environmental Scan

INTERSTATES 8 AND 10-HIDDEN VALLEY

- Cultural Resources
- Air Quality
- Aviation
- Slopes Analysis
- Hazardous Materials
- Natural Vegetation
- Land Ownership
- Major Economic Centers
- Title VI/Environ Justice
- Conservation Areas
- Utility Corridors
- Biological Resources
- Recreation Opportunities
- Wildlife Corridors

Issues and Opportunities Analysis



Issues and Opportunities Analysis

- Networks compilation issues addressed:
 - Develop framework for areas with no existing or planned networks
 - Connect planned networks to create regional transportation system
- Create regional functional classification system
 - Arterial
 - Parkway
 - Freeway
- Specify traffic interchange spacing
- Incorporate multimodal component
- Integrate development suitability mapping



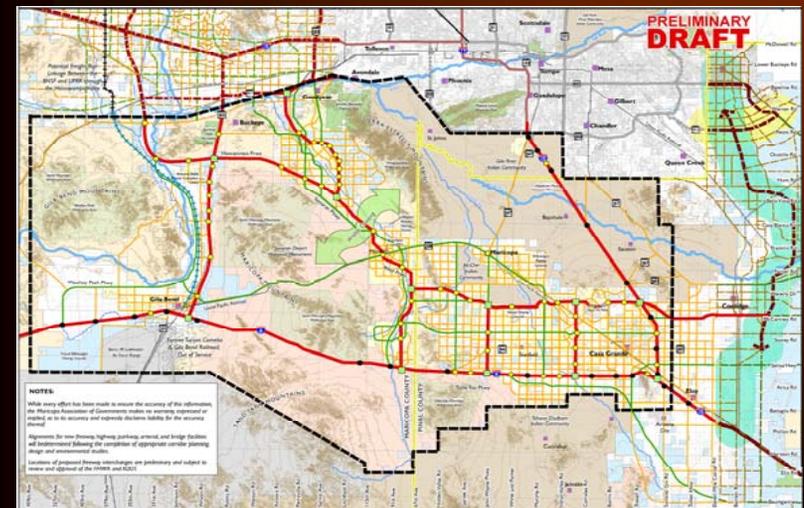
Issues and Opportunities Analysis

- Development Suitability:
 - Manmade Opportunities
 - Airports
 - Roadways
 - Economic Activity Centers
 - Environmental Opportunities
 - Floodplains/Water Resources
 - Geologic Hazards
 - Cultural Resources
 - Slopes Analysis
 - Natural Infrastructure
 - AWC Roadless Character Areas
 - Pinal County Open Space Plan
 - Sensitive Biological Lands



Conceptual Framework

INTERSTATES 8 AND 10 – HIDDEN VALLEY

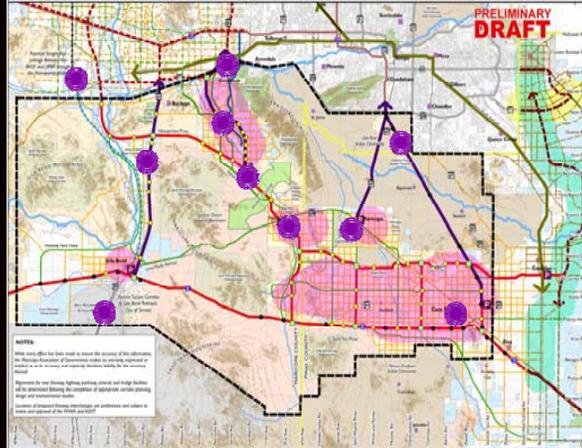


Conceptual Transit Framework

INTERSTATES 8 AND 10 – HIDDEN VALLEY TRANSPORTATION FRAMEWORK STUDY



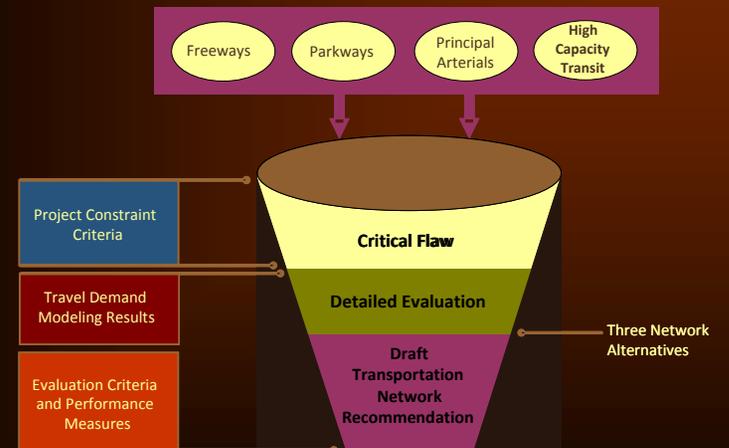
BUILDING A QUALITY ARIZONA



- Elements:
 - Commuter rail
 - Regional commuter transit
 - Planned City of Goodyear Enhanced Transit Corridor
 - Local Transit Service
 - Park-n-Ride locations

Alternatives Development and Evaluation

MODAL ELEMENTS



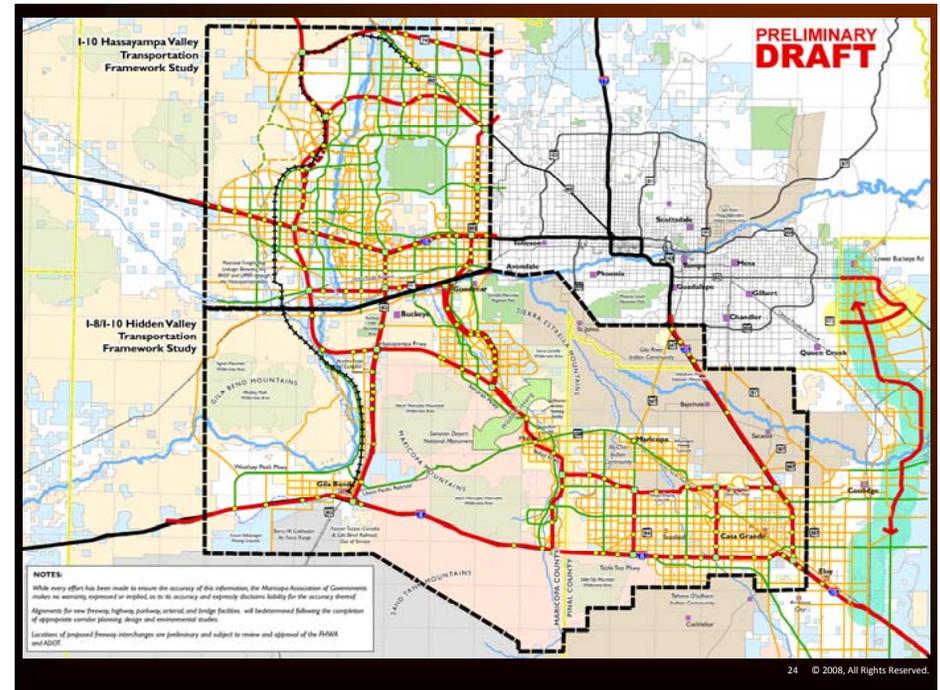
BUILDING A QUALITY ARIZONA

Just a framework . . .

- Response to growth
- Locations are subject to change!
- Subject to appropriate planning, engineering, and environmental studies
 - Regional Transportation Plan
 - Municipal General Plans/Maricopa County Plans
 - Corridor Location Studies
 - Design Concept Reports (DCRs)
 - State and Federal Environmental Studies
- Actions are not currently funded



BUILDING A QUALITY ARIZONA





Moving toward a Statewide Effort

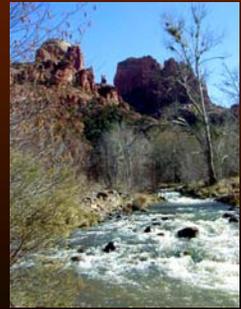
Statewide Mobility Reconnaissance Study

BUILDING A QUALITY ARIZONA

What is bqAZ?

COGs AND MPOs ADDRESSING ARIZONA'S GROWTH

- **“Building a Quality Arizona”**
 - Initiated by the Association in 2006
 - Addresses growth
 - Studies methods for addressing rapidly shrinking infrastructure funds
 - Started with the Statewide Mobility Reconnaissance Study in May 2007

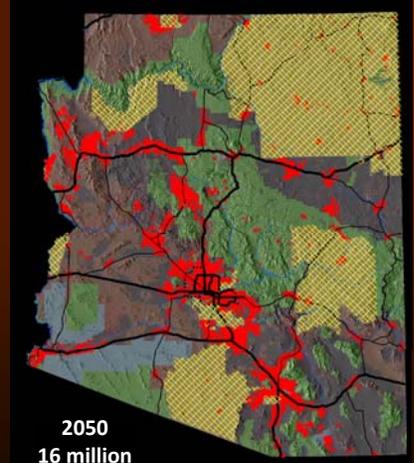
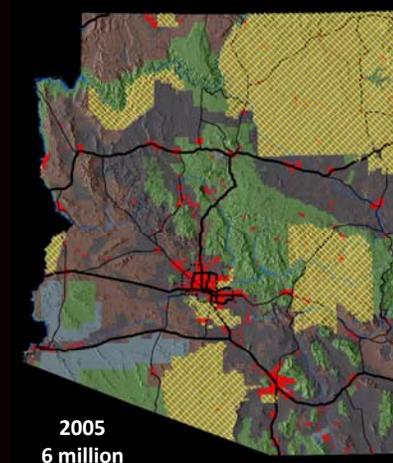


Transportation Partners



Arizona's Future

POTENTIAL STATEWIDE GROWTH



County Population Projections

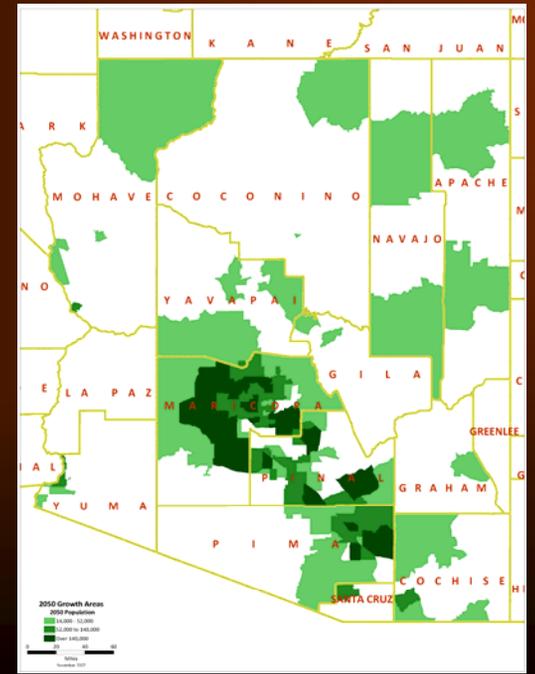
Source: Arizona Department of Employment Security and COG/MPO Planning Agencies



BUILDING A QUALITY ARIZONA

County	2005	2030	2050
Apache	74,600	93,500	104,200
Cochise	134,800	187,700	212,800
Coconino	132,800	173,800	198,200
Gila	55,100	70,000	78,300
Graham	35,900	44,600	49,900
Greenlee	8,300	8,300	9,100
La Paz	21,500	28,100	30,900
Maricopa	3,700,000	6,100,000	8,100,000
Mohave	194,900	330,600	401,000
Navajo	112,700	165,600	192,400
Pima	921,500	1,600,000	1,700,000
Pinal	276,000	1,300,000	2,200,000
Santa Cruz	45,300	71,000	84,700
Yavapai	212,700	355,400	418,700
Yuma	195,500	316,100	377,600
State of Arizona	6,100,000	11,000,000	14,100,000

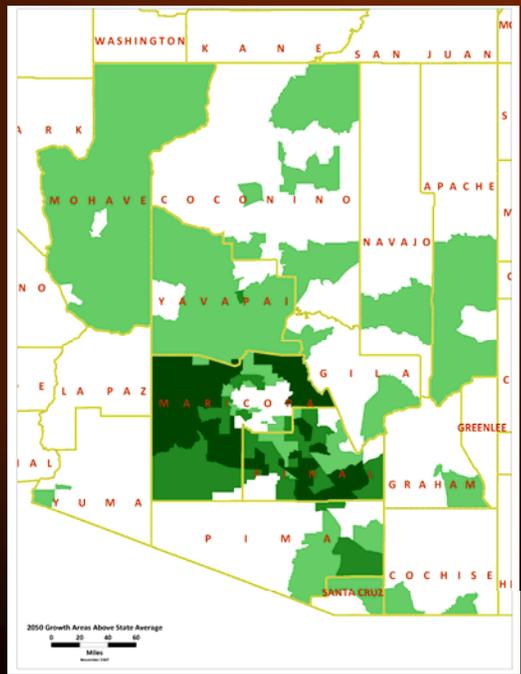
2050 Growth Areas



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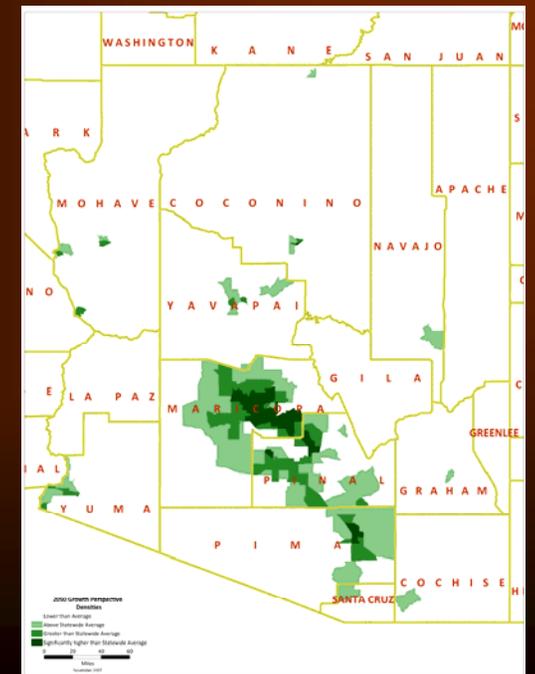
Areas growing faster than the State Average



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Densities above the State Average in 2050



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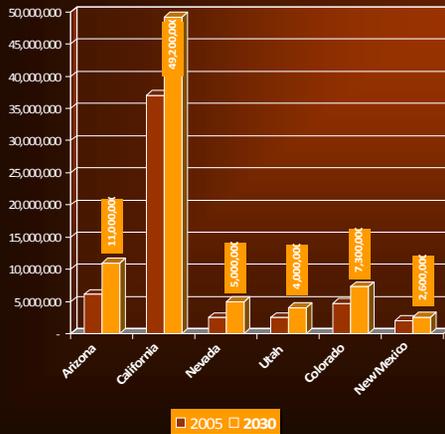


Bordering State Population Projections

BY 2030 THE AMERICAN SOUTHWEST MAY BE HOME TO 80 MILLION PEOPLE



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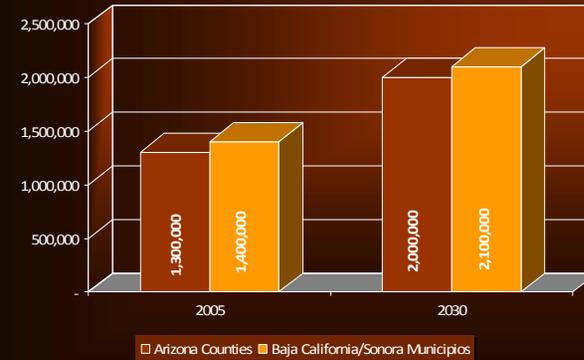
Source: Respective State Demographer Offices

Border Population Projections

GROWTH PROJECTIONS FOR ARIZONA'S COUNTIES AND BAJA CALIFORNIA/SONORA'S MUNICIPIOS



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Source: Arizona DES and Southwest Consortium for Environmental Research and Policy, San Diego State University

Notable Trends

AND THEIR POTENTIAL IMPACTS ON ARIZONA



BUILDING A QUALITY ARIZONA

- California's Southland
 - 20.5m in 2005
 - 30.4m in 2050 (+ 10million)
- Nevada's Las Vegas
 - 1.5m in 2005
 - 3.3m in 2050 (220% growth)
- Utah's Washington County
 - 130,000 in 2005
 - 610,000 in 2050 (470% growth)
- New Mexico's Albuquerque
 - 595,000 in 2005
 - 900,000 in 2030 (150% growth)



Bordering States

COG/MPO DISCUSSIONS

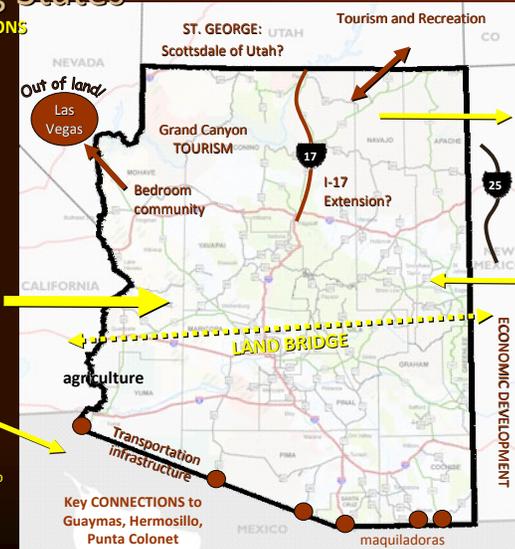


BUILDING A QUALITY ARIZONA

California Population: **60 M** by 2050!

People
Businesses
Second homes
Tourists
Commercial Vehicles

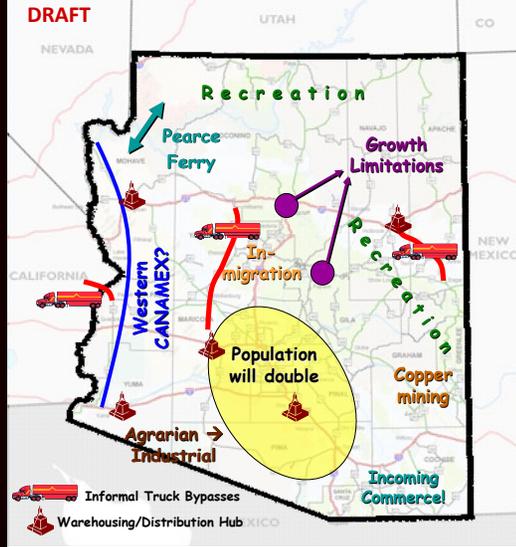
Mexico's fastest growing states are in the north (Sonora, Chihuahua, and Nuevo Leon)



Navajo Nation relates more to New Mexico
High-tech industry along I-25
Eager/ Springerville provide shopping/ services to Western New Mexico

Arizona

COG/MPO DISCUSSIONS



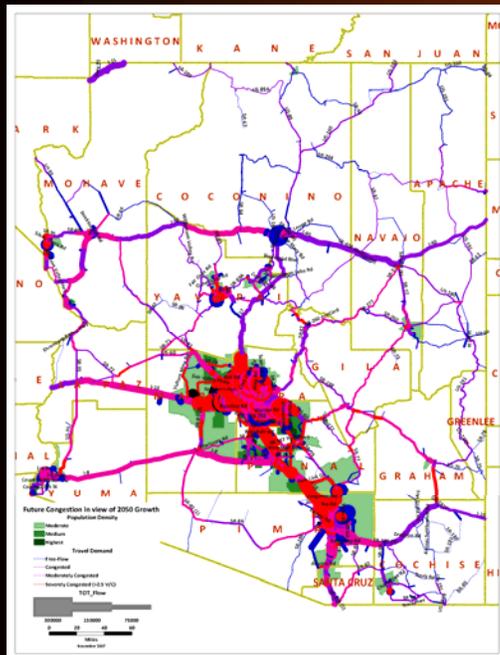
- **Commercial Trucking**
 - Distribution throughout Southwest USA
 - Elevation in Central Arizona (SR-89/SR-69)
 - US-95/SR-95 Corridor
 - CANAMEX
- **Natural Resources**
 - Copper in Safford Area
- **Emerging Industries**
 - Welton Oil Refinery
 - Warehousing
- **Sun Corridor Megapolitan**
 - Prescott
 - Phoenix
 - Tucson
- **Recreation and Tourism**

In 2005 . . .

TRAFFIC COUNTS FROM ARIZONA DEPARTMENT OF TRANSPORTATION

- **303,000 vpd** on I-10, west of SR-51 and Loop 202
- **294,000 vpd** on I-10 at the Broadway Curve
- **225,000 vpd** on I-17, north of Dunlap Ave
- **207,000 vpd** on US-60, east of Loop 101
- **176,000 vpd** on I-10, west of Loop 101
- **47,000 vpd** on I-10, east of Riggs Rd

Vpd = vehicles per day



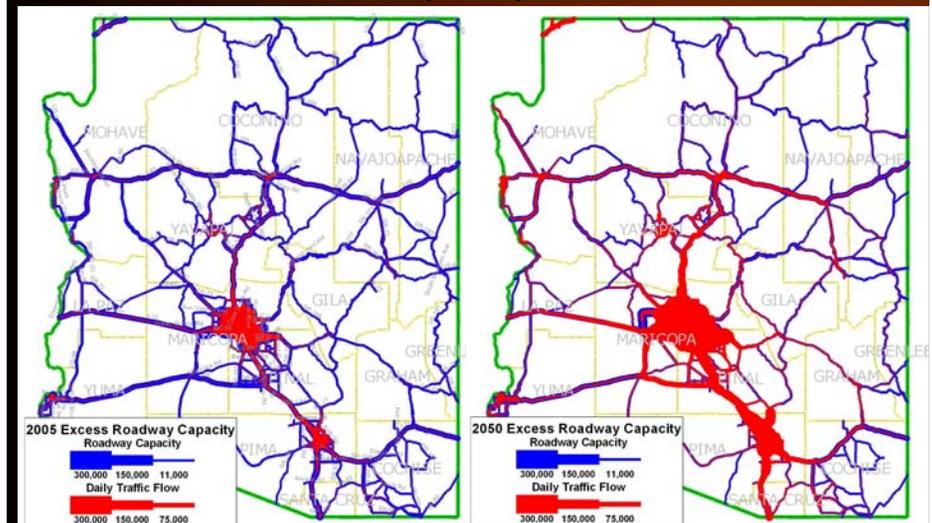
In 2050 . . .

DEMAND ESTIMATES FROM bqAZ STATEWIDE PLANNING TOOL

- **750,000 vpd** on I-10, west of SR-51 and Loop 202 (+231%)
- **660,000 vpd** on I-10 at the Broadway Curve (+224%)
- **490,000 vpd** on I-17, north of Dunlap Ave (+217%)
- **395,000 vpd** on US-60, east of Loop 101 (+190%)
- **400,000 vpd** on I-10, west of Loop 101 (+227%)
- **215,000 vpd** on I-10, east of Riggs Rd (+457%)

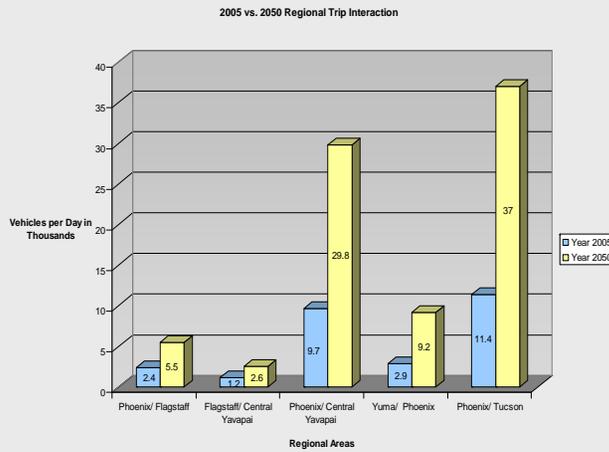
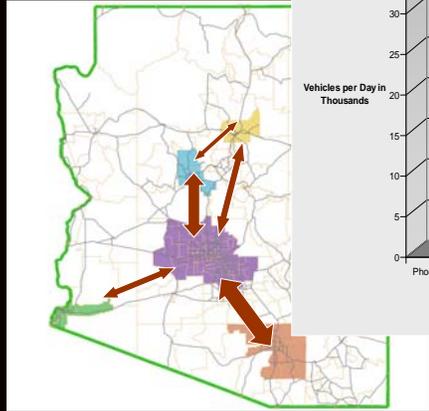
Vpd = vehicles per day

Visual Volume-to-Capacity Ratio



Statewide Travel Trends

TYPICAL WEEKDAY TRIPS



What's missing from the future . . .

STATEWIDE MOBILITY RECONNAISSANCE STUDY



- **New Transportation Corridors**
 - Connections to emerging population centers
 - Alternate routes around congestion
 - Multi-modal options for commuting
 - Facilities for increasing commercial vehicle demand



In summary, what have we learned?

Key Findings and Action Items

STATEWIDE MOBILITY RECONNAISSANCE STUDY



Unique Opportunity

FIRST FINDING – CONDUCT COLLABORATIVE PLANNING TO SHAPE GROWTH AND TRANSPORTATION FOR FUTURE GENERATIONS

Action Items:

- Establish sufficiently funded planning platform inclusive of all levels of stakeholders and government
- Invest in data tools
- Develop planning framework coalition with California, Nevada, Utah, Colorado, New Mexico, Sonora, and Baja California
- Improve border connections to facilitate a growing \$14.5 billion in trade with Mexico
- Produce initiatives that develop transportation plans with 50-year horizons



Increased Investment

SECOND FINDING – MEET GROWING TRANSPORTATION DEMAND AND KEEP ARIZONA COMPETITIVE IN THE WORLD ECONOMY



FINDINGS AND ACTION ITEMS

Action Items:

- Identify new transportation corridors and provide alternate routes
- Continue to invest in existing corridors
- Establish network of primary and secondary freight corridors for air, rail, and surface travel



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Grow Operations and Maintenance Funding

THIRD FINDING – MAKE THE MOST OF ALL TRANSPORTATION INVESTMENTS



FINDINGS AND ACTION ITEMS

Action Items:

- Incorporate technological advances from ITS and TDM
- Establish dedicated funding for operations and maintenance as part of the project's construction analysis
- Invest in new programs that improve upon incident response without compromising funding for construction and maintenance



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Strategic Transportation Investments

FOURTH FINDING – ENSURE ADEQUATE MOBILITY AND ECONOMIC PROSPERITY FOR ALL ARIZONA RESIDENTS



FINDINGS AND ACTION ITEMS

Action Items:

- Develop a permanent transportation funding program:
 - Predictable
 - Reliable
 - Affordable
 - Multi-modal
 - Multi-source
- Improve the corridor definition process through environmental streamlining to allow advance right-of-way preservation



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Coordinated and Collaborative Planning

FIFTH FINDING – PLAN LAND-USE AND TRANSPORTATION TO ACCOMMODATE ARIZONA'S SHARE OF 120 MILLION NEW AMERICAN CITIZENS BY 2050



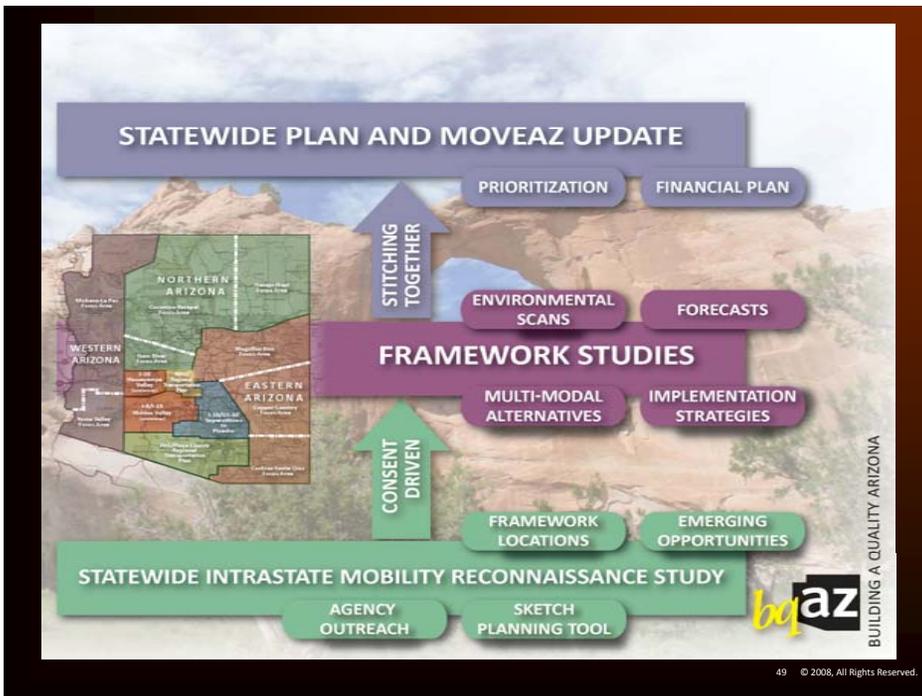
FINDINGS AND ACTION ITEMS

Action Items:

- Institute a statewide planning framework
- Expand Growing Smarter to weigh land use decisions regionally and statewide
- Reform decision-making for State Lands
- Expand the ability to incorporate decisions made by resource agencies, such as BLM, Bureau of Reclamation, USFS, USNP, and AZ State Parks



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"Always do right. This will gratify some people, and astonish the rest."
 MARK TWAIN, AMERICAN AUTHOR



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